

# Filter Summary Report: TIA,simple,Z2,Z4,ZL

Generated by MacAnalog-Symbolix

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## Contents

<b>1</b>	<b>Examined <math>H(z)</math> for TIA simple Z2 Z4 ZL:</b>	$\frac{Z_4 Z_L (Z_2 g_m + 1)}{Z_2 Z_4 g_m + 2 Z_2 Z_L g_m + Z_4 + 2 Z_L}$	<b>42</b>
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3.79 BP-79	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	81
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3.87 BP-87	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L \right)$	85
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3.89 BP-89	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	86
3.90 BP-90	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	86
3.91 BP-91	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	87
3.92 BP-92	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	87
3.93 BP-93	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	88
3.94 BP-94	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	88
3.95 BP-95	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	89
3.96 BP-96	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	89
3.97 BP-97	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$	90
3.98 BP-98	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	90
3.99 BP-99	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	91
3.100BP-100	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$	91
3.101BP-101	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$	92
3.102BP-102	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	92
3.103BP-103	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	93
3.104BP-104	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	93

<b>5 BS</b>	<b>94</b>
5.1 BS-1 $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	94
5.2 BS-2 $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	94
5.3 BS-3 $Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$	95
5.4 BS-4 $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$	95
5.5 BS-5 $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	96
5.6 BS-6 $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	96
5.7 BS-7 $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$	97
5.8 BS-8 $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$	97
5.9 BS-9 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	98
5.10 BS-10 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	98
5.11 BS-11 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$	99
5.12 BS-12 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$	99
5.13 BS-13 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	100
5.14 BS-14 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	100
5.15 BS-15 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$	101
5.16 BS-16 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$	101
5.17 BS-17 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	102
5.18 BS-18 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	102
5.19 BS-19 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$	103

5.20	BS-20	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L \right)$	103
5.21	BS-21	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	104
5.22	BS-22	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	104
5.23	BS-23	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L \right)$	105
5.24	BS-24	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L \right)$	105
5.25	BS-25	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	106
5.26	BS-26	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	106
5.27	BS-27	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L \right)$	107
5.28	BS-28	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L \right)$	107
5.29	BS-29	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	108
5.30	BS-30	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	108
5.31	BS-31	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L \right)$	109
5.32	BS-32	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L \right)$	109

<b>6</b>	<b>GE</b>		<b>110</b>
6.1	GE-1	$Z(s) = \left( \infty, R_2, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	110
6.2	GE-2	$Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	111
6.3	GE-3	$Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	111
6.4	GE-4	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	112
6.5	GE-5	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	112
6.6	GE-6	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	113



6.7	GE-7	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	113
6.8	GE-8	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	114
6.9	GE-9	$Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	114
6.10	GE-10	$Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	115
6.11	GE-11	$Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	115
6.12	GE-12	$Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	116
6.13	GE-13	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	116
6.14	GE-14	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	117
6.15	GE-15	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	117
6.16	GE-16	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	118
6.17	GE-17	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	118
6.18	GE-18	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	119
6.19	GE-19	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	119
6.20	GE-20	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	120
6.21	GE-21	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	120
6.22	GE-22	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	121
6.23	GE-23	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	121
6.24	GE-24	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	122
6.25	GE-25	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	122
6.26	GE-26	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	123
6.27	GE-27	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	123
6.28	GE-28	$Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$	124
6.29	GE-29	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	124

6.30	GE-30	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, R_4, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$	125
6.31	GE-31	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	125
6.32	GE-32	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, \frac{L_4s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$	126

## 7 AP 126

## 8 INVALID-NUMER 126

8.1	INVALID-NUMER-1	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	126
8.2	INVALID-NUMER-2	$Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	127
8.3	INVALID-NUMER-3	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	127
8.4	INVALID-NUMER-4	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	128
8.5	INVALID-NUMER-5	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	128
8.6	INVALID-NUMER-6	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	129
8.7	INVALID-NUMER-7	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	129
8.8	INVALID-NUMER-8	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	130
8.9	INVALID-NUMER-9	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	130
8.10	INVALID-NUMER-10	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	131
8.11	INVALID-NUMER-11	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	131
8.12	INVALID-NUMER-12	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	132
8.13	INVALID-NUMER-13	$Z(s) = \left( \infty, \frac{L_2s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	132
8.14	INVALID-NUMER-14	$Z(s) = \left( \infty, \frac{L_2s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	133
8.15	INVALID-NUMER-15	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	133
8.16	INVALID-NUMER-16	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	134

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10.25INVALID-ORDER-25	$Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	139
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10.30INVALID-ORDER-30	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	140
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10.32INVALID-ORDER-32	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	140
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10.35INVALID-ORDER-35	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	140
10.36INVALID-ORDER-36	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	141
10.37INVALID-ORDER-37	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	141
10.38INVALID-ORDER-38	$Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	141
10.39INVALID-ORDER-39	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$	141
10.40INVALID-ORDER-40	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	141
10.41INVALID-ORDER-41	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	142
10.42INVALID-ORDER-42	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	142
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10.44INVALID-ORDER-44	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	142
10.45INVALID-ORDER-45	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	142
10.46INVALID-ORDER-46	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	143
10.47INVALID-ORDER-47	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	143
10.48INVALID-ORDER-48	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	143
10.49INVALID-ORDER-49	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	143
10.50INVALID-ORDER-50	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	143
10.51INVALID-ORDER-51	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	143
10.52INVALID-ORDER-52	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	144
10.53INVALID-ORDER-53	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	144
10.54INVALID-ORDER-54	$Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	144
10.55INVALID-ORDER-55	$Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	144
10.56INVALID-ORDER-56	$Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	144
10.57INVALID-ORDER-57	$Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	145
10.58INVALID-ORDER-58	$Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	145
10.59INVALID-ORDER-59	$Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	145
10.60INVALID-ORDER-60	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$	145
10.61INVALID-ORDER-61	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	145
10.62INVALID-ORDER-62	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$	146
10.63INVALID-ORDER-63	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	146
10.64INVALID-ORDER-64	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	146

10.65INVALID-ORDER-65	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	146
10.66INVALID-ORDER-66	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	146
10.67INVALID-ORDER-67	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	147
10.68INVALID-ORDER-68	$Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	147
10.69INVALID-ORDER-69	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$	147
10.70INVALID-ORDER-70	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	147
10.71INVALID-ORDER-71	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	147
10.72INVALID-ORDER-72	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	148
10.73INVALID-ORDER-73	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	148
10.74INVALID-ORDER-74	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	148
10.75INVALID-ORDER-75	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	148
10.76INVALID-ORDER-76	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	148
10.77INVALID-ORDER-77	$Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	149
10.78INVALID-ORDER-78	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$	149
10.79INVALID-ORDER-79	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	149
10.80INVALID-ORDER-80	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	149
10.81INVALID-ORDER-81	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	149
10.82INVALID-ORDER-82	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	149
10.83INVALID-ORDER-83	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	150
10.84INVALID-ORDER-84	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	150

10.85INVALID-ORDER-85	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	150
10.86INVALID-ORDER-86	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	150
10.87INVALID-ORDER-87	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	150
10.88INVALID-ORDER-88	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	150
10.89INVALID-ORDER-89	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	151
10.90INVALID-ORDER-90	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	151
10.91INVALID-ORDER-91	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L \right)$	151
10.92INVALID-ORDER-92	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls} \right)$	151
10.93INVALID-ORDER-93	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	151
10.94INVALID-ORDER-94	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	151
10.95INVALID-ORDER-95	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	152
10.96INVALID-ORDER-96	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	152
10.97INVALID-ORDER-97	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	152
10.98INVALID-ORDER-98	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	152
10.99INVALID-ORDER-99	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	152
10.100INVALID-ORDER-100	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	152
10.101INVALID-ORDER-101	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	153
10.102INVALID-ORDER-102	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	153
10.103INVALID-ORDER-103	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	153
10.104INVALID-ORDER-104	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	153
10.105INVALID-ORDER-105	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	153
10.106INVALID-ORDER-106	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	154

10.10 <del>7</del> INVALID-ORDER-107	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	154
10.10 <del>8</del> INVALID-ORDER-108	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	154
10.10 <del>9</del> INVALID-ORDER-109	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	154
10.11 <del>0</del> INVALID-ORDER-110	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	154
10.11 <del>1</del> INVALID-ORDER-111	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	155
10.11 <del>2</del> INVALID-ORDER-112	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	155
10.11 <del>3</del> INVALID-ORDER-113	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	155
10.11 <del>4</del> INVALID-ORDER-114	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	155
10.11 <del>5</del> INVALID-ORDER-115	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	155
10.11 <del>6</del> INVALID-ORDER-116	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls} \right)$	156
10.11 <del>7</del> INVALID-ORDER-117	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L + \frac{1}{C_Ls} \right)$	156
10.11 <del>8</del> INVALID-ORDER-118	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	156
10.11 <del>9</del> INVALID-ORDER-119	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	156
10.12 <del>0</del> INVALID-ORDER-120	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	156
10.12 <del>1</del> INVALID-ORDER-121	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	156
10.12 <del>2</del> INVALID-ORDER-122	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	157
10.12 <del>3</del> INVALID-ORDER-123	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	157
10.12 <del>4</del> INVALID-ORDER-124	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	157
10.12 <del>5</del> INVALID-ORDER-125	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	157
10.12 <del>6</del> INVALID-ORDER-126	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	157
10.12 <del>7</del> INVALID-ORDER-127	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	158
10.12 <del>8</del> INVALID-ORDER-128	$Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	158



10.12	INVALID-ORDER-129	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	158
10.13	INVALID-ORDER-130	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	158
10.13	INVALID-ORDER-131	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	158
10.13	INVALID-ORDER-132	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	159
10.13	INVALID-ORDER-133	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	159
10.13	INVALID-ORDER-134	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	159
10.13	INVALID-ORDER-135	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	159
10.13	INVALID-ORDER-136	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	159
10.13	INVALID-ORDER-137	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$	160
10.13	INVALID-ORDER-138	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	160
10.13	INVALID-ORDER-139	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$	160
10.14	INVALID-ORDER-140	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	160
10.14	INVALID-ORDER-141	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	160
10.14	INVALID-ORDER-142	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	160
10.14	INVALID-ORDER-143	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	161
10.14	INVALID-ORDER-144	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	161
10.14	INVALID-ORDER-145	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	161
10.14	INVALID-ORDER-146	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$	161
10.14	INVALID-ORDER-147	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	161

10.148INVALID-ORDER-148	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	162
10.149INVALID-ORDER-149	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	162
10.150INVALID-ORDER-150	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	162
10.151INVALID-ORDER-151	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	162
10.152INVALID-ORDER-152	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	162
10.153INVALID-ORDER-153	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	163
10.154INVALID-ORDER-154	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	163
10.155INVALID-ORDER-155	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, R_L \right)$	163
10.156INVALID-ORDER-156	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	163
10.157INVALID-ORDER-157	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	163
10.158INVALID-ORDER-158	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	164
10.159INVALID-ORDER-159	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	164
10.160INVALID-ORDER-160	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	164
10.161INVALID-ORDER-161	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	164
10.162INVALID-ORDER-162	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	164
10.163INVALID-ORDER-163	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	164
10.164INVALID-ORDER-164	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	165
10.165INVALID-ORDER-165	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	165
10.166INVALID-ORDER-166	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	165
10.167INVALID-ORDER-167	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	165
10.168INVALID-ORDER-168	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$	165

10.169	INVALID-ORDER-169	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$	165
10.170	INVALID-ORDER-170	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	166
10.171	INVALID-ORDER-171	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	166
10.172	INVALID-ORDER-172	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	166
10.173	INVALID-ORDER-173	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	166
10.174	INVALID-ORDER-174	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	166
10.175	INVALID-ORDER-175	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$	167
10.176	INVALID-ORDER-176	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	167
10.177	INVALID-ORDER-177	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	167
10.178	INVALID-ORDER-178	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	167
10.179	INVALID-ORDER-179	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	167
10.180	INVALID-ORDER-180	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	167
10.181	INVALID-ORDER-181	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	168
10.182	INVALID-ORDER-182	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	168
10.183	INVALID-ORDER-183	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	168
10.184	INVALID-ORDER-184	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	168
10.185	INVALID-ORDER-185	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	168
10.186	INVALID-ORDER-186	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	169
10.187	INVALID-ORDER-187	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	169
10.188	INVALID-ORDER-188	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	169
10.189	INVALID-ORDER-189	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	169
10.190	INVALID-ORDER-190	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	169

10.19	INVALID-ORDER-191	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	170
10.19	INVALID-ORDER-192	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	170
10.19	INVALID-ORDER-193	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$	170
10.19	INVALID-ORDER-194	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	170
10.19	INVALID-ORDER-195	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	170
10.19	INVALID-ORDER-196	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	170
10.19	INVALID-ORDER-197	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	171
10.19	INVALID-ORDER-198	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	171
10.19	INVALID-ORDER-199	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	171
10.20	INVALID-ORDER-200	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	171
10.20	INVALID-ORDER-201	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	171
10.20	INVALID-ORDER-202	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	172
10.20	INVALID-ORDER-203	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	172
10.20	INVALID-ORDER-204	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	172
10.20	INVALID-ORDER-205	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	172
10.20	INVALID-ORDER-206	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	172
10.20	INVALID-ORDER-207	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	173
10.20	INVALID-ORDER-208	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	173
10.20	INVALID-ORDER-209	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	173
10.21	INVALID-ORDER-210	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	173
10.21	INVALID-ORDER-211	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	173

10.21 <del>2</del> INVALID-ORDER-212	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	174
10.21 <del>3</del> INVALID-ORDER-213	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	174
10.21 <del>4</del> INVALID-ORDER-214	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$	174
10.21 <del>5</del> INVALID-ORDER-215	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	174
10.21 <del>6</del> INVALID-ORDER-216	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$	174
10.21 <del>7</del> INVALID-ORDER-217	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	175
10.21 <del>8</del> INVALID-ORDER-218	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	175
10.21 <del>9</del> INVALID-ORDER-219	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	175
10.22 <del>0</del> INVALID-ORDER-220	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	175
10.22INVALID-ORDER-221	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	175
10.22 <del>2</del> INVALID-ORDER-222	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$	176
10.22 <del>3</del> INVALID-ORDER-223	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$	176
10.22 <del>4</del> INVALID-ORDER-224	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	176
10.22 <del>5</del> INVALID-ORDER-225	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	176
10.22 <del>6</del> INVALID-ORDER-226	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	176
10.22 <del>7</del> INVALID-ORDER-227	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	177
10.22 <del>8</del> INVALID-ORDER-228	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	177
10.22 <del>9</del> INVALID-ORDER-229	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	177
10.23 <del>0</del> INVALID-ORDER-230	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	177

