

# Filter Summary Report: TIA,some,parasitic,Z2,Z3,ZL

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## Contents

<b>1</b>	<b>Examined <math>H(z)</math> for TIA some parasitic Z2 Z3 ZL:</b>	$\frac{Z_3 Z_L (Z_2 g_m r_o + Z_2 + r_o)}{Z_2 Z_3 g_m r_o + Z_2 Z_3 + Z_2 Z_L g_m r_o + Z_2 Z_L + Z_3 r_o + Z_L r_o}$	<b>27</b>
<b>2</b>	<b>HP</b>		<b>27</b>
<b>3</b>	<b>BP</b>		<b>27</b>
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3.2	BP-2 $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$		27
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3.12	BP-12 $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$		30
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3.24 BP-24	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	34
3.25 BP-25	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	35
3.26 BP-26	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	35
3.27 BP-27	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	35
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3.29 BP-29	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	36
3.30 BP-30	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	36
3.31 BP-31	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	37
3.32 BP-32	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	37
3.33 BP-33	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	37
3.34 BP-34	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	38
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3.37 BP-37	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	39
3.38 BP-38	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	39
3.39 BP-39	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	39
3.40 BP-40	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	40
3.41 BP-41	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	40
3.42 BP-42	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	40
3.43 BP-43	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	41
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3.45 BP-45	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	41
3.46 BP-46	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	42
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3.48 BP-48	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$	42
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3.50 BP-50	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	43
3.51 BP-51	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	43

3.52 BP-52	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	44
3.53 BP-53	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	44
3.54 BP-54	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	44
3.55 BP-55	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	45
3.56 BP-56	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	45
3.57 BP-57	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	45
3.58 BP-58	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	46
3.59 BP-59	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	46
3.60 BP-60	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	46
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3.62 BP-62	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$	47
3.63 BP-63	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	47
3.64 BP-64	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	48
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3.66 BP-66	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	48
3.67 BP-67	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	49
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3.69 BP-69	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	49
3.70 BP-70	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	50
3.71 BP-71	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	50
3.72 BP-72	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	50
3.73 BP-73	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	51
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3.75 BP-75	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$	51
3.76 BP-76	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	52
3.77 BP-77	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	52
3.78 BP-78	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	52
3.79 BP-79	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	53
3.80 BP-80	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	53
3.81 BP-81	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	53

3.82	BP-82	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	54
3.83	BP-83	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	54
3.84	BP-84	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	54
3.85	BP-85	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	55
3.86	BP-86	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	55
3.87	BP-87	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$	55
3.88	BP-88	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$	56
3.89	BP-89	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	56
3.90	BP-90	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	56
3.91	BP-91	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	57
3.92	BP-92	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	57
3.93	BP-93	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	57
3.94	BP-94	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	58
3.95	BP-95	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	58
3.96	BP-96	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	58
3.97	BP-97	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$	59
3.98	BP-98	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	59
3.99	BP-99	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	59
3.100	BP-100	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$	60
3.101	BP-101	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$	60
3.102	BP-102	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	60
3.103	BP-103	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	61
3.104	BP-104	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	61
<b>4</b>	<b>LP</b>		<b>61</b>
<b>5</b>	<b>BS</b>		<b>61</b>
5.1	BS-1	$Z(s) = \left( \infty, R_2, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	61
5.2	BS-2	$Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	62
5.3	BS-3	$Z(s) = \left( \infty, R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	62
5.4	BS-4	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	62

5.5	BS-5 $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	63
5.6	BS-6 $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	63
5.7	BS-7 $Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	63
5.8	BS-8 $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	64
5.9	BS-9 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	64
5.10	BS-10 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	64
5.11	BS-11 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	65
5.12	BS-12 $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	65
5.13	BS-13 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	65
5.14	BS-14 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	66
5.15	BS-15 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	66
5.16	BS-16 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	66
5.17	BS-17 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	67
5.18	BS-18 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	67
5.19	BS-19 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	67
5.20	BS-20 $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	68
5.21	BS-21 $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	68
5.22	BS-22 $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	68
5.23	BS-23 $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	69
5.24	BS-24 $Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	69
5.25	BS-25 $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	69
5.26	BS-26 $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	70
5.27	BS-27 $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	70
5.28	BS-28 $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	70
5.29	BS-29 $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	71
5.30	BS-30 $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	71
5.31	BS-31 $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	71
5.32	BS-32 $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$	72
<b>6</b>	<b>GE</b>	<b>72</b>
6.1	GE-1 $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	72
6.2	GE-2 $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	72