10.23	INVALID-ORDER-231	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	177
10.23	INVALID-ORDER-232	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$	178
10.23	INVALID-ORDER-233	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	178
10.23	INVALID-ORDER-234	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	178
10.23	INVALID-ORDER-235	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	178
10.23	INVALID-ORDER-236	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	178
10.23	INVALID-ORDER-237	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	178
10.23	INVALID-ORDER-238	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	179
10.23	INVALID-ORDER-239	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	179
10.24	INVALID-ORDER-240	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	179
10.24	INVALID-ORDER-241	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	179
10.24	INVALID-ORDER-242	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	179
10.24	INVALID-ORDER-243	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	179
10.24	INVALID-ORDER-244	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	180
10.24	INVALID-ORDER-245	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$	180
10.24	INVALID-ORDER-246	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$	180
10.24	INVALID-ORDER-247	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	180
10.24	INVALID-ORDER-248	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	180
10.24	INVALID-ORDER-249	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	180
10.25	INVALID-ORDER-250	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	181
10.25	INVALID-ORDER-251	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	181
10.25	INVALID-ORDER-252	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$	181
10.25	INVALID-ORDER-253	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	181

10.251INVALID-ORDER-254	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	181
10.252INVALID-ORDER-255	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	181
10.253INVALID-ORDER-256	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	182
10.254INVALID-ORDER-257	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	182
10.255INVALID-ORDER-258	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	182
10.256INVALID-ORDER-259	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	182
10.260INVALID-ORDER-260	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	182
10.261INVALID-ORDER-261	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	183
10.262INVALID-ORDER-262	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	183
10.263INVALID-ORDER-263	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	183
10.264INVALID-ORDER-264	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	183
10.265INVALID-ORDER-265	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	183
10.266INVALID-ORDER-266	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	183
10.267INVALID-ORDER-267	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	184
10.268INVALID-ORDER-268	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	184
10.269INVALID-ORDER-269	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	184
10.270INVALID-ORDER-270	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls} \right)$	184
10.271INVALID-ORDER-271	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L + \frac{1}{C_Ls} \right)$	184
10.272INVALID-ORDER-272	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	185
10.273INVALID-ORDER-273	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	185
10.274INVALID-ORDER-274	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	185
10.275INVALID-ORDER-275	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	185

10.276INVALID-ORDER-276	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	185
10.277INVALID-ORDER-277	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	186
10.278INVALID-ORDER-278	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	186
10.279INVALID-ORDER-279	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	186
10.280INVALID-ORDER-280	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	186
10.281INVALID-ORDER-281	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	186
10.282INVALID-ORDER-282	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	186
10.283INVALID-ORDER-283	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	187
10.284INVALID-ORDER-284	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	187
10.285INVALID-ORDER-285	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	187
10.286INVALID-ORDER-286	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$	187
10.287INVALID-ORDER-287	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	187
10.288INVALID-ORDER-288	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	188
10.289INVALID-ORDER-289	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	188
10.290INVALID-ORDER-290	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	188
10.291INVALID-ORDER-291	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls} \right)$	188
10.292INVALID-ORDER-292	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	188
10.293INVALID-ORDER-293	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$	189
10.294INVALID-ORDER-294	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	189
10.295INVALID-ORDER-295	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	189
10.296INVALID-ORDER-296	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	189



10.297	INVALID-ORDER-297	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	189
10.298	INVALID-ORDER-298	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	190
10.299	INVALID-ORDER-299	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	190
10.300	INVALID-ORDER-300	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$	190
10.301	INVALID-ORDER-301	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	190
10.302	INVALID-ORDER-302	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	190
10.303	INVALID-ORDER-303	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	191
10.304	INVALID-ORDER-304	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	191
10.305	INVALID-ORDER-305	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	191
10.306	INVALID-ORDER-306	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	191
10.307	INVALID-ORDER-307	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	191
10.308	INVALID-ORDER-308	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	192
10.309	INVALID-ORDER-309	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$	192
10.310	INVALID-ORDER-310	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	192
10.311	INVALID-ORDER-311	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	192
10.312	INVALID-ORDER-312	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	192
10.313	INVALID-ORDER-313	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	192
10.314	INVALID-ORDER-314	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	193
10.315	INVALID-ORDER-315	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	193
10.316	INVALID-ORDER-316	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	193

10.31 <del>INVALID-ORDER-317</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	193
10.31 <del>INVALID-ORDER-318</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	193
10.31 <del>INVALID-ORDER-319</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	193
10.32 <del>INVALID-ORDER-320</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	194
10.32 <del>INVALID-ORDER-321</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	194
10.32 <del>INVALID-ORDER-322</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L \right)$	194
10.32 <del>INVALID-ORDER-323</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls} \right)$	194
10.32 <del>INVALID-ORDER-324</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	194
10.32 <del>INVALID-ORDER-325</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	194
10.32 <del>INVALID-ORDER-326</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	195
10.32 <del>INVALID-ORDER-327</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	195
10.32 <del>INVALID-ORDER-328</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	195
10.32 <del>INVALID-ORDER-329</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	195
10.33 <del>INVALID-ORDER-330</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	195
10.33 <del>INVALID-ORDER-331</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	195
10.33 <del>INVALID-ORDER-332</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	196
10.33 <del>INVALID-ORDER-333</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	196
10.33 <del>INVALID-ORDER-334</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	196
10.33 <del>INVALID-ORDER-335</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	196
10.33 <del>INVALID-ORDER-336</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	196
10.33 <del>INVALID-ORDER-337</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	197
10.33 <del>INVALID-ORDER-338</del>	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	197

10.339	INVALID-ORDER-339	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	197
10.340	INVALID-ORDER-340	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	197
10.341	INVALID-ORDER-341	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	197
10.342	INVALID-ORDER-342	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	198
10.343	INVALID-ORDER-343	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	198
10.344	INVALID-ORDER-344	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	198
10.345	INVALID-ORDER-345	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	198
10.346	INVALID-ORDER-346	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	198
10.347	INVALID-ORDER-347	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls} \right)$	199
10.348	INVALID-ORDER-348	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L + \frac{1}{C_Ls} \right)$	199
10.349	INVALID-ORDER-349	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	199
10.350	INVALID-ORDER-350	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	199
10.351	INVALID-ORDER-351	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	199
10.352	INVALID-ORDER-352	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	199
10.353	INVALID-ORDER-353	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	200
10.354	INVALID-ORDER-354	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	200
10.355	INVALID-ORDER-355	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	200
10.356	INVALID-ORDER-356	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	200
10.357	INVALID-ORDER-357	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	200
10.358	INVALID-ORDER-358	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	201
10.359	INVALID-ORDER-359	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	201
10.360	INVALID-ORDER-360	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	201

10.361	INVALID-ORDER-361	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	201
10.362	INVALID-ORDER-362	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	201
10.363	INVALID-ORDER-363	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$	202
10.364	INVALID-ORDER-364	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	202
10.365	INVALID-ORDER-365	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	202
10.366	INVALID-ORDER-366	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	202
10.367	INVALID-ORDER-367	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	202
10.368	INVALID-ORDER-368	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls} \right)$	203
10.369	INVALID-ORDER-369	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	203
10.370	INVALID-ORDER-370	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$	203
10.371	INVALID-ORDER-371	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	203
10.372	INVALID-ORDER-372	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	203
10.373	INVALID-ORDER-373	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	203
10.374	INVALID-ORDER-374	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	204
10.375	INVALID-ORDER-375	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	204
10.376	INVALID-ORDER-376	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	204
10.377	INVALID-ORDER-377	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls} \right)$	204
10.378	INVALID-ORDER-378	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	204
10.379	INVALID-ORDER-379	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$	205

10.380INVALID-ORDER-380	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	205
10.381INVALID-ORDER-381	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	205
10.382INVALID-ORDER-382	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	205
10.383INVALID-ORDER-383	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	205
10.384INVALID-ORDER-384	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	206
10.385INVALID-ORDER-385	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	206
10.386INVALID-ORDER-386	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, R_L \right)$	206
10.387INVALID-ORDER-387	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{1}{C_Ls} \right)$	206
10.388INVALID-ORDER-388	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	206
10.389INVALID-ORDER-389	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, R_L + \frac{1}{C_Ls} \right)$	207
10.390INVALID-ORDER-390	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L \right)$	207
10.391INVALID-ORDER-391	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	207
10.392INVALID-ORDER-392	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	207
10.393INVALID-ORDER-393	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	207
10.394INVALID-ORDER-394	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	207
10.395INVALID-ORDER-395	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	208
10.396INVALID-ORDER-396	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	208
10.397INVALID-ORDER-397	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	208
10.398INVALID-ORDER-398	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	208
10.399INVALID-ORDER-399	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s + 1}, \infty, R_L \right)$	208
10.400INVALID-ORDER-400	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s + 1}, \infty, \frac{1}{C_Ls} \right)$	208

10.40	INVALID-ORDER-401	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	209
10.40	INVALID-ORDER-402	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	209
10.40	INVALID-ORDER-403	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	209
10.40	INVALID-ORDER-404	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	209
10.40	INVALID-ORDER-405	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	209
10.40	INVALID-ORDER-406	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L \right)$	210
10.40	INVALID-ORDER-407	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	210
10.40	INVALID-ORDER-408	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	210
10.40	INVALID-ORDER-409	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	210
10.41	INVALID-ORDER-410	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	210
10.41	INVALID-ORDER-411	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	210
10.41	INVALID-ORDER-412	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	211
10.41	INVALID-ORDER-413	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	211
10.41	INVALID-ORDER-414	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	211
10.41	INVALID-ORDER-415	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	211
10.41	INVALID-ORDER-416	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	211
10.41	INVALID-ORDER-417	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	212
10.41	INVALID-ORDER-418	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	212
10.41	INVALID-ORDER-419	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	212
10.42	INVALID-ORDER-420	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	212
10.42	INVALID-ORDER-421	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	212
10.42	INVALID-ORDER-422	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	213

10.42	INVALID-ORDER-423	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	213
10.42	INVALID-ORDER-424	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, \frac{1}{C_Ls} \right)$	213
10.42	INVALID-ORDER-425	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, R_L + \frac{1}{C_Ls} \right)$	213
10.42	INVALID-ORDER-426	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	213
10.42	INVALID-ORDER-427	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	213
10.42	INVALID-ORDER-428	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	214
10.42	INVALID-ORDER-429	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	214
10.43	INVALID-ORDER-430	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	214
10.43	INVALID-ORDER-431	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$	214
10.43	INVALID-ORDER-432	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	214
10.43	INVALID-ORDER-433	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$	215
10.43	INVALID-ORDER-434	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	215
10.43	INVALID-ORDER-435	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	215
10.43	INVALID-ORDER-436	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	215
10.43	INVALID-ORDER-437	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	215
10.43	INVALID-ORDER-438	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	216
10.43	INVALID-ORDER-439	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	216
10.44	INVALID-ORDER-440	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$	216
10.44	INVALID-ORDER-441	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	216
10.44	INVALID-ORDER-442	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	216
10.44	INVALID-ORDER-443	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	217

10.44	INVALID-ORDER-444	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	217
10.44	INVALID-ORDER-445	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{1}{C_Ls} \right)$	217
10.44	INVALID-ORDER-446	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_Ls + 1} \right)$	217
10.44	INVALID-ORDER-447	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$	217
10.44	INVALID-ORDER-448	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$	218
10.44	INVALID-ORDER-449	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{L_Ls}{C_L L_Ls^2 + 1} \right)$	218
10.45	INVALID-ORDER-450	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	218
10.45	INVALID-ORDER-451	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	218
10.45	INVALID-ORDER-452	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{L_Ls}{C_L L_Ls^2 + 1} + R_L \right)$	218
10.45	INVALID-ORDER-453	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	219
10.45	INVALID-ORDER-454	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls} \right)$	219
10.45	INVALID-ORDER-455	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L}{C_L R_Ls + 1} \right)$	219
10.45	INVALID-ORDER-456	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$	219
10.45	INVALID-ORDER-457	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$	219
10.45	INVALID-ORDER-458	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_L L_Ls^2 + 1} \right)$	220
10.45	INVALID-ORDER-459	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	220
10.46	INVALID-ORDER-460	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	220
10.46	INVALID-ORDER-461	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_L L_Ls^2 + 1} + R_L \right)$	220
10.46	INVALID-ORDER-462	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	220



10.463	INVALID-ORDER-463	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, R_L \right)$	221
10.464	INVALID-ORDER-464	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	221
10.465	INVALID-ORDER-465	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	221
10.466	INVALID-ORDER-466	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	221
10.467	INVALID-ORDER-467	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	221
10.468	INVALID-ORDER-468	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	221
10.469	INVALID-ORDER-469	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	222
10.470	INVALID-ORDER-470	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	222
10.471	INVALID-ORDER-471	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	222
10.472	INVALID-ORDER-472	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	222
10.473	INVALID-ORDER-473	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	222
10.474	INVALID-ORDER-474	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	222
10.475	INVALID-ORDER-475	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	223
10.476	INVALID-ORDER-476	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$	223
10.477	INVALID-ORDER-477	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$	223
10.478	INVALID-ORDER-478	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	223
10.479	INVALID-ORDER-479	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	223
10.480	INVALID-ORDER-480	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	223
10.481	INVALID-ORDER-481	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	224
10.482	INVALID-ORDER-482	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	224
10.483	INVALID-ORDER-483	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$	224
10.484	INVALID-ORDER-484	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	224
10.485	INVALID-ORDER-485	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	224

10.486INVALID-ORDER-486	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	224
10.487INVALID-ORDER-487	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	225
10.488INVALID-ORDER-488	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	225
10.489INVALID-ORDER-489	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	225
10.490INVALID-ORDER-490	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	225
10.491INVALID-ORDER-491	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	225
10.492INVALID-ORDER-492	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	226
10.493INVALID-ORDER-493	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	226
10.494INVALID-ORDER-494	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	226
10.495INVALID-ORDER-495	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	226
10.496INVALID-ORDER-496	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	226
10.497INVALID-ORDER-497	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	226
10.498INVALID-ORDER-498	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	227
10.499INVALID-ORDER-499	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	227
10.500INVALID-ORDER-500	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	227
10.501INVALID-ORDER-501	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$	227
10.502INVALID-ORDER-502	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	227
10.503INVALID-ORDER-503	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	228
10.504INVALID-ORDER-504	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	228
10.505INVALID-ORDER-505	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	228
10.506INVALID-ORDER-506	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	228
10.507INVALID-ORDER-507	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	228

10.50 <del>INVALID-ORDER-508</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	229
10.50 <del>INVALID-ORDER-509</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	229
10.51 <del>INVALID-ORDER-510</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	229
10.51 <del>INVALID-ORDER-511</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	229
10.51 <del>INVALID-ORDER-512</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	229
10.51 <del>INVALID-ORDER-513</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	229
10.51 <del>INVALID-ORDER-514</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	230
10.51 <del>INVALID-ORDER-515</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	230
10.51 <del>INVALID-ORDER-516</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	230
10.51 <del>INVALID-ORDER-517</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	230
10.51 <del>INVALID-ORDER-518</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	230
10.51 <del>INVALID-ORDER-519</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	231
10.52 <del>INVALID-ORDER-520</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	231
10.52 <del>INVALID-ORDER-521</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	231
10.52 <del>INVALID-ORDER-522</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$	231
10.52 <del>INVALID-ORDER-523</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	231
10.52 <del>INVALID-ORDER-524</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$	232
10.52 <del>INVALID-ORDER-525</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$	232
10.52 <del>INVALID-ORDER-526</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	232
10.52 <del>INVALID-ORDER-527</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	232
10.52 <del>INVALID-ORDER-528</del>	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	232