6.3	GE-3 $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	73
6.4	GE-4 $Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	73
6.5	GE-5 $Z(s) = \left( \infty, \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	73
6.6	GE-6 $Z(s) = \left( \infty, \frac{1}{C_2s}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	74
6.7	GE-7 $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	74
6.8	GE-8 $Z(s) = \left( \infty, \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	74
6.9	GE-9 $Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	75
6.10	GE-10 $Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	75
6.11	GE-11 $Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	75
6.12	GE-12 $Z(s) = \left( \infty, \frac{R_2}{C_2R_2s+1}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	76
6.13	GE-13 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	76
6.14	GE-14 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	76
6.15	GE-15 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	77
6.16	GE-16 $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	77
6.17	GE-17 $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	77
6.18	GE-18 $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	78
6.19	GE-19 $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	78
6.20	GE-20 $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	78
6.21	GE-21 $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	79
6.22	GE-22 $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	79
6.23	GE-23 $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	79
6.24	GE-24 $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	80
6.25	GE-25 $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	80
6.26	GE-26 $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	80
6.27	GE-27 $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	81
6.28	GE-28 $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2+1} + R_2, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	81
6.29	GE-29 $Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	81
6.30	GE-30 $Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	82
6.31	GE-31 $Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	82
6.32	GE-32 $Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L \right)$	82
<b>7</b>	<b>AP</b>	<b>83</b>
<b>8</b>	<b>INVALID-NUMER</b>	<b>83</b>
8.1	INVALID-NUMER-1 $Z(s) = \left( \infty, R_2, \frac{R_3}{C_3R_3s+1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	83
8.2	INVALID-NUMER-2 $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	83
8.3	INVALID-NUMER-3 $Z(s) = \left( \infty, \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	83

8.4	INVALID-NUMER-4	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	84
8.5	INVALID-NUMER-5	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	84
8.6	INVALID-NUMER-6	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	84
8.7	INVALID-NUMER-7	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	85
8.8	INVALID-NUMER-8	$Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	85
8.9	INVALID-NUMER-9	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	85
8.10	INVALID-NUMER-10	$Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	86
8.11	INVALID-NUMER-11	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	86
8.12	INVALID-NUMER-12	$Z(s) = \left( \infty, L_2 s + R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	86
8.13	INVALID-NUMER-13	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	87
8.14	INVALID-NUMER-14	$Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	87
8.15	INVALID-NUMER-15	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	87
8.16	INVALID-NUMER-16	$Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	88
<b>9</b>	<b>INVALID-WZ</b>		<b>88</b>
<b>10</b>	<b>INVALID-ORDER</b>		<b>88</b>
10.1	INVALID-ORDER-1	$Z(s) = (\infty, R_2, R_3, \infty, \infty, R_L)$	88
10.2	INVALID-ORDER-2	$Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{1}{C_L s} \right)$	88
10.3	INVALID-ORDER-3	$Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	88
10.4	INVALID-ORDER-4	$Z(s) = \left( \infty, R_2, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	88
10.5	INVALID-ORDER-5	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	88
10.6	INVALID-ORDER-6	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	89
10.7	INVALID-ORDER-7	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	89
10.8	INVALID-ORDER-8	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	89
10.9	INVALID-ORDER-9	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	89
10.10	INVALID-ORDER-10	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	89
10.11	INVALID-ORDER-11	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	89
10.12	INVALID-ORDER-12	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	89
10.13	INVALID-ORDER-13	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	89
10.14	INVALID-ORDER-14	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$	89
10.15	INVALID-ORDER-15	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$	90
10.16	INVALID-ORDER-16	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	90
10.17	INVALID-ORDER-17	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	90
10.18	INVALID-ORDER-18	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	90
10.19	INVALID-ORDER-19	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	90
10.20	INVALID-ORDER-20	$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	90

10.21INVALID-ORDER-21	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	90
10.22INVALID-ORDER-22	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	90
10.23INVALID-ORDER-23	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	90
10.24INVALID-ORDER-24	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	91
10.25INVALID-ORDER-25	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	91
10.26INVALID-ORDER-26	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	91
10.27INVALID-ORDER-27	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	91
10.28INVALID-ORDER-28	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	91
10.29INVALID-ORDER-29	$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	91
10.30INVALID-ORDER-30	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	91
10.31INVALID-ORDER-31	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	91
10.32INVALID-ORDER-32	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	92
10.33INVALID-ORDER-33	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	92
10.34INVALID-ORDER-34	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	92
10.35INVALID-ORDER-35	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	92
10.36INVALID-ORDER-36	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	92
10.37INVALID-ORDER-37	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	92
10.38INVALID-ORDER-38	$Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	92
10.39INVALID-ORDER-39	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{1}{C_Ls} \right)$	92
10.40INVALID-ORDER-40	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	93
10.41INVALID-ORDER-41	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	93
10.42INVALID-ORDER-42	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	93
10.43INVALID-ORDER-43	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	93
10.44INVALID-ORDER-44	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	93
10.45INVALID-ORDER-45	$Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	93
10.46INVALID-ORDER-46	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	93
10.47INVALID-ORDER-47	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	93
10.48INVALID-ORDER-48	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	93
10.49INVALID-ORDER-49	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	94
10.50INVALID-ORDER-50	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	94
10.51INVALID-ORDER-51	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	94
10.52INVALID-ORDER-52	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	94
10.53INVALID-ORDER-53	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	94
10.54INVALID-ORDER-54	$Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	94



10.55INVALID-ORDER-55	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	94
10.56INVALID-ORDER-56	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	94
10.57INVALID-ORDER-57	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	95
10.58INVALID-ORDER-58	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	95
10.59INVALID-ORDER-59	$Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	95
10.60INVALID-ORDER-60	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$	95
10.61INVALID-ORDER-61	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	95
10.62INVALID-ORDER-62	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	95
10.63INVALID-ORDER-63	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	95
10.64INVALID-ORDER-64	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	95
10.65INVALID-ORDER-65	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	96
10.66INVALID-ORDER-66	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	96
10.67INVALID-ORDER-67	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	96
10.68INVALID-ORDER-68	$Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	96
10.69INVALID-ORDER-69	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$	96
10.70INVALID-ORDER-70	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	96
10.71INVALID-ORDER-71	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	96
10.72INVALID-ORDER-72	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	96
10.73INVALID-ORDER-73	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	97
10.74INVALID-ORDER-74	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	97
10.75INVALID-ORDER-75	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	97
10.76INVALID-ORDER-76	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	97
10.77INVALID-ORDER-77	$Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	97
10.78INVALID-ORDER-78	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, R_L \right)$	97
10.79INVALID-ORDER-79	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$	97
10.80INVALID-ORDER-80	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	97
10.81INVALID-ORDER-81	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	98
10.82INVALID-ORDER-82	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	98
10.83INVALID-ORDER-83	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	98
10.84INVALID-ORDER-84	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	98
10.85INVALID-ORDER-85	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	98

10.86	INVALID-ORDER-86	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	98
10.87	INVALID-ORDER-87	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	98
10.88	INVALID-ORDER-88	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	98
10.89	INVALID-ORDER-89	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	98
10.90	INVALID-ORDER-90	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	99
10.91	INVALID-ORDER-91	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$	99
10.92	INVALID-ORDER-92	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$	99
10.93	INVALID-ORDER-93	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	99
10.94	INVALID-ORDER-94	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	99
10.95	INVALID-ORDER-95	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	99
10.96	INVALID-ORDER-96	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	99
10.97	INVALID-ORDER-97	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	99
10.98	INVALID-ORDER-98	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	99
10.99	INVALID-ORDER-99	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	100
10.100	INVALID-ORDER-100	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	100
10.101	INVALID-ORDER-101	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	100
10.102	INVALID-ORDER-102	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	100
10.103	INVALID-ORDER-103	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	100
10.104	INVALID-ORDER-104	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	100
10.105	INVALID-ORDER-105	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	100
10.106	INVALID-ORDER-106	$Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	100
10.107	INVALID-ORDER-107	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	100
10.108	INVALID-ORDER-108	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	101
10.109	INVALID-ORDER-109	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	101
10.110	INVALID-ORDER-110	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	101
10.111	INVALID-ORDER-111	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	101
10.112	INVALID-ORDER-112	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	101
10.113	INVALID-ORDER-113	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	101
10.114	INVALID-ORDER-114	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	101
10.115	INVALID-ORDER-115	$Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	101
10.116	INVALID-ORDER-116	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right)$	102
10.117	INVALID-ORDER-117	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	102
10.118	INVALID-ORDER-118	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	102
10.119	INVALID-ORDER-119	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	102
10.120	INVALID-ORDER-120	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	102