10.529INVALID-ORDER-529	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	233
10.530INVALID-ORDER-530	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	233
10.531INVALID-ORDER-531	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$	233
10.532INVALID-ORDER-532	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	233
10.533INVALID-ORDER-533	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	233
10.534INVALID-ORDER-534	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	234
10.535INVALID-ORDER-535	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	234
10.536INVALID-ORDER-536	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	234
10.537INVALID-ORDER-537	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	234
10.538INVALID-ORDER-538	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	234
10.539INVALID-ORDER-539	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	235
10.540INVALID-ORDER-540	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, R_L \right)$	235
10.541INVALID-ORDER-541	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$	235
10.542INVALID-ORDER-542	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	235
10.543INVALID-ORDER-543	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$	235
10.544INVALID-ORDER-544	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$	236
10.545INVALID-ORDER-545	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	236

10.546INVALID-ORDER-546	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	236
10.547INVALID-ORDER-547	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	236
10.548INVALID-ORDER-548	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	236
10.549INVALID-ORDER-549	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	237
10.550INVALID-ORDER-550	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	237
10.551INVALID-ORDER-551	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	237
10.552INVALID-ORDER-552	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	237
10.553INVALID-ORDER-553	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$	237
10.554INVALID-ORDER-554	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$	238
10.555INVALID-ORDER-555	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	238
10.556INVALID-ORDER-556	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	238
10.557INVALID-ORDER-557	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	238
10.558INVALID-ORDER-558	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	238
10.559INVALID-ORDER-559	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	239
10.560INVALID-ORDER-560	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$	239
10.561INVALID-ORDER-561	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	239
10.562INVALID-ORDER-562	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	239

10.563INVALID-ORDER-563	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	239
10.564INVALID-ORDER-564	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	240
10.565INVALID-ORDER-565	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	240
10.566INVALID-ORDER-566	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	240
10.567INVALID-ORDER-567	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	240
10.568INVALID-ORDER-568	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	240
10.569INVALID-ORDER-569	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	241
10.570INVALID-ORDER-570	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	241
10.571INVALID-ORDER-571	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	241
10.572INVALID-ORDER-572	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	241
10.573INVALID-ORDER-573	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	241
10.574INVALID-ORDER-574	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	242
10.575INVALID-ORDER-575	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	242
10.576INVALID-ORDER-576	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	242
10.577INVALID-ORDER-577	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	242
10.578INVALID-ORDER-578	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$	242
10.579INVALID-ORDER-579	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$	243

10.580INVALID-ORDER-580	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$	243
10.581INVALID-ORDER-581	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	243
10.582INVALID-ORDER-582	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	243
10.583INVALID-ORDER-583	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	243
10.584INVALID-ORDER-584	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	244
10.585INVALID-ORDER-585	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$	244
10.586INVALID-ORDER-586	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	244
10.587INVALID-ORDER-587	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$	244
10.588INVALID-ORDER-588	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$	244
10.589INVALID-ORDER-589	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	245
10.590INVALID-ORDER-590	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	245
10.591INVALID-ORDER-591	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	245
10.592INVALID-ORDER-592	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	245
10.593INVALID-ORDER-593	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	245
10.594INVALID-ORDER-594	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$	246
10.595INVALID-ORDER-595	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$	246
10.596INVALID-ORDER-596	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	246





10.614	INVALID-ORDER-614	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	250
10.615	INVALID-ORDER-615	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	250
10.616	INVALID-ORDER-616	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	250

**1 Examined  $H(z)$  for TIA simple Z2 Z4 ZL:**  $\frac{Z_4 Z_L (Z_2 g_m + 1)}{Z_2 Z_4 g_m + 2 Z_2 Z_L g_m + Z_4 + 2 Z_L}$

$$H(z) = \frac{Z_4 Z_L (Z_2 g_m + 1)}{Z_2 Z_4 g_m + 2 Z_2 Z_L g_m + Z_4 + 2 Z_L}$$

**2 HP**

**3 BP**

**3.1 BP-1**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2 L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.2 BP-2**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{C_L R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 QZ: 0  
 WZ: None

**3.3 BP-3**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 WZ: None

**3.4 BP-4**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 QZ: 0  
 Wz: None

**3.5 BP-5**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{R_4+2R_L}{R_4 R_L(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4+2R_L}$   
 QZ: 0  
 Wz: None

**3.6 BP-6**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$   
 wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.7 BP-7**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_4R_Ls^2 + L_4s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4 + C_L)$   
 wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.8 BP-8**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}(2C_4 + C_L)$   
 wo:  $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

**3.9 BP-9**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$   
wo:  $\sqrt{\frac{1}{C_4 L_4}}$   
bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
QZ: 0  
Wz: None

**3.10 BP-10**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$   
wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$   
bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$   
K-LP: 0

K-HP: 0  
K-BP:  $\frac{R_4}{2}$   
QZ: 0  
Wz: None

$$\mathbf{3.11 \quad BP-11} \quad Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$   
wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$   
bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
QZ: 0  
Wz: None

$$\mathbf{3.12 \quad BP-12} \quad Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$   
wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$   
bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$   
K-LP: 0

K-HP: 0  
K-BP:  $\frac{R_4}{2}$   
QZ: 0  
Wz: None

**3.13 BP-13**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$   
wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$   
bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
QZ: 0  
Wz: None

**3.14 BP-14**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{2}{C_L R_4}$   
K-LP: 0  
K-HP: 0



K-BP:  $\frac{R_4}{2}$   
 QZ: 0  
 Wz: None

**3.15 BP-15**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2 R_L}$   
 QZ: 0  
 Wz: None

**3.16 BP-16**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (2 C_4 + C_L)}} (2 C_4 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (2 C_4 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (2 C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$

Qz: 0  
Wz: None

**3.17 BP-17**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}}(2C_4 + C_L)}{2}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$   
 bandwidth:  $\frac{2}{R_4(2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 Qz: 0  
 Wz: None

**3.18 BP-18**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}}(2C_4 + C_L)}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L(2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 Qz: 0

Wz: None

**3.19 BP-19**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.20 BP-20**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.21 BP-21**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.22 BP-22**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

**3.23 BP-23**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.24 BP-24**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

**3.25 BP-25**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.26 BP-26**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

**3.27 BP-27**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2 L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.28 BP-28**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2 R_L}$

QZ: 0

Wz: None

**3.29 BP-29**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.30 BP-30**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None



**3.31 BP-31**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.32 BP-32**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.33 BP-33**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.34 BP-34**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.35 BP-35**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{C_4 L_4}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 Qz: 0  
 Wz: None

**3.36 BP-36**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$   
 wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$   
 bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 Qz: 0  
 Wz: None

**3.37 BP-37**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.38 BP-38**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.39 BP-39**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.40 BP-40**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.41 BP-41**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{C_L R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 QZ: 0  
 Wz: None

**3.42 BP-42**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.43 BP-43**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{2}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 QZ: 0  
 Wz: None

**3.44 BP-44**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{R_4+2R_L}{R_4 R_L(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4+2R_L}$   
 QZ: 0  
 Wz: None

**3.45 BP-45**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.46 BP-46**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None



**3.47 BP-47**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.48 BP-48**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

**3.49 BP-49**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

WZ: None

**3.50 BP-50**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

WZ: None

**3.51 BP-51**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

WZ: None

**3.52 BP-52**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

WZ: None

**3.53 BP-53**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_LR_4s}{C_LL_LR_4s^2 + 2L_Ls + R_4}$$

**Parameters:**

Q:  $\frac{C_LR_4\sqrt{\frac{1}{C_LL_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_LL_L}}$

bandwidth:  $\frac{2}{C_LR_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.54 BP-54**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_4R_Ls}{C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

**Parameters:**

Q:  $\frac{C_LR_4R_L\sqrt{\frac{1}{C_LL_L}}}{R_4+2R_L}$

wo:  $\sqrt{\frac{1}{C_LL_L}}$

bandwidth:  $\frac{R_4+2R_L}{C_LR_4R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz: 0

Wz: None

**3.55 BP-55**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls}{2C_4L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.56 BP-56**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_LR_4s}{2C_4L_LR_4s^2 + C_LL_LR_4s^2 + 2L_Ls + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4+C_L)}} (2C_4+C_L)}{2}$

wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$

bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.57 BP-57**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_4R_Ls}{2C_4L_LR_4R_Ls^2 + C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

**Parameters:**

Q:  $\frac{R_4R_L\sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$

wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$

bandwidth:  $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz: 0

Wz: None

**3.58 BP-58**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + L_4s + 2R_L}$$

**Parameters:**

Q:  $2C_4R_L\sqrt{\frac{1}{C_4L_4}}$

wo:  $\sqrt{\frac{1}{C_4L_4}}$

bandwidth:  $\frac{1}{2C_4R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.59 BP-59**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_4R_Ls^2 + L_4s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.60 BP-60**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.61 BP-61**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4R_4R_Ls}{2C_4L_4R_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

**Parameters:**

Q:  $\frac{2C_4R_4R_L\sqrt{\frac{1}{C_4L_4}}}{R_4+2R_L}$   
 wo:  $\sqrt{\frac{1}{C_4L_4}}$   
 bandwidth:  $\frac{R_4+2R_L}{2C_4R_4R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4R_L}{R_4+2R_L}$   
 Qz: 0  
 Wz: None

**3.62 BP-62**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s}{2C_4L_4R_4s^2 + C_LL_4R_4s^2 + 2L_4s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2}R_4\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{2}$   
 wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$   
 bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 Qz: 0  
 Wz: None



**3.63 BP-63**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$

$$H(s) = \frac{L_4R_4R_Ls}{2C_4L_4R_4R_Ls^2 + C_LL_4R_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2}R_4R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$

wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth:  $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz: 0

Wz: None

**3.64 BP-64**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_4L_LR_4s}{2C_4L_4L_LR_4s^2 + C_LL_4L_LR_4s^2 + 2L_4L_Ls + L_4R_4 + 2L_LR_4}$$

**Parameters:**

Q:  $\frac{R_4\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}(2C_4+C_L)}{2}$

wo:  $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.65 BP-65**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_4R_Ls}{2C_4L_4L_LR_4R_Ls^2 + C_LL_4L_LR_4R_Ls^2 + L_4L_LR_4s + 2L_4L_LR_Ls + L_4R_4R_L + 2L_LR_4R_L}$$

**Parameters:**

Q:  $\frac{R_4R_L\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$

wo:  $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth:  $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz: 0

Wz: None

**3.66 BP-66**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_LR_4s}{C_LL_LR_4s^2 + 2L_Ls + R_4}$$

**Parameters:**

Q:  $\frac{C_LR_4\sqrt{\frac{1}{C_LL_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_LL_L}}$

bandwidth:  $\frac{2}{C_LR_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.67 BP-67**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_4R_Ls}{C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

**Parameters:**

Q:  $\frac{C_LR_4R_L\sqrt{\frac{1}{C_LL_L}}}{R_4+2R_L}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_4+2R_L}{C_LR_4R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4R_L}{R_4+2R_L}$   
 QZ: 0  
 Wz: None

**3.68 BP-68**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls}{2C_4L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.69 BP-69**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_LR_4s}{2C_4L_LR_4s^2 + C_LL_LR_4s^2 + 2L_Ls + R_4}$$

**Parameters:**

Q:  $\frac{R_4\sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{2}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 QZ: 0  
 Wz: None

**3.70 BP-70**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_4R_Ls}{2C_4L_LR_4R_Ls^2 + C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

**Parameters:**

Q:  $\frac{R_4R_L\sqrt{\frac{1}{L_L(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(2C_4+C_L)}}$   
 bandwidth:  $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4R_L}{R_4+2R_L}$   
 QZ: 0  
 Wz: None

**3.71 BP-71**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + L_4s + 2R_L}$$

**Parameters:**

Q:  $2C_4R_L\sqrt{\frac{1}{C_4L_4}}$

wo:  $\sqrt{\frac{1}{C_4L_4}}$

bandwidth:  $\frac{1}{2C_4R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.72 BP-72**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_Ls}{2C_4L_4R_Ls^2 + C_LR_Ls^2 + L_4s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2}R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.73 BP-73**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_4L_LR_Ls}{2C_4L_4L_LR_Ls^2 + C_LL_4L_LR_Ls^2 + L_4L_Ls + L_4R_L + 2L_LR_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4+2L_L}{L_4L_L(2C_4+C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.74 BP-74**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4R_4R_Ls}{2C_4L_4R_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

**Parameters:**

Q:  $\frac{2C_4R_4R_L \sqrt{\frac{1}{C_4L_4}}}{R_4+2R_L}$

wo:  $\sqrt{\frac{1}{C_4L_4}}$

bandwidth:  $\frac{R_4+2R_L}{2C_4R_4R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

QZ: 0

Wz: None

**3.75 BP-75**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s}{2C_4L_4R_4s^2 + C_LL_4R_4s^2 + 2L_4s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2}R_4\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{2}$

wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth:  $\frac{2}{R_4(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.76 BP-76**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_4R_4R_Ls}{2C_4L_4R_4R_Ls^2 + C_LL_4R_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2}R_4R_L\sqrt{\frac{1}{L_4(2C_4+C_L)}}(2C_4+C_L)}{R_4+2R_L}$

wo:  $\sqrt{2}\sqrt{\frac{1}{L_4(2C_4+C_L)}}$

bandwidth:  $\frac{R_4+2R_L}{R_4R_L(2C_4+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

QZ: 0

Wz: None

$$3.77 \quad \text{BP-77} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

$$\text{Q: } \frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$$

$$\text{wo: } \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{2}{R_4 (2C_4 + C_L)}$$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

$$3.78 \quad \text{BP-78} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

$$\text{Q: } \frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None



**3.79 BP-79**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2 L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.80 BP-80**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2 R_L}$

QZ: 0

Wz: None

**3.81 BP-81**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.82 BP-82**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L(2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{1}{L_L(2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.83 BP-83**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.84 BP-84**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.85 BP-85**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2} R_L \sqrt{\frac{1}{L_4(2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4(2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.86 BP-86**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L(2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L(2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L(2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.87 BP-87**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{C_4 L_4}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 Qz: 0  
 Wz: None

**3.88 BP-88**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$   
 wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$   
 bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4}{2}$   
 Qz: 0  
 Wz: None

**3.89 BP-89**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.90 BP-90**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.91 BP-91**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.92 BP-92**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{C_L R_4 \sqrt{\frac{1}{C_L L_L}}}{2}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{2}{C_L R_4}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.93 BP-93**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{C_L L_L R_4 R_L s^2 + L_L R_4 s + 2 L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_4 R_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_4 + 2 R_L}{C_L R_4 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_4 R_L}{R_4 + 2 R_L}$   
 QZ: 0  
 Wz: None

**3.94 BP-94**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (2 C_4 + C_L)}} (2 C_4 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (2 C_4 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (2 C_4 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None



**3.95 BP-95**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s}{2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