10.152INVALID-ORDER-152	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	106
10.153INVALID-ORDER-153	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	106
10.154INVALID-ORDER-154	$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	106
10.155INVALID-ORDER-155	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, R_L \right)$	106
10.156INVALID-ORDER-156	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$	106
10.157INVALID-ORDER-157	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	107
10.158INVALID-ORDER-158	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	107
10.159INVALID-ORDER-159	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	107
10.160INVALID-ORDER-160	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	107
10.161INVALID-ORDER-161	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	107
10.162INVALID-ORDER-162	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	107
10.163INVALID-ORDER-163	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	107
10.164INVALID-ORDER-164	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	107
10.165INVALID-ORDER-165	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	107
10.166INVALID-ORDER-166	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	108
10.167INVALID-ORDER-167	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	108
10.168INVALID-ORDER-168	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$	108
10.169INVALID-ORDER-169	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$	108
10.170INVALID-ORDER-170	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	108
10.171INVALID-ORDER-171	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	108
10.172INVALID-ORDER-172	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	108
10.173INVALID-ORDER-173	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	108
10.174INVALID-ORDER-174	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	108
10.175INVALID-ORDER-175	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$	109
10.176INVALID-ORDER-176	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	109
10.177INVALID-ORDER-177	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$	109
10.178INVALID-ORDER-178	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$	109
10.179INVALID-ORDER-179	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$	109
10.180INVALID-ORDER-180	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$	109
10.181INVALID-ORDER-181	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$	109
10.182INVALID-ORDER-182	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$	109
10.183INVALID-ORDER-183	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$	109
10.184INVALID-ORDER-184	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$	110
10.185INVALID-ORDER-185	$Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	110











10.316INVALID-ORDER-316	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	125
10.317INVALID-ORDER-317	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	125
10.318INVALID-ORDER-318	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	126
10.319INVALID-ORDER-319	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	126
10.320INVALID-ORDER-320	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	126
10.321INVALID-ORDER-321	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	126
10.322INVALID-ORDER-322	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, R_L \right)$	126
10.323INVALID-ORDER-323	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{1}{C_Ls} \right)$	126
10.324INVALID-ORDER-324	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	126
10.325INVALID-ORDER-325	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	126
10.326INVALID-ORDER-326	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	126
10.327INVALID-ORDER-327	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	127
10.328INVALID-ORDER-328	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	127
10.329INVALID-ORDER-329	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	127
10.330INVALID-ORDER-330	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	127
10.331INVALID-ORDER-331	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	127
10.332INVALID-ORDER-332	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	127
10.333INVALID-ORDER-333	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	127
10.334INVALID-ORDER-334	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	127
10.335INVALID-ORDER-335	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	127
10.336INVALID-ORDER-336	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	128
10.337INVALID-ORDER-337	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	128
10.338INVALID-ORDER-338	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	128
10.339INVALID-ORDER-339	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$	128
10.340INVALID-ORDER-340	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	128
10.341INVALID-ORDER-341	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	128
10.342INVALID-ORDER-342	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	128
10.343INVALID-ORDER-343	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	128
10.344INVALID-ORDER-344	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	129
10.345INVALID-ORDER-345	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$	129
10.346INVALID-ORDER-346	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	129
10.347INVALID-ORDER-347	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{1}{C_Ls} \right)$	129
10.348INVALID-ORDER-348	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	129
10.349INVALID-ORDER-349	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	129
10.350INVALID-ORDER-350	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$	129



10.382INVALID-ORDER-382	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	133
10.383INVALID-ORDER-383	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	133
10.384INVALID-ORDER-384	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	133
10.385INVALID-ORDER-385	$Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	134
10.386INVALID-ORDER-386	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, R_L \right)$	134
10.387INVALID-ORDER-387	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{1}{C_Ls} \right)$	134
10.388INVALID-ORDER-388	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	134
10.389INVALID-ORDER-389	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	134
10.390INVALID-ORDER-390	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, R_L \right)$	134
10.391INVALID-ORDER-391	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	134
10.392INVALID-ORDER-392	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	134
10.393INVALID-ORDER-393	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	134
10.394INVALID-ORDER-394	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	135
10.395INVALID-ORDER-395	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	135
10.396INVALID-ORDER-396	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	135
10.397INVALID-ORDER-397	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	135
10.398INVALID-ORDER-398	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	135
10.399INVALID-ORDER-399	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, R_L \right)$	135
10.400INVALID-ORDER-400	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$	135
10.401INVALID-ORDER-401	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$	135
10.402INVALID-ORDER-402	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	135
10.403INVALID-ORDER-403	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	136
10.404INVALID-ORDER-404	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	136
10.405INVALID-ORDER-405	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	136
10.406INVALID-ORDER-406	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$	136
10.407INVALID-ORDER-407	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	136
10.408INVALID-ORDER-408	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	136
10.409INVALID-ORDER-409	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	136
10.410INVALID-ORDER-410	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$	136
10.411INVALID-ORDER-411	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	136
10.412INVALID-ORDER-412	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	137
10.413INVALID-ORDER-413	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$	137
10.414INVALID-ORDER-414	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	137
10.415INVALID-ORDER-415	$Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$	137















10.596	INVALID-ORDER-596	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	159
10.597	INVALID-ORDER-597	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$	159
10.598	INVALID-ORDER-598	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	159
10.599	INVALID-ORDER-599	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_Ls} \right)$	159
10.600	INVALID-ORDER-600	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	160
10.601	INVALID-ORDER-601	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	160
10.602	INVALID-ORDER-602	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	160
10.603	INVALID-ORDER-603	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} \right)$	160
10.604	INVALID-ORDER-604	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	160
10.605	INVALID-ORDER-605	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	160
10.606	INVALID-ORDER-606	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$	160
10.607	INVALID-ORDER-607	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{L_3s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	160
10.608	INVALID-ORDER-608	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{1}{C_Ls} \right)$	161
10.609	INVALID-ORDER-609	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$	161
10.610	INVALID-ORDER-610	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$	161
10.611	INVALID-ORDER-611	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$	161
10.612	INVALID-ORDER-612	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} \right)$	161
10.613	INVALID-ORDER-613	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$	161
10.614	INVALID-ORDER-614	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$	161
10.615	INVALID-ORDER-615	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$	161
10.616	INVALID-ORDER-616	$Z(s) = \left( \infty, \frac{R_2(L_2s + \frac{1}{C_2s})}{L_2s + R_2 + \frac{1}{C_2s}}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$	162

**1 Examined  $H(z)$  for TIA some parasitic Z2 Z3 ZL:**  $\frac{Z_3 Z_L (Z_2 g_m r_o + Z_2 + r_o)}{Z_2 Z_3 g_m r_o + Z_2 Z_3 + Z_2 Z_L g_m r_o + Z_2 Z_L + Z_3 r_o + Z_L r_o}$

$$H(z) = \frac{Z_3 Z_L (Z_2 g_m r_o + Z_2 + r_o)}{Z_2 Z_3 g_m r_o + Z_2 Z_3 + Z_2 Z_L g_m r_o + Z_2 Z_L + Z_3 r_o + Z_L r_o}$$

**2 HP**

**3 BP**

**3.1 BP-1**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{1}{C_L R_3}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_3$   
QZ: 0  
Wz: None

**3.2 BP-2**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
QZ: 0  
Wz: None

**3.3 BP-3**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

**3.4 BP-4**  $Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L(C_3+C_L)}} (C_3 + C_L)$   
wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
bandwidth:  $\frac{1}{R_3(C_3+C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_3$   
QZ: 0  
Wz: None

**3.5 BP-5**  $Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L(C_3+C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
QZ: 0  
Wz: None