**3.96 BP-96**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s}{2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{1}{L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.97 BP-97**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $2C_4 R_L \sqrt{\frac{1}{C_4 L_4}}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{2C_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.98 BP-98**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_4 R_L s}{2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + L_4 s + 2R_L}$$

**Parameters:**

Q:  $\sqrt{2} R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.99 BP-99**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_L s}{2C_4 L_4 L_L R_L s^2 + C_L L_4 L_L R_L s^2 + L_4 L_L s + L_4 R_L + 2L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{1}{R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

Qz: 0

Wz: None

**3.100 BP-100**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L \right)$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

Q:  $\frac{2C_4 R_4 R_L \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{R_4 + 2R_L}{2C_4 R_4 R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

$$3.101 \quad \text{BP-101} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s}{2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2L_4 s + 2R_4}$$

**Parameters:**

$$\text{Q: } \frac{\sqrt{2} R_4 \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{2}$$

$$\text{wo: } \sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{2}{R_4 (2C_4 + C_L)}$$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

Qz: 0

Wz: None

$$3.102 \quad \text{BP-102} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s}{2C_4 L_4 R_4 R_L s^2 + C_L L_4 R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**Parameters:**

$$\text{Q: } \frac{\sqrt{2} R_4 R_L \sqrt{\frac{1}{L_4 (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{2} \sqrt{\frac{1}{L_4 (2C_4 + C_L)}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz: 0

Wz: None

**3.103 BP-103**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L R_4 s}{2C_4 L_4 L_L R_4 s^2 + C_L L_4 L_L R_4 s^2 + 2L_4 L_L s + L_4 R_4 + 2L_L R_4}$$

**Parameters:**

Q:  $\frac{R_4 \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{2}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{2}{R_4 (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4}{2}$

QZ: 0

Wz: None

**3.104 BP-104**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_4 L_L R_4 R_L s}{2C_4 L_4 L_L R_4 R_L s^2 + C_L L_4 L_L R_4 R_L s^2 + L_4 L_L R_4 s + 2L_4 L_L R_L s + L_4 R_4 R_L + 2L_L R_4 R_L}$$

**Parameters:**

Q:  $\frac{R_4 R_L \sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}} (2C_4 + C_L)}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{L_4 + 2L_L}{L_4 L_L (2C_4 + C_L)}}$

bandwidth:  $\frac{R_4 + 2R_L}{R_4 R_L (2C_4 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

QZ: 0

Wz: None

## 4 LP

## 5 BS

**5.1 BS-1**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_L L_L s^2 + C_L R_4 s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP: 0

Qz: None

Wz:  $\sqrt{\frac{1}{C_L L_L}}$

**5.2 BS-2**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{R_4 R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 R_L}{L_L (R_4 + 2R_L)}$

$$\begin{aligned}
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{Qz: } & \text{None} \\
\text{Wz: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.3 \quad \text{BS-3 } Z(s) = \left( \infty, R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_L}{L_4} \\
\text{K-LP: } & R_L \\
\text{K-HP: } & R_L \\
\text{K-BP: } & 0 \\
\text{Qz: } & \text{None} \\
\text{Wz: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.4 \quad \text{BS-4 } Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_4 R_L}{L_4 (R_4 + 2R_L)}
\end{aligned}$$

$$\begin{aligned}
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.5 \quad \text{BS-5} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_L L_L s^2 + C_L R_4 s + 2}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{R_4}{2L_L} \\
\text{K-LP: } & \frac{R_4}{2} \\
\text{K-HP: } & \frac{R_4}{2} \\
\text{K-BP: } & 0 \\
\text{QZ: } & \text{None} \\
\text{WZ: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.6 \quad \text{BS-6} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{R_4 R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$



$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.7 \quad \text{BS-7 } Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.8 \quad \text{BS-8 } Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.9 \quad \text{BS-9 } Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.10 \quad \text{BS-10 } Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.11 \quad \text{BS-11} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.12 \quad \text{BS-12} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.13 \quad \text{BS-13} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.14 \quad \text{BS-14} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.15 \quad \text{BS-15} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.16 \quad \text{BS-16} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.17 \quad \text{BS-17} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.18 \quad \text{BS-18} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.19 \quad \text{BS-19} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.20 \quad \text{BS-20} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$5.21 \quad \text{BS-21} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$5.22 \quad \text{BS-22} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$



$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$\mathbf{5.23 \quad BS-23} \quad Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\mathbf{5.24 \quad BS-24} \quad Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{2R_4R_L}{L_4(R_4+2R_L)} \\
&\text{K-LP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-HP: } \frac{R_4R_L}{R_4+2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4L_4}}
\end{aligned}$$

$$\mathbf{5.25 \quad BS-25} \quad Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_LL_Ls^2 + C_LR_4s + 2}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}} \\
&\text{bandwidth: } \frac{R_4}{2L_L} \\
&\text{K-LP: } \frac{R_4}{2} \\
&\text{K-HP: } \frac{R_4}{2} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\mathbf{5.26 \quad BS-26} \quad Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_L\sqrt{\frac{1}{C_LL_L}}(R_4+2R_L)}{R_4R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_LL_L}}
\end{aligned}$$

$$\begin{aligned}
&\text{bandwidth: } \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
&\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L} \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$5.27 \quad \text{BS-27} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}} \\
&\text{bandwidth: } \frac{2R_L}{L_4} \\
&\text{K-LP: } R_L \\
&\text{K-HP: } R_L \\
&\text{K-BP: } 0 \\
&\text{QZ: None} \\
&\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$5.28 \quad \text{BS-28} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
&\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
&\text{wo: } \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

bandwidth:  $\frac{2R_4R_L}{L_4(R_4+2R_L)}$

K-LP:  $\frac{R_4R_L}{R_4+2R_L}$

K-HP:  $\frac{R_4R_L}{R_4+2R_L}$

K-BP: 0

QZ: None

WZ:  $\sqrt{\frac{1}{C_4L_4}}$

$$5.29 \quad \text{BS-29} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_L L_L s^2 + C_L R_4 s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP: 0

QZ: None

WZ:  $\sqrt{\frac{1}{C_L L_L}}$

$$5.30 \quad \text{BS-30} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{R_4 R_L}$

$$\begin{aligned}
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{R_4 R_L}{L_L (R_4 + 2R_L)} \\
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{Qz: } & \text{None} \\
\text{Wz: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

$$\mathbf{5.31 \quad BS-31} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 s^2 + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_L}{L_4} \\
\text{K-LP: } & R_L \\
\text{K-HP: } & R_L \\
\text{K-BP: } & 0 \\
\text{Qz: } & \text{None} \\
\text{Wz: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

$$\mathbf{5.32 \quad BS-32} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)}{2R_4 R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\
\text{bandwidth: } & \frac{2R_4 R_L}{L_4 (R_4 + 2R_L)} \\
\text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{K-BP: } & 0 \\
\text{Qz: } & \text{None} \\
\text{Wz: } & \sqrt{\frac{1}{C_4 L_4}}
\end{aligned}$$

## 6 GE

$$\mathbf{6.1 \quad GE-1} \quad Z(s) = \left( \infty, R_2, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\begin{aligned}
\text{Q: } & \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L} \\
\text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\
\text{bandwidth: } & \frac{R_4 + 2R_L}{2L_L} \\
\text{K-LP: } & \frac{R_4}{2} \\
\text{K-HP: } & \frac{R_4}{2} \\
\text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\
\text{Qz: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\
\text{Wz: } & \sqrt{\frac{1}{C_L L_L}}
\end{aligned}$$

**6.2 GE-2**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

**6.3 GE-3**  $Z(s) = \left( \infty, R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

**6.4 GE-4**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

$$\text{Q: } C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$$

$$\text{wo: } \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{bandwidth: } \frac{1}{C_4 (R_4 + 2R_L)}$$

$$\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-BP: } R_L$$

$$\text{QZ: } C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{WZ: } \sqrt{\frac{1}{C_4 L_4}}$$

**6.5 GE-5**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\text{Q: } \frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{2L_L}$$

$$\text{K-LP: } \frac{R_4}{2}$$

$$\text{K-HP: } \frac{R_4}{2}$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{QZ: } \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$$

$$\text{WZ: } \sqrt{\frac{1}{C_L L_L}}$$



**6.6 GE-6**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

**6.7 GE-7**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

**6.8 GE-8**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP:  $R_L$

Qz:  $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

Wz:  $\sqrt{\frac{1}{C_4 L_4}}$

**6.9 GE-9**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_L L_L}}$

**6.10 GE-10**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**Parameters:**

Q:  $\frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{2}{C_L (R_4 + 2R_L)}$   
 K-LP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 K-HP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 K-BP:  $\frac{R_4}{2}$   
 QZ:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$   
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**6.11 GE-11**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + 1}$$

**Parameters:**

Q:  $\frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$   
 wo:  $\sqrt{\frac{1}{C_4 L_4}}$   
 bandwidth:  $\frac{R_4 + 2R_L}{L_4}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$   
 QZ:  $\frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4}$   
 WZ:  $\sqrt{\frac{1}{C_4 L_4}}$

**6.12 GE-12**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP:  $R_L$

Qz:  $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

Wz:  $\sqrt{\frac{1}{C_4 L_4}}$

**6.13 GE-13**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_L L_L}}$

**6.14 GE-14**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

**6.15 GE-15**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

**6.16 GE-16**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP:  $R_L$

Qz:  $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

Wz:  $\sqrt{\frac{1}{C_4 L_4}}$

**6.17 GE-17**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_L L_L}}$

**6.18 GE-18**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{R_4 (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + 2L_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_LL_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_LL_L}} \\ \text{bandwidth: } & \frac{2}{C_L(R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{Qz: } & C_LR_L \sqrt{\frac{1}{C_LL_L}} \\ \text{Wz: } & \sqrt{\frac{1}{C_LL_L}} \end{aligned}$$

**6.19 GE-19**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{Qz: } & \frac{L_4 \sqrt{\frac{1}{C_4L_4}}}{R_4} \\ \text{Wz: } & \sqrt{\frac{1}{C_4L_4}} \end{aligned}$$

**6.20 GE-20**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4L_4R_4s^2 + L_4s + R_4)}{C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + L_4s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4\sqrt{\frac{1}{C_4L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4L_4}}$

bandwidth:  $\frac{1}{C_4(R_4+2R_L)}$

K-LP:  $\frac{R_4R_L}{R_4+2R_L}$

K-HP:  $\frac{R_4R_L}{R_4+2R_L}$

K-BP:  $R_L$

Qz:  $C_4R_4\sqrt{\frac{1}{C_4L_4}}$

Wz:  $\sqrt{\frac{1}{C_4L_4}}$

**6.21 GE-21**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4 (C_LL_Ls^2 + C_LR_Ls + 1)}{2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

**Parameters:**

Q:  $\frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4+2R_L}$

wo:  $\sqrt{\frac{1}{C_LL_L}}$

bandwidth:  $\frac{R_4+2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_LL_L}}$



**6.22 GE-22**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{R_4 (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + 2L_Ls + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_LL_L}} (R_4 + 2R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_LL_L}} \\ \text{bandwidth: } & \frac{2}{C_L(R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_LR_L \sqrt{\frac{1}{C_LL_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_LL_L}} \end{aligned}$$

**6.23 GE-23**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4L_4}}}{R_4 + 2R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4R_L}{R_4 + 2R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4L_4}} \end{aligned}$$

**6.24 GE-24**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4L_4R_4s^2 + L_4s + R_4)}{C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + L_4s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4\sqrt{\frac{1}{C_4L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4L_4}}$

bandwidth:  $\frac{1}{C_4(R_4+2R_L)}$

K-LP:  $\frac{R_4R_L}{R_4+2R_L}$

K-HP:  $\frac{R_4R_L}{R_4+2R_L}$

K-BP:  $R_L$

Qz:  $C_4R_4\sqrt{\frac{1}{C_4L_4}}$

Wz:  $\sqrt{\frac{1}{C_4L_4}}$

**6.25 GE-25**  $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4 (C_LL_Ls^2 + C_LR_Ls + 1)}{2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

**Parameters:**

Q:  $\frac{2L_L\sqrt{\frac{1}{C_LL_L}}}{R_4+2R_L}$

wo:  $\sqrt{\frac{1}{C_LL_L}}$

bandwidth:  $\frac{R_4+2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4R_L}{R_4+2R_L}$

Qz:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_LL_L}}$

**6.26 GE-26**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + 2 L_L s + R_4 + 2 R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2 R_L)}{2} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{2}{C_L (R_4 + 2 R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2 R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2 R_L} \\ \text{K-BP: } & \frac{R_4}{2} \\ \text{QZ: } & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ \text{WZ: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

**6.27 GE-27**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2 R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{R_4 + 2 R_L}{L_4} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_4 R_L}{R_4 + 2 R_L} \\ \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

**6.28 GE-28**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

Q:  $C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L)$

wo:  $\sqrt{\frac{1}{C_4 L_4}}$

bandwidth:  $\frac{1}{C_4 (R_4 + 2R_L)}$

K-LP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-HP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

K-BP:  $R_L$

Qz:  $C_4 R_4 \sqrt{\frac{1}{C_4 L_4}}$

Wz:  $\sqrt{\frac{1}{C_4 L_4}}$

**6.29 GE-29**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

Q:  $\frac{2L_L \sqrt{\frac{1}{C_L L_L}}}{R_4 + 2R_L}$

wo:  $\sqrt{\frac{1}{C_L L_L}}$

bandwidth:  $\frac{R_4 + 2R_L}{2L_L}$

K-LP:  $\frac{R_4}{2}$

K-HP:  $\frac{R_4}{2}$

K-BP:  $\frac{R_4 R_L}{R_4 + 2R_L}$

Qz:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$

Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$6.30 \quad \text{GE-30} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**Parameters:**

$$\text{Q: } \frac{C_L \sqrt{\frac{1}{C_L L_L}} (R_4 + 2R_L)}{2}$$

$$\text{wo: } \sqrt{\frac{1}{C_L L_L}}$$

$$\text{bandwidth: } \frac{2}{C_L (R_4 + 2R_L)}$$

$$\text{K-LP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-HP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\text{K-BP: } \frac{R_4}{2}$$

$$\text{QZ: } C_L R_L \sqrt{\frac{1}{C_L L_L}}$$

$$\text{WZ: } \sqrt{\frac{1}{C_L L_L}}$$

$$6.31 \quad \text{GE-31} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + 1}$$

**Parameters:**

$$\text{Q: } \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4 + 2R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_4 L_4}}$$

$$\text{bandwidth: } \frac{R_4 + 2R_L}{L_4}$$

$$\text{K-LP: } R_L$$

$$\text{K-HP: } R_L$$

$$\text{K-BP: } \frac{R_4 R_L}{R_4 + 2R_L}$$

$$\begin{aligned} \text{QZ: } & \frac{L_4 \sqrt{\frac{1}{C_4 L_4}}}{R_4} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

$$\mathbf{6.32 \quad GE-32} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + L_4 s + R_4 + 2R_L}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & C_4 \sqrt{\frac{1}{C_4 L_4}} (R_4 + 2R_L) \\ \text{wo: } & \sqrt{\frac{1}{C_4 L_4}} \\ \text{bandwidth: } & \frac{1}{C_4 (R_4 + 2R_L)} \\ \text{K-LP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-HP: } & \frac{R_4 R_L}{R_4 + 2R_L} \\ \text{K-BP: } & R_L \\ \text{QZ: } & C_4 R_4 \sqrt{\frac{1}{C_4 L_4}} \\ \text{WZ: } & \sqrt{\frac{1}{C_4 L_4}} \end{aligned}$$