**3.6 BP-6**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
bandwidth:  $\frac{1}{C_3 R_L}$   
K-LP: 0

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

$$\mathbf{3.7 \quad BP-7} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

$$\mathbf{3.8 \quad BP-8} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

$$\mathbf{3.9 \quad BP-9} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

Q:  $\frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$   
wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
bandwidth:  $\frac{R_3 + R_L}{C_3 R_3 R_L}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
QZ: 0

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

Wz: None

$$3.10 \quad \text{BP-10} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

**Parameters:**

$$\text{Q: } R_3 \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$$

$$\text{wo: } \sqrt{\frac{1}{L_3(C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{1}{R_3(C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } R_3$$

$$\text{QZ: } 0$$

$$\text{Wz: None}$$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

$$3.11 \quad \text{BP-11} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

**Parameters:**

$$\text{Q: } \frac{R_3 R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$$

$$\text{wo: } \sqrt{\frac{1}{L_3(C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{QZ: } 0$$

$$\text{Wz: None}$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

$$3.12 \quad \text{BP-12} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

**Parameters:**

$$\text{Q: } R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$$

$$\text{wo: } \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{1}{R_3(C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } R_3$$

$$\text{QZ: } 0$$

$$\text{Wz: None}$$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**3.13 BP-13**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.14 BP-14**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_3}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.15 BP-15**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.16 BP-16**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**3.17 BP-17**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**3.18 BP-18**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$



**3.19 BP-19**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{1}{C_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.20 BP-20**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.21 BP-21**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.22 BP-22**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_3 R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**3.23 BP-23**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3 (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

**3.24 BP-24**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_3 (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**3.25 BP-25**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None

**3.26 BP-26**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$

QZ: 0

Wz: None

**3.27 BP-27**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$

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

bandwidth:  $\frac{1}{C_L R_3}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None

**3.28 BP-28**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**3.29 BP-29**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**3.30 BP-30**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**3.31 BP-31**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.32 BP-32**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{1}{C_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.33 BP-33**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3 (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$3.34 \quad \text{BP-34} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$3.35 \quad \text{BP-35} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_3 R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$3.36 \quad \text{BP-36} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3 (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.37 BP-37**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_3 (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.38 BP-38**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.39 BP-39**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.40 BP-40**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{1}{C_L R_3}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_3$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**3.41 BP-41**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**3.42 BP-42**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$   
wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$



**3.43 BP-43**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.44 BP-44**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.45 BP-45**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{1}{C_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.46 BP-46**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.47 BP-47**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.48 BP-48**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_3 R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.49 BP-49**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

**3.50 BP-50**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**3.51 BP-51**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**3.52 BP-52**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.53 BP-53**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_3}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.54 BP-54**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.55 BP-55**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L(C_3+C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**3.56 BP-56**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L(C_3+C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**3.57 BP-57**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L(C_3+C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 WZ: None

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**3.58 BP-58**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3R_Ls}{C_3L_3R_Ls^2 + L_3s + R_L}$$

**Parameters:**

Q:  $C_3R_L\sqrt{\frac{1}{C_3L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3L_3}}$   
 bandwidth:  $\frac{1}{C_3R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.59 BP-59**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_3R_Ls}{C_3L_3R_Ls^2 + C_LR_Ls + L_3s + R_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{1}{L_3(C_3+C_L)}}(C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.60 BP-60**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_3L_LR_Ls}{C_3L_3L_LR_Ls^2 + C_LL_3L_LR_Ls^2 + L_3L_Ls + L_3R_L + L_LR_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}(C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$3.61 \quad \text{BP-61} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & \frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{C_3 R_3 R_L} \\ \text{K-LP:} & 0 \\ \text{K-HP:} & 0 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{QZ:} & 0 \\ \text{Wz:} & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

$$3.62 \quad \text{BP-62} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & R_3 \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L) \\ \text{wo:} & \sqrt{\frac{1}{L_3 (C_3 + C_L)}} \\ \text{bandwidth:} & \frac{1}{R_3 (C_3 + C_L)} \\ \text{K-LP:} & 0 \\ \text{K-HP:} & 0 \\ \text{K-BP:} & R_3 \\ \text{QZ:} & 0 \\ \text{Wz:} & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

$$3.63 \quad \text{BP-63} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & \frac{R_3 R_L \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{L_3 (C_3 + C_L)}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)} \\ \text{K-LP:} & 0 \\ \text{K-HP:} & 0 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{QZ:} & 0 \\ \text{Wz:} & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**3.64 BP-64**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_3L_LR_3s}{C_3L_3L_LR_3s^2 + C_LL_3L_LR_3s^2 + L_3L_Ls + L_3R_3 + L_LR_3}$$

**Parameters:**

Q:  $R_3\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}(C_3+C_L)$

wo:  $\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}$

bandwidth:  $\frac{1}{R_3(C_3+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None

**3.65 BP-65**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_3L_LR_3R_Ls}{C_3L_3L_LR_3R_Ls^2 + C_LL_3L_LR_3R_Ls^2 + L_3L_LR_3s + L_3L_LR_Ls + L_3R_3R_L + L_LR_3R_L}$$

**Parameters:**

Q:  $\frac{R_3R_L\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}(C_3+C_L)}{R_3+R_L}$

wo:  $\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}$

bandwidth:  $\frac{R_3+R_L}{R_3R_L(C_3+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3R_L}{R_3+R_L}$

QZ: 0

Wz: None

**3.66 BP-66**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_LR_3s}{C_LL_LR_3s^2 + L_Ls + R_3}$$

**Parameters:**

Q:  $C_LR_3\sqrt{\frac{1}{C_LL_L}}$

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

bandwidth:  $\frac{1}{C_LR_3}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None



**3.67 BP-67**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

**Parameters:**

Q:  $\frac{C_LR_3R_L\sqrt{\frac{1}{C_LL_L}}}{R_3+R_L}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_3+R_L}{C_LR_3R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3R_L}{R_3+R_L}$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_LR_3R_Ls}{C_LL_LR_3R_Ls^2 + L_LR_3s + L_LR_Ls + R_3R_L}$$

**3.68 BP-68**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

**Parameters:**

Q:  $R_L\sqrt{\frac{1}{L_L(C_3+C_L)}}(C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_LR_Ls}{C_3L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**3.69 BP-69**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

**Parameters:**

Q:  $R_3\sqrt{\frac{1}{L_L(C_3+C_L)}}(C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_LR_3s}{C_3L_LR_3s^2 + C_LL_LR_3s^2 + L_Ls + R_3}$$

**3.70 BP-70**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_3R_Ls}{C_3L_LR_3R_Ls^2 + C_LL_LR_3R_Ls^2 + L_LR_3s + L_LR_Ls + R_3R_L}$$

**Parameters:**

Q:  $\frac{R_3R_L\sqrt{\frac{1}{L_L(C_3+C_L)}}(C_3+C_L)}{R_3+R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(C_3+C_L)}}$   
 bandwidth:  $\frac{R_3+R_L}{R_3R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3R_L}{R_3+R_L}$   
 QZ: 0  
 Wz: None

**3.71 BP-71**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3R_Ls}{C_3L_3R_Ls^2 + L_3s + R_L}$$

**Parameters:**

Q:  $C_3R_L\sqrt{\frac{1}{C_3L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3L_3}}$   
 bandwidth:  $\frac{1}{C_3R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.72 BP-72**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{L_3R_Ls}{C_3L_3R_Ls^2 + C_LL_3R_Ls^2 + L_3s + R_L}$$

**Parameters:**

Q:  $R_L\sqrt{\frac{1}{L_3(C_3+C_L)}}(C_3+C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3+C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3+C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.73 BP-73**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_3L_LR_Ls}{C_3L_3L_LR_Ls^2 + C_LL_3L_LR_Ls^2 + L_3L_Ls + L_3R_L + L_LR_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{L_3+L_L}{L_3L_L(C_3+C_L)}}$

bandwidth:  $\frac{1}{R_L(C_3+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_L$

QZ: 0

Wz: None

**3.74 BP-74**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3R_3R_Ls}{C_3L_3R_3R_Ls^2 + L_3R_3s + L_3R_Ls + R_3R_L}$$