## 7 AP

## 8 INVALID-NUMER

$$\mathbf{8.1 \quad INVALID-NUMER-1} \quad Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{2C_4R_4+C_LR_4+2C_LR_L}{2C_4C_LR_4R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_LR_4R_L}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.2 INVALID-NUMER-2**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4R_4s+1)}{C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{C_4R_4+2C_4R_L+C_LR_L}{C_4C_LR_4R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4R_4R_L}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.3 INVALID-NUMER-3**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4(C_LR_Ls+1)}{2C_4C_LR_4R_Ls^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{2C_4R_4+C_LR_4+2C_LR_L}{2C_4C_LR_4R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_LR_4R_L}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.4 \quad INVALID-NUMER-4} \quad Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_L(C_4R_4s+1)}{C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{C_4R_4+2C_4R_L+C_LR_L}{C_4C_LR_4R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4R_4R_L}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.5 \quad INVALID-NUMER-5} \quad Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LR_Ls+1)}{2C_4C_LR_4R_Ls^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$



**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.6 INVALID-NUMER-6**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.7 INVALID-NUMER-7**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{2C_4R_4+C_LR_4+2C_LR_L}{2C_4C_LR_4R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_LR_4R_L}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.8 INVALID-NUMER-8**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4R_4s+1)}{C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{C_4R_4+2C_4R_L+C_LR_L}{C_4C_LR_4R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4R_4R_L}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.9 INVALID-NUMER-9**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4(C_LR_Ls+1)}{2C_4C_LR_4R_Ls^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.10 INVALID-NUMER-10**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.11 INVALID-NUMER-11**  $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{2C_4R_4+C_LR_4+2C_LR_L}{2C_4C_LR_4R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_LR_4R_L}{2C_4R_4+C_LR_4+2C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.12 \quad INVALID-NUMER-12} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_L(C_4R_4s+1)}{C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4C_LR_4R_L\sqrt{\frac{1}{C_4C_LR_4R_L}}}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4C_LR_4R_L}} \\ \text{bandwidth: } & \frac{C_4R_4+2C_4R_L+C_LR_L}{C_4C_LR_4R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4R_4R_L}{C_4R_4+2C_4R_L+C_LR_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.13 \quad INVALID-NUMER-13} \quad Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_LR_Ls+1)}{2C_4C_LR_4R_Ls^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.14 \quad INVALID-NUMER-14} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$\mathbf{8.15 \quad INVALID-NUMER-15} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{2C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{2C_4 R_4 + C_L R_4 + 2C_L R_L}{2C_4 C_L R_4 R_L} \\ \text{K-LP: } & \frac{R_4}{2} \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_L R_4 R_L}{2C_4 R_4 + C_L R_4 + 2C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

**8.16 INVALID-NUMER-16**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{C_4 C_L R_4 R_L \sqrt{\frac{1}{C_4 C_L R_4 R_L}}}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_4 C_L R_4 R_L}} \\ \text{bandwidth: } & \frac{C_4 R_4 + 2C_4 R_L + C_L R_L}{C_4 C_L R_4 R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_4 R_4 R_L}{C_4 R_4 + 2C_4 R_L + C_L R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

## 9 INVALID-WZ

## 10 INVALID-ORDER

**10.1 INVALID-ORDER-1**  $Z(s) = (\infty, R_2, \infty, R_4, \infty, R_L)$

$$H(s) = \frac{R_4 R_L}{R_4 + 2R_L}$$

**10.2 INVALID-ORDER-2**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

**10.3 INVALID-ORDER-3**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2R_L}$$

**10.4 INVALID-ORDER-4**  $Z(s) = \left( \infty, R_2, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2C_L R_L s + 2}$$

**10.5 INVALID-ORDER-5**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

**10.6 INVALID-ORDER-6**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

**10.7 INVALID-ORDER-7**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

**10.8 INVALID-ORDER-8**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.9 INVALID-ORDER-9**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

**10.10 INVALID-ORDER-10**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

**10.11 INVALID-ORDER-11**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.12 INVALID-ORDER-12**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$



10.13 INVALID-ORDER-13  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.14 INVALID-ORDER-14  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.15 INVALID-ORDER-15  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.16 INVALID-ORDER-16  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.17 INVALID-ORDER-17  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.18 INVALID-ORDER-18  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.19 INVALID-ORDER-19**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.20 INVALID-ORDER-20**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.21 INVALID-ORDER-21**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

**10.22 INVALID-ORDER-22**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.23 INVALID-ORDER-23**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.24 INVALID-ORDER-24**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.25 INVALID-ORDER-25**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

**10.26 INVALID-ORDER-26**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.27 INVALID-ORDER-27**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.28 INVALID-ORDER-28**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

**10.29 INVALID-ORDER-29**  $Z(s) = \left( \infty, R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.30 INVALID-ORDER-30**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + 1}{s(C_4C_LL_4s^2 + 2C_4 + C_L)}$$

**10.31 INVALID-ORDER-31**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)}{C_4C_LL_4R_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.32 INVALID-ORDER-32**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.33 INVALID-ORDER-33**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

**10.34 INVALID-ORDER-34**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4L_4s^2 + 2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

**10.35 INVALID-ORDER-35**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.36 INVALID-ORDER-36**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.37 INVALID-ORDER-37**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.38 INVALID-ORDER-38**  $Z(s) = \left( \infty, R_2, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.39 INVALID-ORDER-39**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

**10.40 INVALID-ORDER-40**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

10.41 INVALID-ORDER-41  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

10.42 INVALID-ORDER-42  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

10.43 INVALID-ORDER-43  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.44 INVALID-ORDER-44  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

10.45 INVALID-ORDER-45  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.46 INVALID-ORDER-46  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.47 INVALID-ORDER-47  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

10.48 INVALID-ORDER-48  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.49 INVALID-ORDER-49  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

10.50 INVALID-ORDER-50  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

10.51 INVALID-ORDER-51  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.52 INVALID-ORDER-52**  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.53 INVALID-ORDER-53**  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.54 INVALID-ORDER-54**  $Z(s) = \left( \infty, R_2, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.55 INVALID-ORDER-55**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2 C_L L_4 R_L s^2 + 2 C_L R_4 R_L s + 2 L_4 s + 2 R_4}$$

**10.56 INVALID-ORDER-56**  $Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 R_4 s^2 + 2 C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2 C_L L_L R_4 s^2 + 2 L_4 s + 2 R_4}$$



$$10.57 \quad \text{INVALID-ORDER-57} \quad Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + 2C_LL_4L_Ls^3 + C_LL_4R_4s^2 + 2C_LL_4R_Ls^2 + 2C_LL_LR_4s^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$

$$10.58 \quad \text{INVALID-ORDER-58} \quad Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4L_LR_4s^3 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + 2C_LL_LR_4R_Ls^2 + 2L_4L_Ls^2 + L_4R_4s + 2L_4R_Ls + 2L_LR_4s + 2R_4R_L}$$

$$10.59 \quad \text{INVALID-ORDER-59} \quad Z(s) = \left( \infty, R_2, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_4R_4R_Ls(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + C_LL_4R_4R_Ls^2 + 2C_LL_LR_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

$$10.60 \quad \text{INVALID-ORDER-60} \quad Z(s) = \left( \infty, R_2, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4L_4R_4s^2 + L_4s + R_4}{C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + C_LL_4s^2 + C_LR_4s + 2}$$

$$10.61 \quad \text{INVALID-ORDER-61} \quad Z(s) = \left( \infty, R_2, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4R_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4R_Ls^2 + C_LR_4R_Ls + L_4s + R_4 + 2R_L}$$

**10.62 INVALID-ORDER-62**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.63 INVALID-ORDER-63**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.64 INVALID-ORDER-64**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

**10.65 INVALID-ORDER-65**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.66 INVALID-ORDER-66**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**10.67 INVALID-ORDER-67**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

**10.68 INVALID-ORDER-68**  $Z(s) = \left( \infty, R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

**10.69 INVALID-ORDER-69**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

**10.70 INVALID-ORDER-70**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.71 INVALID-ORDER-71**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

**10.72 INVALID-ORDER-72**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.73 INVALID-ORDER-73**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

**10.74 INVALID-ORDER-74**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.75 INVALID-ORDER-75**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**10.76 INVALID-ORDER-76**  $Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.77 \quad \text{INVALID-ORDER-77} \quad Z(s) = \left( \infty, R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.78 \quad \text{INVALID-ORDER-78} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{R_4 + 2R_L}$$

$$10.79 \quad \text{INVALID-ORDER-79} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

$$10.80 \quad \text{INVALID-ORDER-80} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.81 \quad \text{INVALID-ORDER-81} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2C_L R_L s + 2}$$

$$10.82 \quad \text{INVALID-ORDER-82} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

**10.83 INVALID-ORDER-83**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

**10.84 INVALID-ORDER-84**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

**10.85 INVALID-ORDER-85**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.86 INVALID-ORDER-86**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

**10.87 INVALID-ORDER-87**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

**10.88 INVALID-ORDER-88**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.89 INVALID-ORDER-89**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

**10.90 INVALID-ORDER-90**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.91 INVALID-ORDER-91**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

**10.92 INVALID-ORDER-92**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

**10.93 INVALID-ORDER-93**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.94 INVALID-ORDER-94**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.95 INVALID-ORDER-95**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.96 INVALID-ORDER-96**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.97 INVALID-ORDER-97**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.98 INVALID-ORDER-98**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

**10.99 INVALID-ORDER-99**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.100 INVALID-ORDER-100**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$



**10.101 INVALID-ORDER-101**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.102 INVALID-ORDER-102**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.103 INVALID-ORDER-103**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.104 INVALID-ORDER-104**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4R_Ls^3 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.105 INVALID-ORDER-105**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.106 INVALID-ORDER-106**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.107 INVALID-ORDER-107**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 s^2 + 1}{s (C_4 C_L L_4 s^2 + 2C_4 + C_L)}$$

**10.108 INVALID-ORDER-108**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

**10.109 INVALID-ORDER-109**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.110 INVALID-ORDER-110**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.111 **INVALID-ORDER-111**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.112 **INVALID-ORDER-112**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2 C_4 C_L L_L s^2 + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

10.113 **INVALID-ORDER-113**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

10.114 **INVALID-ORDER-114**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

10.115 **INVALID-ORDER-115**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.116 INVALID-ORDER-116  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

10.117 INVALID-ORDER-117  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L R_L s + 2}$$

10.118 INVALID-ORDER-118  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

10.119 INVALID-ORDER-119  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

10.120 INVALID-ORDER-120  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

10.121 INVALID-ORDER-121  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

$$10.122 \quad \text{INVALID-ORDER-122} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

$$10.123 \quad \text{INVALID-ORDER-123} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 s^2 + C_4 R_4 s + 1}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

$$10.124 \quad \text{INVALID-ORDER-124} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

$$10.125 \quad \text{INVALID-ORDER-125} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.126 \quad \text{INVALID-ORDER-126} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.127 INVALID-ORDER-127**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.128 INVALID-ORDER-128**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{s (C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.129 INVALID-ORDER-129**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.130 INVALID-ORDER-130**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.131 INVALID-ORDER-131**  $Z(s) = \left( \infty, \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L (L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L (C_LL_Ls^2 + 1) (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.132 \quad \text{INVALID-ORDER-132} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.133 \quad \text{INVALID-ORDER-133} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

$$10.134 \quad \text{INVALID-ORDER-134} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.135 \quad \text{INVALID-ORDER-135} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.136 \quad \text{INVALID-ORDER-136} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**10.137 INVALID-ORDER-137**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

**10.138 INVALID-ORDER-138**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

**10.139 INVALID-ORDER-139**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

**10.140 INVALID-ORDER-140**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2}$$

**10.141 INVALID-ORDER-141**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2 L_L s + R_4}$$

**10.142 INVALID-ORDER-142**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$



$$10.143 \quad \text{INVALID-ORDER-143} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.144 \quad \text{INVALID-ORDER-144} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.145 \quad \text{INVALID-ORDER-145} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.146 \quad \text{INVALID-ORDER-146} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.147 \quad \text{INVALID-ORDER-147} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.148 \quad \text{INVALID-ORDER-148} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.149 \quad \text{INVALID-ORDER-149} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.150 \quad \text{INVALID-ORDER-150} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.151 \quad \text{INVALID-ORDER-151} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.152 \quad \text{INVALID-ORDER-152} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.153 \quad \text{INVALID-ORDER-153} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.154 \quad \text{INVALID-ORDER-154} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$

$$10.155 \quad \text{INVALID-ORDER-155} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{R_4 + 2R_L}$$

$$10.156 \quad \text{INVALID-ORDER-156} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

$$10.157 \quad \text{INVALID-ORDER-157} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.158 \quad \text{INVALID-ORDER-158} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.159 \quad \text{INVALID-ORDER-159} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{2 C_4 R_L s + 1}$$

$$10.160 \quad \text{INVALID-ORDER-160} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (2 C_4 + C_L)}$$

$$10.161 \quad \text{INVALID-ORDER-161} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{2 C_4 R_L s + C_L R_L s + 1}$$

$$10.162 \quad \text{INVALID-ORDER-162} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

$$10.163 \quad \text{INVALID-ORDER-163} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (2 C_4 C_L L_L s^2 + 2 C_4 + C_L)}$$

$$10.164 \quad \text{INVALID-ORDER-164} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.165 \quad \text{INVALID-ORDER-165} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.166 \quad \text{INVALID-ORDER-166} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.167 \quad \text{INVALID-ORDER-167} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.168 \quad \text{INVALID-ORDER-168} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

$$10.169 \quad \text{INVALID-ORDER-169} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

**10.170 INVALID-ORDER-170**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.171 INVALID-ORDER-171**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.172 INVALID-ORDER-172**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.173 INVALID-ORDER-173**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.174 INVALID-ORDER-174**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

10.175 INVALID-ORDER-175  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

10.176 INVALID-ORDER-176  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.177 INVALID-ORDER-177  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.178 INVALID-ORDER-178  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.179 INVALID-ORDER-179  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.180 INVALID-ORDER-180  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.181 \quad \text{INVALID-ORDER-181} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.182 \quad \text{INVALID-ORDER-182} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.183 \quad \text{INVALID-ORDER-183} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.184 \quad \text{INVALID-ORDER-184} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 s^2 + 1}{s (C_4 C_L L_4 s^2 + 2C_4 + C_L)}$$

$$10.185 \quad \text{INVALID-ORDER-185} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$



$$10.186 \quad \text{INVALID-ORDER-186} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.187 \quad \text{INVALID-ORDER-187} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

$$10.188 \quad \text{INVALID-ORDER-188} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.189 \quad \text{INVALID-ORDER-189} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.190 \quad \text{INVALID-ORDER-190} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.191 INVALID-ORDER-191**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.192 INVALID-ORDER-192**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.193 INVALID-ORDER-193**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

**10.194 INVALID-ORDER-194**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

**10.195 INVALID-ORDER-195**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L s^4 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + 2}$$

**10.196 INVALID-ORDER-196**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2 C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2 L_L}$$

**10.197 INVALID-ORDER-197**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

**10.198 INVALID-ORDER-198**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

**10.199 INVALID-ORDER-199**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

**10.200 INVALID-ORDER-200**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 s^2 + C_4 R_4 s + 1}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.201 INVALID-ORDER-201**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

**10.202 INVALID-ORDER-202**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1)(C_4 L_4 s^2 + C_4 R_4 s + 1)}{s(C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.203 INVALID-ORDER-203**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 s^2 + C_4 R_4 s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.204 INVALID-ORDER-204**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

**10.205 INVALID-ORDER-205**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.206 INVALID-ORDER-206**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.207 INVALID-ORDER-207**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

**10.208 INVALID-ORDER-208**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)(C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.209 INVALID-ORDER-209**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

**10.210 INVALID-ORDER-210**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

**10.211 INVALID-ORDER-211**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.212 \quad \text{INVALID-ORDER-212} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.213 \quad \text{INVALID-ORDER-213} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

$$10.214 \quad \text{INVALID-ORDER-214} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

$$10.215 \quad \text{INVALID-ORDER-215} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.216 \quad \text{INVALID-ORDER-216} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.217 INVALID-ORDER-217**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.218 INVALID-ORDER-218**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

**10.219 INVALID-ORDER-219**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.220 INVALID-ORDER-220**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**10.221 INVALID-ORDER-221**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4)(C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.222 \quad \text{INVALID-ORDER-222} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.223 \quad \text{INVALID-ORDER-223} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.224 \quad \text{INVALID-ORDER-224} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.225 \quad \text{INVALID-ORDER-225} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.226 \quad \text{INVALID-ORDER-226} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$



$$10.227 \quad \text{INVALID-ORDER-227} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.228 \quad \text{INVALID-ORDER-228} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.229 \quad \text{INVALID-ORDER-229} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.230 \quad \text{INVALID-ORDER-230} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.231 \quad \text{INVALID-ORDER-231} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L}$$

**10.232 INVALID-ORDER-232**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{R_4 + 2R_L}$$

**10.233 INVALID-ORDER-233**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

**10.234 INVALID-ORDER-234**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2R_L}$$

**10.235 INVALID-ORDER-235**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2C_L R_L s + 2}$$

**10.236 INVALID-ORDER-236**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

**10.237 INVALID-ORDER-237**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

**10.238 INVALID-ORDER-238**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

**10.239 INVALID-ORDER-239**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.240 INVALID-ORDER-240**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

**10.241 INVALID-ORDER-241**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

**10.242 INVALID-ORDER-242**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.243 INVALID-ORDER-243**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

10.244 INVALID-ORDER-244  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

10.245 INVALID-ORDER-245  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

10.246 INVALID-ORDER-246  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

10.247 INVALID-ORDER-247  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

10.248 INVALID-ORDER-248  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

10.249 INVALID-ORDER-249  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.250 INVALID-ORDER-250**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.251 INVALID-ORDER-251**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.252 INVALID-ORDER-252**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

**10.253 INVALID-ORDER-253**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.254 INVALID-ORDER-254**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.255 INVALID-ORDER-255**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.256 INVALID-ORDER-256**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

**10.257 INVALID-ORDER-257**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.258 INVALID-ORDER-258**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.259 INVALID-ORDER-259**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

**10.260 INVALID-ORDER-260**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.261 INVALID-ORDER-261**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + 1}{s(C_4C_LL_4s^2 + 2C_4 + C_L)}$$

**10.262 INVALID-ORDER-262**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)}{C_4C_LL_4R_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.263 INVALID-ORDER-263**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.264 INVALID-ORDER-264**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

**10.265 INVALID-ORDER-265**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4L_4s^2 + 2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

**10.266 INVALID-ORDER-266**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.267 INVALID-ORDER-267**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.268 INVALID-ORDER-268**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.269 INVALID-ORDER-269**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.270 INVALID-ORDER-270**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

**10.271 INVALID-ORDER-271**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$



**10.272 INVALID-ORDER-272**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

**10.273 INVALID-ORDER-273**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

**10.274 INVALID-ORDER-274**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

**10.275 INVALID-ORDER-275**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

**10.276 INVALID-ORDER-276**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

**10.277 INVALID-ORDER-277**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.278 INVALID-ORDER-278**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.279 INVALID-ORDER-279**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.280 INVALID-ORDER-280**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.281 INVALID-ORDER-281**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.282 INVALID-ORDER-282**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.283 INVALID-ORDER-283**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.284 INVALID-ORDER-284**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.285 INVALID-ORDER-285**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.286 INVALID-ORDER-286**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2 C_L L_4 R_L s^2 + 2 C_L R_4 R_L s + 2 L_4 s + 2 R_4}$$

**10.287 INVALID-ORDER-287**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 R_4 s^2 + 2 C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2 C_L L_L R_4 s^2 + 2 L_4 s + 2 R_4}$$

$$10.288 \quad \text{INVALID-ORDER-288} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.289 \quad \text{INVALID-ORDER-289} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.290 \quad \text{INVALID-ORDER-290} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

$$10.291 \quad \text{INVALID-ORDER-291} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

$$10.292 \quad \text{INVALID-ORDER-292} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

**10.293 INVALID-ORDER-293**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.294 INVALID-ORDER-294**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.295 INVALID-ORDER-295**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

**10.296 INVALID-ORDER-296**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.297 INVALID-ORDER-297**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**10.298 INVALID-ORDER-298**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + L_4 s + 2 L_L s + R_4 + 2 R_L}$$

**10.299 INVALID-ORDER-299**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

**10.300 INVALID-ORDER-300**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + 2 C_4 R_4 s + C_L R_4 s + 2}$$

**10.301 INVALID-ORDER-301**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + 2 C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2 R_L}$$

**10.302 INVALID-ORDER-302**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 C_L R_4 R_L s^2 + 2 C_4 L_4 s^2 + 2 C_4 R_4 s + C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.303 \quad \text{INVALID-ORDER-303} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.304 \quad \text{INVALID-ORDER-304} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.305 \quad \text{INVALID-ORDER-305} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.306 \quad \text{INVALID-ORDER-306} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.307 \quad \text{INVALID-ORDER-307} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.308 \quad \text{INVALID-ORDER-308} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + 2 C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2 R_L}$$

$$10.309 \quad \text{INVALID-ORDER-309} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{R_4 + 2 R_L}$$

$$10.310 \quad \text{INVALID-ORDER-310} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

$$10.311 \quad \text{INVALID-ORDER-311} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2 R_L}$$

$$10.312 \quad \text{INVALID-ORDER-312} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.313 \quad \text{INVALID-ORDER-313} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{2 C_4 R_L s + 1}$$



**10.314 INVALID-ORDER-314**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

**10.315 INVALID-ORDER-315**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L}{2C_4R_Ls + C_LR_Ls + 1}$$

**10.316 INVALID-ORDER-316**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LR_Ls + 1}{s(2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.317 INVALID-ORDER-317**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LL_Ls^2 + 1}{s(2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

**10.318 INVALID-ORDER-318**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls}{2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

**10.319 INVALID-ORDER-319**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LL_Ls^2 + C_LR_Ls + 1}{s(2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.320 \quad \text{INVALID-ORDER-320} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{C_LL_LR_Ls^2 + L_Ls + R_L}{2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

$$10.321 \quad \text{INVALID-ORDER-321} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L (C_LL_Ls^2 + 1)}{2C_4C_LL_LR_Ls^3 + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.322 \quad \text{INVALID-ORDER-322} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L \right)$$

$$H(s) = \frac{R_4R_L}{2C_4R_4R_Ls + R_4 + 2R_L}$$

$$10.323 \quad \text{INVALID-ORDER-323} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4}{2C_4R_4s + C_LR_4s + 2}$$

$$10.324 \quad \text{INVALID-ORDER-324} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_4R_L}{2C_4R_4R_Ls + C_LR_4R_Ls + R_4 + 2R_L}$$

$$10.325 \quad \text{INVALID-ORDER-325} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4 (C_LL_Ls^2 + 1)}{2C_4C_LL_LR_4s^3 + 2C_4R_4s + 2C_LL_Ls^2 + C_LR_4s + 2}$$

**10.326 INVALID-ORDER-326**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.327 INVALID-ORDER-327**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.328 INVALID-ORDER-328**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.329 INVALID-ORDER-329**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

**10.330 INVALID-ORDER-330**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.331 INVALID-ORDER-331**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.332 INVALID-ORDER-332**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.333 INVALID-ORDER-333**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.334 INVALID-ORDER-334**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.335 INVALID-ORDER-335**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4R_Ls^3 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.336 INVALID-ORDER-336**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.337 INVALID-ORDER-337**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L (C_4R_4s + 1) (C_LL_Ls^2 + 1)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.338 INVALID-ORDER-338**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + 1}{s(C_4C_LL_4s^2 + 2C_4 + C_L)}$$

**10.339 INVALID-ORDER-339**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + 1)}{C_4C_LL_4R_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.340 INVALID-ORDER-340**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1) (C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.341 INVALID-ORDER-341**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1) (C_LL_Ls^2 + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

**10.342 INVALID-ORDER-342**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_4L_4s^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4L_4s^2 + 2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

**10.343 INVALID-ORDER-343**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{s (C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.344 INVALID-ORDER-344**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls (C_4L_4s^2 + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + 2C_4L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.345 INVALID-ORDER-345**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.346 INVALID-ORDER-346**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + 1) (C_LL_Ls^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.347 INVALID-ORDER-347**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s}{2C_4L_4s^2 + C_LL_4s^2 + 2}$$

**10.348 INVALID-ORDER-348**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LR_Ls + 2}$$

**10.349 INVALID-ORDER-349**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2}$$

**10.350 INVALID-ORDER-350**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_4L_Ls}{2C_4L_4L_Ls^2 + C_LL_4L_Ls^2 + L_4 + 2L_L}$$

**10.351 INVALID-ORDER-351**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2C_LR_Ls + 2}$$

**10.352 INVALID-ORDER-352**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{L_4s(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + 2R_L}$$

**10.353 INVALID-ORDER-353**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{L_4R_Ls (C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_4R_Ls^2 + 2C_LL_LR_Ls^2 + L_4s + 2R_L}$$

**10.354 INVALID-ORDER-354**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.355 INVALID-ORDER-355**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.356 INVALID-ORDER-356**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1) (C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.357 INVALID-ORDER-357**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$



**10.358 INVALID-ORDER-358**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.359 INVALID-ORDER-359**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{s (C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.360 INVALID-ORDER-360**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.361 INVALID-ORDER-361**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.362 INVALID-ORDER-362**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L (C_LL_Ls^2 + 1) (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.363 \quad \text{INVALID-ORDER-363} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{L_4R_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + C_LL_4R_4s^2 + 2C_LL_4R_Ls^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$

$$10.364 \quad \text{INVALID-ORDER-364} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_4s^4 + 2C_4L_4R_4s^2 + 2C_LL_4L_Ls^3 + C_LL_4R_4s^2 + 2C_LL_LR_4s^2 + 2L_4s + 2R_4}$$

$$10.365 \quad \text{INVALID-ORDER-365} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + 2C_LL_4L_Ls^3 + C_LL_4R_4s^2 + 2C_LL_4R_Ls^2 + 2C_LL_LR_4s^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$

$$10.366 \quad \text{INVALID-ORDER-366} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4L_LR_4s^3 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + 2C_LL_LR_4R_Ls^2 + 2L_4L_Ls^2 + L_4R_4s + 2L_4R_Ls + 2L_LR_4s + 2R_4R_L}$$

$$10.367 \quad \text{INVALID-ORDER-367} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_4R_4R_Ls(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + C_LL_4R_4R_Ls^2 + 2C_LL_LR_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

**10.368 INVALID-ORDER-368**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4R_4s^2 + L_4s + R_4}{C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + C_LL_4s^2 + C_LR_4s + 2}$$

**10.369 INVALID-ORDER-369**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4R_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4R_Ls^2 + C_LR_4R_Ls + L_4s + R_4 + 2R_L}$$

**10.370 INVALID-ORDER-370**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1) (C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4R_4s^3 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + C_LR_4s + 2C_LR_Ls + 2}$$

**10.371 INVALID-ORDER-371**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_4L_4R_4s^2 + L_4s + R_4)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + C_LR_4s + 2}$$

**10.372 INVALID-ORDER-372**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4L_LR_4s^4 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + C_LL_4L_Ls^3 + C_LL_LR_4s^2 + L_4s + 2L_Ls + R_4}$$

**10.373 INVALID-ORDER-373**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + C_LR_Ls + 1) (C_4L_4R_4s^2 + L_4s + R_4)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

$$10.374 \quad \text{INVALID-ORDER-374} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4L_LR_4R_Ls^4 + C_4L_4L_LR_4s^3 + 2C_4L_4L_LR_Ls^3 + C_4L_4R_4R_Ls^2 + C_LL_4L_LR_Ls^3 + C_LL_LR_4R_Ls^2 + L_4L_Ls^2 + L_4R_Ls + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

$$10.375 \quad \text{INVALID-ORDER-375} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{(C_4L_4R_4s^2 + L_4s + R_4)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + R_4 + 2R_L}$$

$$10.376 \quad \text{INVALID-ORDER-376} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4L_LR_Ls^4 + C_4C_LL_4R_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_4R_Ls^2 + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + L_4s + R_4 + 2R_L}$$

$$10.377 \quad \text{INVALID-ORDER-377} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4(C_4L_4s^2 + 1)}{C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + 2C_4R_4s + C_LR_4s + 2}$$

$$10.378 \quad \text{INVALID-ORDER-378} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_4R_L(C_4L_4s^2 + 1)}{C_4C_LL_4R_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + 2C_4R_4R_Ls + C_LR_4R_Ls + R_4 + 2R_L}$$

$$10.379 \quad \text{INVALID-ORDER-379} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4 (C_4L_4s^2 + 1) (C_LR_Ls + 1)}{C_4C_LL_4R_4s^3 + 2C_4C_LL_4R_Ls^3 + 2C_4C_LR_4R_Ls^2 + 2C_4L_4s^2 + 2C_4R_4s + C_LR_4s + 2C_LR_Ls + 2}$$

$$10.380 \quad \text{INVALID-ORDER-380} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4 (C_4L_4s^2 + 1) (C_LL_Ls^2 + 1)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4C_LL_LR_4s^3 + 2C_4L_4s^2 + 2C_4R_4s + 2C_LL_Ls^2 + C_LR_4s + 2}$$

$$10.381 \quad \text{INVALID-ORDER-381} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_LR_4s (C_4L_4s^2 + 1)}{C_4C_LL_4L_LR_4s^4 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + 2C_4L_LR_4s^2 + C_LL_LR_4s^2 + 2L_Ls + R_4}$$

$$10.382 \quad \text{INVALID-ORDER-382} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4 (C_4L_4s^2 + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_4s^3 + 2C_4C_LR_4R_Ls^2 + 2C_4L_4s^2 + 2C_4R_4s + 2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

$$10.383 \quad \text{INVALID-ORDER-383} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_4R_Ls (C_4L_4s^2 + 1)}{C_4C_LL_4L_LR_4R_Ls^4 + C_4L_4L_LR_4s^3 + 2C_4L_4L_LR_Ls^3 + C_4L_4R_4R_Ls^2 + 2C_4L_LR_4R_Ls^2 + C_LL_LR_4R_Ls^2 + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

$$10.384 \quad \text{INVALID-ORDER-384} \quad Z(s) = \left( \infty, \quad L_2s + \frac{1}{C_2s}, \quad \infty, \quad \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \quad \infty, \quad \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4L_4s^2 + 1) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4L_LR_Ls^4 + 2C_4C_LL_LR_4R_Ls^3 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + 2C_4L_LR_4s^2 + 2C_4R_4R_Ls + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + 2L_Ls + R_4}$$

$$10.385 \quad \text{INVALID-ORDER-385} \quad Z(s) = \left( \infty, \quad L_2s + \frac{1}{C_2s}, \quad \infty, \quad \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \quad \infty, \quad \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4R_L (C_4L_4s^2 + 1) (C_LL_Ls^2 + 1)}{C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4L_LR_Ls^4 + C_4C_LL_4R_4R_Ls^3 + 2C_4C_LL_LR_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + 2C_4R_4R_Ls + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

$$10.386 \quad \text{INVALID-ORDER-386} \quad Z(s) = \left( \infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \infty, \quad R_4, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_4R_L}{R_4 + 2R_L}$$

$$10.387 \quad \text{INVALID-ORDER-387} \quad Z(s) = \left( \infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \infty, \quad R_4, \quad \infty, \quad \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4}{C_LR_4s + 2}$$

$$10.388 \quad \text{INVALID-ORDER-388} \quad Z(s) = \left( \infty, \quad L_2s + R_2 + \frac{1}{C_2s}, \quad \infty, \quad R_4, \quad \infty, \quad \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_4R_L}{C_LR_4R_Ls + R_4 + 2R_L}$$

**10.389 INVALID-ORDER-389**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4(C_LR_Ls + 1)}{C_LR_4s + 2C_LR_Ls + 2}$$

**10.390 INVALID-ORDER-390**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4R_Ls + 1}$$

**10.391 INVALID-ORDER-391**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

**10.392 INVALID-ORDER-392**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$

$$H(s) = \frac{R_L}{2C_4R_Ls + C_LR_Ls + 1}$$

**10.393 INVALID-ORDER-393**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LR_Ls + 1}{s(2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.394 INVALID-ORDER-394**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LL_Ls^2 + 1}{s(2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

**10.395 INVALID-ORDER-395**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls}{2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

**10.396 INVALID-ORDER-396**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_LL_Ls^2 + C_LR_Ls + 1}{s(2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.397 INVALID-ORDER-397**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{C_LL_LR_Ls^2 + L_Ls + R_L}{2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.398 INVALID-ORDER-398**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)}{2C_4C_LL_LR_Ls^3 + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.399 INVALID-ORDER-399**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, R_L \right)$

$$H(s) = \frac{R_4R_L}{2C_4R_4R_Ls + R_4 + 2R_L}$$

**10.400 INVALID-ORDER-400**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4}{2C_4R_4s + C_LR_4s + 2}$$



10.401 **INVALID-ORDER-401**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_4R_L}{2C_4R_4R_Ls + C_LR_4R_Ls + R_4 + 2R_L}$$

10.402 **INVALID-ORDER-402**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4(C_LL_Ls^2 + 1)}{2C_4C_LL_LR_4s^3 + 2C_4R_4s + 2C_LL_Ls^2 + C_LR_4s + 2}$$

10.403 **INVALID-ORDER-403**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_4(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_LR_4s^3 + 2C_4C_LR_4R_Ls^2 + 2C_4R_4s + 2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

10.404 **INVALID-ORDER-404**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{R_4(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_LR_4R_Ls^3 + 2C_4L_LR_4s^2 + 2C_4R_4R_Ls + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + 2L_Ls + R_4 + 2R_L}$$

10.405 **INVALID-ORDER-405**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4}{C_4R_4s+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_4R_L(C_LL_Ls^2 + 1)}{2C_4C_LL_LR_4R_Ls^3 + 2C_4R_4R_Ls + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + C_LR_4R_Ls + R_4 + 2R_L}$$

$$10.406 \quad \text{INVALID-ORDER-406} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4R_4s + 1)}{C_4R_4s + 2C_4R_Ls + 1}$$

$$10.407 \quad \text{INVALID-ORDER-407} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4R_4s + 1}{s(C_4C_LR_4s + 2C_4 + C_L)}$$

$$10.408 \quad \text{INVALID-ORDER-408} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LR_Ls + 1)}{s(C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.409 \quad \text{INVALID-ORDER-409} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

$$10.410 \quad \text{INVALID-ORDER-410} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4s^3 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

$$10.411 \quad \text{INVALID-ORDER-411} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

$$10.412 \quad \text{INVALID-ORDER-412} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls(C_4R_4s + 1)}{C_4C_LL_LR_4R_Ls^3 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

$$10.413 \quad \text{INVALID-ORDER-413} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

$$10.414 \quad \text{INVALID-ORDER-414} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_4R_4s + 1)(C_LL_Ls^2 + 1)}{C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.415 \quad \text{INVALID-ORDER-415} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4L_4s^2 + 1}{s(C_4C_LL_4s^2 + 2C_4 + C_L)}$$

$$10.416 \quad \text{INVALID-ORDER-416} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)}{C_4C_LL_4R_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LR_Ls + 1}$$

10.417 INVALID-ORDER-417  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.418 INVALID-ORDER-418  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4 + C_L)}$$

10.419 INVALID-ORDER-419  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4L_4s^2 + 2C_4L_Ls^2 + C_LL_Ls^2 + 1}$$

10.420 INVALID-ORDER-420  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

10.421 INVALID-ORDER-421  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + 2C_4L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.422 INVALID-ORDER-422**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.423 INVALID-ORDER-423**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_4L_4s^2 + 1)(C_LL_Ls^2 + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.424 INVALID-ORDER-424**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s}{2C_4L_4s^2 + C_LL_4s^2 + 2}$$

**10.425 INVALID-ORDER-425**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LR_Ls + 2}$$

**10.426 INVALID-ORDER-426**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2}$$

**10.427 INVALID-ORDER-427**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_4L_Ls}{2C_4L_4L_Ls^2 + C_LL_4L_Ls^2 + L_4 + 2L_L}$$

**10.428 INVALID-ORDER-428**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4s (C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_Ls^4 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + 2C_LR_Ls + 2}$$

**10.429 INVALID-ORDER-429**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{L_4s (C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + 2R_L}$$

**10.430 INVALID-ORDER-430**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{L_4R_Ls (C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_4R_Ls^2 + 2C_LL_LR_Ls^2 + L_4s + 2R_L}$$

**10.431 INVALID-ORDER-431**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_4L_4s^2 + C_4R_4s + 1}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.432 INVALID-ORDER-432**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4R_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LR_Ls + 1}$$

**10.433 INVALID-ORDER-433**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.434 INVALID-ORDER-434**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4 + C_L)}$$

**10.435 INVALID-ORDER-435**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + C_LL_Ls^2 + 1}$$

**10.436 INVALID-ORDER-436**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_4C_LL_4s^2 + 2C_4C_LL_Ls^2 + C_4C_LR_4s + 2C_4C_LR_Ls + 2C_4 + C_L)}$$

**10.437 INVALID-ORDER-437**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_LR_Ls^4 + C_4C_LL_LR_4R_Ls^3 + C_4L_4L_Ls^3 + C_4L_4R_Ls^2 + C_4L_LR_4s^2 + 2C_4L_LR_Ls^2 + C_4R_4R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.438 INVALID-ORDER-438**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4s^2 + C_4R_4s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_Ls^4 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4L_4s^2 + 2C_4L_Ls^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + 1}$$

**10.439 INVALID-ORDER-439**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, L_4s + R_4 + \frac{1}{C_4s}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_4L_4s^2 + C_4R_4s + 1)}{C_4C_LL_4L_Ls^4 + C_4C_LL_4R_Ls^3 + C_4C_LL_LR_4s^3 + 2C_4C_LL_LR_Ls^3 + C_4C_LR_4R_Ls^2 + C_4L_4s^2 + C_4R_4s + 2C_4R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.440 INVALID-ORDER-440**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s(C_LR_Ls + 1)}{2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + C_LL_4R_4s^2 + 2C_LL_4R_Ls^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$

**10.441 INVALID-ORDER-441**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_4s^4 + 2C_4L_4R_4s^2 + 2C_LL_4L_Ls^3 + C_LL_4R_4s^2 + 2C_LL_LR_4s^2 + 2L_4s + 2R_4}$$

**10.442 INVALID-ORDER-442**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_4R_4s(C_LL_Ls^2 + C_LR_Ls + 1)}{2C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4R_4R_Ls^3 + 2C_4L_4R_4s^2 + 2C_LL_4L_Ls^3 + C_LL_4R_4s^2 + 2C_LL_LR_4s^2 + 2C_LR_4R_Ls + 2L_4s + 2R_4}$$



$$10.443 \quad \text{INVALID-ORDER-443} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4R_4s(C_LL_LR_Ls^2 + L_Ls + R_L)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4L_LR_4s^3 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + 2C_LL_LR_4R_Ls^2 + 2L_4L_Ls^2 + L_4R_4s + 2L_4R_Ls + 2L_LR_4s + 2R_4R_L}$$

$$10.444 \quad \text{INVALID-ORDER-444} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{1}{C_4s + \frac{1}{R_4} + \frac{1}{L_4s}}, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_4R_4R_Ls(C_LL_Ls^2 + 1)}{2C_4C_LL_4L_LR_4R_Ls^4 + 2C_4L_4R_4R_Ls^2 + C_LL_4L_LR_4s^3 + 2C_LL_4L_LR_Ls^3 + C_LL_4R_4R_Ls^2 + 2C_LL_LR_4R_Ls^2 + L_4R_4s + 2L_4R_Ls + 2R_4R_L}$$

$$10.445 \quad \text{INVALID-ORDER-445} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_4L_4R_4s^2 + L_4s + R_4}{C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + C_LL_4s^2 + C_LR_4s + 2}$$

$$10.446 \quad \text{INVALID-ORDER-446} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4R_4R_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4R_Ls^2 + C_LR_4R_Ls + L_4s + R_4 + 2R_L}$$

$$10.447 \quad \text{INVALID-ORDER-447} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LR_Ls + 1)(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4R_4s^3 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + C_LR_4s + 2C_LR_Ls + 2}$$

**10.448 INVALID-ORDER-448**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_4L_4R_4s^2 + L_4s + R_4)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + C_LR_4s + 2}$$

**10.449 INVALID-ORDER-449**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4L_LR_4s^4 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + C_LL_4L_Ls^3 + C_LL_LR_4s^2 + L_4s + 2L_Ls + R_4}$$

**10.450 INVALID-ORDER-450**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + C_LR_Ls + 1)(C_4L_4R_4s^2 + L_4s + R_4)}{2C_4C_LL_4L_Ls^4 + C_4C_LL_4R_4s^3 + 2C_4C_LL_4R_Ls^3 + 2C_4L_4s^2 + C_LL_4s^2 + 2C_LL_Ls^2 + C_LR_4s + 2C_LR_Ls + 2}$$

**10.451 INVALID-ORDER-451**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_4L_4R_4s^2 + L_4s + R_4)}{C_4C_LL_4L_LR_4R_Ls^4 + C_4L_4L_LR_4s^3 + 2C_4L_4L_LR_Ls^3 + C_4L_4R_4R_Ls^2 + C_LL_4L_LR_Ls^3 + C_LL_LR_4R_Ls^2 + L_4L_Ls^2 + L_4R_Ls + L_LR_4s + 2L_LR_Ls + R_4R_L}$$

**10.452 INVALID-ORDER-452**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_4L_4R_4s^2 + L_4s + R_4)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_4C_LL_4L_LR_4s^4 + 2C_4C_LL_4L_LR_Ls^4 + 2C_4L_4L_Ls^3 + C_4L_4R_4s^2 + 2C_4L_4R_Ls^2 + C_LL_4L_Ls^3 + C_LL_LR_4s^2 + 2C_LL_LR_Ls^2 + L_4s + 2L_Ls + R_4 + 2R_L}$$

$$10.453 \quad \text{INVALID-ORDER-453} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{L_4s}{C_4L_4s^2+1} + R_4, \infty, \frac{R_L(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}} \right)$$

$$H(s) = \frac{R_L(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.454 \quad \text{INVALID-ORDER-454} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4(C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.455 \quad \text{INVALID-ORDER-455} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L(C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.456 \quad \text{INVALID-ORDER-456} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4(C_4 L_4 s^2 + 1)(C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.457 \quad \text{INVALID-ORDER-457} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4(L_4s + \frac{1}{C_4s})}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4(C_4 L_4 s^2 + 1)(C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.458 \quad \text{INVALID-ORDER-458} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.459 \quad \text{INVALID-ORDER-459} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.460 \quad \text{INVALID-ORDER-460} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.461 \quad \text{INVALID-ORDER-461} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.462 \quad \text{INVALID-ORDER-462} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \infty, \frac{R_4 \left( L_4s + \frac{1}{C_4s} \right)}{L_4s + R_4 + \frac{1}{C_4s}}, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L}$$

**10.463 INVALID-ORDER-463**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, R_L \right)$

$$H(s) = \frac{R_4 R_L}{R_4 + 2R_L}$$

**10.464 INVALID-ORDER-464**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

**10.465 INVALID-ORDER-465**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2R_L}$$

**10.466 INVALID-ORDER-466**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2C_L R_L s + 2}$$

**10.467 INVALID-ORDER-467**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

**10.468 INVALID-ORDER-468**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

10.469 INVALID-ORDER-469  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

10.470 INVALID-ORDER-470  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.471 INVALID-ORDER-471  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

10.472 INVALID-ORDER-472  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

10.473 INVALID-ORDER-473  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.474 INVALID-ORDER-474  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.475 \quad \text{INVALID-ORDER-475} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.476 \quad \text{INVALID-ORDER-476} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

$$10.477 \quad \text{INVALID-ORDER-477} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.478 \quad \text{INVALID-ORDER-478} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.479 \quad \text{INVALID-ORDER-479} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.480 \quad \text{INVALID-ORDER-480} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.481 \quad \text{INVALID-ORDER-481} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

$$10.482 \quad \text{INVALID-ORDER-482} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.483 \quad \text{INVALID-ORDER-483} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

$$10.484 \quad \text{INVALID-ORDER-484} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

$$10.485 \quad \text{INVALID-ORDER-485} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.486 \quad \text{INVALID-ORDER-486} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$



**10.487 INVALID-ORDER-487**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

**10.488 INVALID-ORDER-488**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.489 INVALID-ORDER-489**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.490 INVALID-ORDER-490**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + 1}$$

**10.491 INVALID-ORDER-491**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.492 \quad \text{INVALID-ORDER-492} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 s^2 + 1}{s (C_4 C_L L_4 s^2 + 2C_4 + C_L)}$$

$$10.493 \quad \text{INVALID-ORDER-493} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

$$10.494 \quad \text{INVALID-ORDER-494} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.495 \quad \text{INVALID-ORDER-495} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

$$10.496 \quad \text{INVALID-ORDER-496} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.497 \quad \text{INVALID-ORDER-497} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.498 INVALID-ORDER-498**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.499 INVALID-ORDER-499**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.500 INVALID-ORDER-500**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.501 INVALID-ORDER-501**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

**10.502 INVALID-ORDER-502**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L R_L s + 2}$$

**10.503 INVALID-ORDER-503**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

**10.504 INVALID-ORDER-504**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

**10.505 INVALID-ORDER-505**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

**10.506 INVALID-ORDER-506**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

**10.507 INVALID-ORDER-507**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

10.508 INVALID-ORDER-508  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 s^2 + C_4 R_4 s + 1}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.509 INVALID-ORDER-509  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

10.510 INVALID-ORDER-510  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

10.511 INVALID-ORDER-511  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

10.512 INVALID-ORDER-512  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

10.513 INVALID-ORDER-513  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.514 INVALID-ORDER-514**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.515 INVALID-ORDER-515**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

**10.516 INVALID-ORDER-516**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.517 INVALID-ORDER-517**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2 C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2 C_L L_4 R_L s^2 + 2 C_L R_4 R_L s + 2 L_4 s + 2 R_4}$$

**10.518 INVALID-ORDER-518**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2 C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 R_4 s^2 + 2 C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2 C_L L_L R_4 s^2 + 2 L_4 s + 2 R_4}$$

$$10.519 \quad \text{INVALID-ORDER-519} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.520 \quad \text{INVALID-ORDER-520} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.521 \quad \text{INVALID-ORDER-521} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

$$10.522 \quad \text{INVALID-ORDER-522} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

$$10.523 \quad \text{INVALID-ORDER-523} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

**10.524 INVALID-ORDER-524**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.525 INVALID-ORDER-525**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2}$$

**10.526 INVALID-ORDER-526**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2L_L s + R_4}$$

**10.527 INVALID-ORDER-527**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.528 INVALID-ORDER-528**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$



**10.529 INVALID-ORDER-529**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + L_4 s + 2 L_L s + R_4 + 2 R_L}$$

**10.530 INVALID-ORDER-530**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

**10.531 INVALID-ORDER-531**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + 2 C_4 R_4 s + C_L R_4 s + 2}$$

**10.532 INVALID-ORDER-532**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + 2 C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2 R_L}$$

**10.533 INVALID-ORDER-533**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 (L_4 s + \frac{1}{C_4 s})}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 C_L R_4 R_L s^2 + 2 C_4 L_4 s^2 + 2 C_4 R_4 s + C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.534 \quad \text{INVALID-ORDER-534} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.535 \quad \text{INVALID-ORDER-535} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.536 \quad \text{INVALID-ORDER-536} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.537 \quad \text{INVALID-ORDER-537} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.538 \quad \text{INVALID-ORDER-538} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

$$10.539 \quad \text{INVALID-ORDER-539} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2 C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + 2 C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2 C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2 R_L}$$

$$10.540 \quad \text{INVALID-ORDER-540} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{R_4 + 2 R_L}$$

$$10.541 \quad \text{INVALID-ORDER-541} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{C_L R_4 s + 2}$$

$$10.542 \quad \text{INVALID-ORDER-542} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{C_L R_4 R_L s + R_4 + 2 R_L}$$

$$10.543 \quad \text{INVALID-ORDER-543} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L R_L s + 1)}{C_L R_4 s + 2 C_L R_L s + 2}$$

$$10.544 \quad \text{INVALID-ORDER-544} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{2C_4 R_L s + 1}$$

$$10.545 \quad \text{INVALID-ORDER-545} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s(2C_4 + C_L)}$$

$$10.546 \quad \text{INVALID-ORDER-546} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{2C_4 R_L s + C_L R_L s + 1}$$

$$10.547 \quad \text{INVALID-ORDER-547} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s(2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.548 \quad \text{INVALID-ORDER-548} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

$$10.549 \quad \text{INVALID-ORDER-549} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.550 \quad \text{INVALID-ORDER-550} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s (2C_4 C_L L_L s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.551 \quad \text{INVALID-ORDER-551} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{2C_4 C_L L_L R_L s^3 + 2C_4 L_L s^2 + 2C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.552 \quad \text{INVALID-ORDER-552} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_L s^3 + 2C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.553 \quad \text{INVALID-ORDER-553} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, R_L \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + R_4 + 2R_L}$$

$$10.554 \quad \text{INVALID-ORDER-554} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4}{2C_4 R_4 s + C_L R_4 s + 2}$$

$$10.555 \quad \text{INVALID-ORDER-555} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L}{2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.556 \quad \text{INVALID-ORDER-556} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.557 \quad \text{INVALID-ORDER-557} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.558 \quad \text{INVALID-ORDER-558} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_4 (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4 + 2R_L}$$

**10.559 INVALID-ORDER-559**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4}{C_4 R_4 s + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_L L_L s^2 + 1)}{2C_4 C_L L_L R_4 R_L s^3 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2R_L}$$

**10.560 INVALID-ORDER-560**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_4 R_4 s + 1)}{C_4 R_4 s + 2C_4 R_L s + 1}$$

**10.561 INVALID-ORDER-561**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 R_4 s + 1}{s (C_4 C_L R_4 s + 2C_4 + C_L)}$$

**10.562 INVALID-ORDER-562**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L R_L s + 1)}{s (C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

**10.563 INVALID-ORDER-563**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{s (2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

$$10.564 \quad \text{INVALID-ORDER-564} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 s^3 + 2 C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

$$10.565 \quad \text{INVALID-ORDER-565} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (2 C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

$$10.566 \quad \text{INVALID-ORDER-566} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 R_4 s + 1)}{C_4 C_L L_L R_4 R_L s^3 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.567 \quad \text{INVALID-ORDER-567} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.568 \quad \text{INVALID-ORDER-568} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 R_4 s + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$



$$10.569 \quad \text{INVALID-ORDER-569} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 s^2 + 1}{s (C_4 C_L L_4 s^2 + 2C_4 + C_L)}$$

$$10.570 \quad \text{INVALID-ORDER-570} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_L s^3 + C_4 L_4 s^2 + 2C_4 R_L s + C_L R_L s + 1}$$

$$10.571 \quad \text{INVALID-ORDER-571} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.572 \quad \text{INVALID-ORDER-572} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + 2C_4 + C_L)}$$

$$10.573 \quad \text{INVALID-ORDER-573} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 L_4 s^2 + 2C_4 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.574 \quad \text{INVALID-ORDER-574} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2 C_4 C_L L_L s^2 + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

$$10.575 \quad \text{INVALID-ORDER-575} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + 2 C_4 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.576 \quad \text{INVALID-ORDER-576} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.577 \quad \text{INVALID-ORDER-577} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.578 \quad \text{INVALID-ORDER-578} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 s}{2 C_4 L_4 s^2 + C_L L_4 s^2 + 2}$$

**10.579 INVALID-ORDER-579**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L R_L s + 2}$$

**10.580 INVALID-ORDER-580**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2}$$

**10.581 INVALID-ORDER-581**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_4 L_L s}{2C_4 L_4 L_L s^2 + C_L L_4 L_L s^2 + L_4 + 2L_L}$$

**10.582 INVALID-ORDER-582**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + 2C_L R_L s + 2}$$

**10.583 INVALID-ORDER-583**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + 2R_L}$$

$$10.584 \quad \text{INVALID-ORDER-584} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + 2C_L L_L R_L s^2 + L_4 s + 2R_L}$$

$$10.585 \quad \text{INVALID-ORDER-585} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_4 L_4 s^2 + C_4 R_4 s + 1}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

$$10.586 \quad \text{INVALID-ORDER-586} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2C_4 R_L s + C_L R_L s + 1}$$

$$10.587 \quad \text{INVALID-ORDER-587} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + C_4 C_L R_4 s + 2C_4 C_L R_L s + 2C_4 + C_L)}$$

$$10.588 \quad \text{INVALID-ORDER-588} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{s (C_4 C_L L_4 s^2 + 2C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2C_4 + C_L)}$$

$$10.589 \quad \text{INVALID-ORDER-589} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + C_L L_L s^2 + 1}$$

$$10.590 \quad \text{INVALID-ORDER-590} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_4 C_L L_4 s^2 + 2 C_4 C_L L_L s^2 + C_4 C_L R_4 s + 2 C_4 C_L R_L s + 2 C_4 + C_L)}$$

$$10.591 \quad \text{INVALID-ORDER-591} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 L_L s^3 + C_4 L_4 R_L s^2 + C_4 L_L R_4 s^2 + 2 C_4 L_L R_L s^2 + C_4 R_4 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.592 \quad \text{INVALID-ORDER-592} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 s^2 + C_4 R_4 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 L_4 s^2 + 2 C_4 L_L s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + 1}$$

$$10.593 \quad \text{INVALID-ORDER-593} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, L_4 s + R_4 + \frac{1}{C_4 s}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 s^2 + C_4 R_4 s + 1)}{C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_L s^3 + C_4 C_L L_L R_4 s^3 + 2 C_4 C_L L_L R_L s^3 + C_4 C_L R_4 R_L s^2 + C_4 L_4 s^2 + C_4 R_4 s + 2 C_4 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.594 \quad \text{INVALID-ORDER-594} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L R_L s + 1)}{2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.595 \quad \text{INVALID-ORDER-595} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_L R_4 s^2 + 2L_4 s + 2R_4}$$

$$10.596 \quad \text{INVALID-ORDER-596} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 R_4 R_L s^3 + 2C_4 L_4 R_4 s^2 + 2C_L L_4 L_L s^3 + C_L L_4 R_4 s^2 + 2C_L L_4 R_L s^2 + 2C_L L_L R_4 s^2 + 2C_L R_4 R_L s + 2L_4 s + 2R_4}$$

$$10.597 \quad \text{INVALID-ORDER-597} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_4 R_4 s (C_L L_L R_L s^2 + L_L s + R_L)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + 2C_L L_L R_4 R_L s^2 + 2L_4 L_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2L_L R_4 s + 2R_4 R_L}$$

$$10.598 \quad \text{INVALID-ORDER-598} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{1}{C_4 s + \frac{1}{R_4} + \frac{1}{L_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_4 R_4 R_L s (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L R_4 R_L s^4 + 2C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_4 s^3 + 2C_L L_4 L_L R_L s^3 + C_L L_4 R_4 R_L s^2 + 2C_L L_L R_4 R_L s^2 + L_4 R_4 s + 2L_4 R_L s + 2R_4 R_L}$$

**10.599 INVALID-ORDER-599**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_4 L_4 R_4 s^2 + L_4 s + R_4}{C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2}$$

**10.600 INVALID-ORDER-600**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2 C_4 L_4 R_L s^2 + C_L L_4 R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2 R_L}$$

**10.601 INVALID-ORDER-601**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 R_4 s^3 + 2 C_4 C_L L_4 R_L s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + C_L R_4 s + 2 C_L R_L s + 2}$$

**10.602 INVALID-ORDER-602**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2 C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2 C_4 L_4 s^2 + C_L L_4 s^2 + 2 C_L L_L s^2 + C_L R_4 s + 2}$$

**10.603 INVALID-ORDER-603**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2 C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + L_4 s + 2 L_L s + R_4}$$

$$10.604 \quad \text{INVALID-ORDER-604} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 L_4 s^2 + C_L L_4 s^2 + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.605 \quad \text{INVALID-ORDER-605} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + C_L L_4 L_L R_L s^3 + C_L L_L R_4 R_L s^2 + L_4 L_L s^2 + L_4 R_L s + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

$$10.606 \quad \text{INVALID-ORDER-606} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_4 L_4 R_4 s^2 + L_4 s + R_4) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + L_4 s + 2L_L s + R_4 + 2R_L}$$

$$10.607 \quad \text{INVALID-ORDER-607} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{L_4 s}{C_4 L_4 s^2 + 1} + R_4, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_4 L_4 R_4 s^2 + L_4 s + R_4)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + C_L L_4 L_L s^3 + C_L L_4 R_L s^2 + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + L_4 s + R_4 + 2R_L}$$

$$10.608 \quad \text{INVALID-ORDER-608} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2}$$



$$10.609 \quad \text{INVALID-ORDER-609} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L R_4 R_L s + R_4 + 2R_L}$$

$$10.610 \quad \text{INVALID-ORDER-610} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L R_L s + 1)}{C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + C_L R_4 s + 2C_L R_L s + 2}$$

$$10.611 \quad \text{INVALID-ORDER-611} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2}$$

$$10.612 \quad \text{INVALID-ORDER-612} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_4 s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_L R_4 s^2 + C_L L_L R_4 s^2 + 2L_L s + R_4}$$

$$10.613 \quad \text{INVALID-ORDER-613} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{2C_4 C_L L_4 L_L s^4 + C_4 C_L L_4 R_4 s^3 + 2C_4 C_L L_4 R_L s^3 + 2C_4 C_L L_L R_4 s^3 + 2C_4 C_L R_4 R_L s^2 + 2C_4 L_4 s^2 + 2C_4 R_4 s + 2C_L L_L s^2 + C_L R_4 s + 2C_L R_L s + 2}$$

**10.614 INVALID-ORDER-614**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_4 R_L s (C_4 L_4 s^2 + 1)}{C_4 C_L L_4 L_L R_4 R_L s^4 + C_4 L_4 L_L R_4 s^3 + 2C_4 L_4 L_L R_L s^3 + C_4 L_4 R_4 R_L s^2 + 2C_4 L_L R_4 R_L s^2 + C_L L_L R_4 R_L s^2 + L_L R_4 s + 2L_L R_L s + R_4 R_L}$$

**10.615 INVALID-ORDER-615**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{R_4 (C_4 L_4 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + 2C_4 C_L L_L R_4 R_L s^3 + 2C_4 L_4 L_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 L_L R_4 s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + 2L_L s + R_4}$$

**10.616 INVALID-ORDER-616**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \infty, \frac{R_4 \left( L_4 s + \frac{1}{C_4 s} \right)}{L_4 s + R_4 + \frac{1}{C_4 s}}, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_4 R_L (C_4 L_4 s^2 + 1) (C_L L_L s^2 + 1)}{C_4 C_L L_4 L_L R_4 s^4 + 2C_4 C_L L_4 L_L R_L s^4 + C_4 C_L L_4 R_4 R_L s^3 + 2C_4 C_L L_L R_4 R_L s^3 + C_4 L_4 R_4 s^2 + 2C_4 L_4 R_L s^2 + 2C_4 R_4 R_L s + C_L L_L R_4 s^2 + 2C_L L_L R_L s^2 + C_L R_4 R_L s + R_4 + 2L_L s}$$