**Parameters:**

Q:  $\frac{C_3R_3R_L\sqrt{\frac{1}{C_3L_3}}}{R_3+R_L}$

wo:  $\sqrt{\frac{1}{C_3L_3}}$

bandwidth:  $\frac{R_3+R_L}{C_3R_3R_L}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3R_L}{R_3+R_L}$

QZ: 0

Wz: None

**3.75 BP-75**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s}{C_3L_3R_3s^2 + C_LL_3R_3s^2 + L_3s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_3(C_3+C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{1}{L_3(C_3+C_L)}}$

bandwidth:  $\frac{1}{R_3(C_3+C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None

**3.76 BP-76**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$

wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$

bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$

QZ: 0

Wz: None

**3.77 BP-77**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

Wz: None

**3.78 BP-78**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$

QZ: 0

Wz: None

**3.79 BP-79**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{1}{C_L R_3}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_3$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**3.80 BP-80**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
K-LP: 0  
K-HP: 0  
K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**3.81 BP-81**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_L (C_3 + C_L)}} (C_3 + C_L)$   
wo:  $\sqrt{\frac{1}{L_L (C_3 + C_L)}}$   
bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
K-LP: 0  
K-HP: 0  
K-BP:  $R_L$   
QZ: 0  
Wz: None

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**3.82 BP-82**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_L(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.83 BP-83**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_L(C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.84 BP-84**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{1}{C_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.85 BP-85**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.86 BP-86**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

**3.87 BP-87**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_3 R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$3.88 \quad \text{BP-88} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

$$3.89 \quad \text{BP-89} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$3.90 \quad \text{BP-90} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None



**3.91 BP-91**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

**3.92 BP-92**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s}{C_L L_L R_3 s^2 + L_L s + R_3}$$

**Parameters:**

Q:  $C_L R_3 \sqrt{\frac{1}{C_L L_L}}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L R_3}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_3$   
 QZ: 0  
 Wz: None

**3.93 BP-93**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_3 R_L s}{C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**Parameters:**

Q:  $\frac{C_L R_3 R_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 + R_L}{C_L R_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ: 0  
 Wz: None

$$3.94 \quad \text{BP-94} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

**Parameters:**

$$\text{Q: } R_L \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)$$

$$\text{wo: } \sqrt{\frac{1}{L_L(C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{1}{R_L(C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

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

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

$$H(s) = \frac{L_L R_L s}{C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$3.95 \quad \text{BP-95} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

**Parameters:**

$$\text{Q: } R_3 \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)$$

$$\text{wo: } \sqrt{\frac{1}{L_L(C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{1}{R_3(C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } R_3$$

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

$$H(s) = \frac{L_L R_3 s}{C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$3.96 \quad \text{BP-96} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

**Parameters:**

$$\text{Q: } \frac{R_3 R_L \sqrt{\frac{1}{L_L(C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$$

$$\text{wo: } \sqrt{\frac{1}{L_L(C_3 + C_L)}}$$

$$\text{bandwidth: } \frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$$

$$\text{K-LP: } 0$$

$$\text{K-HP: } 0$$

$$\text{K-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{QZ: } 0$$

$$\text{WZ: None}$$

$$H(s) = \frac{L_L R_3 R_L s}{C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$\mathbf{3.97 \quad BP-97} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L \right)$$

**Parameters:**

Q:  $C_3 R_L \sqrt{\frac{1}{C_3 L_3}}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{1}{C_3 R_L}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + L_3 s + R_L}$$

$$\mathbf{3.98 \quad BP-98} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

**Parameters:**

Q:  $R_L \sqrt{\frac{1}{L_3(C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{1}{L_3(C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 R_L s}{C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + L_3 s + R_L}$$

$$\mathbf{3.99 \quad BP-99} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

**Parameters:**

Q:  $R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$   
 wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$   
 bandwidth:  $\frac{1}{R_L(C_3 + C_L)}$   
 K-LP: 0  
 K-HP: 0  
 K-BP:  $R_L$   
 QZ: 0  
 Wz: None

$$H(s) = \frac{L_3 L_L R_L s}{C_3 L_3 L_L R_L s^2 + C_L L_3 L_L R_L s^2 + L_3 L_L s + L_3 R_L + L_L R_L}$$

$$3.100 \quad \text{BP-100} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L \right)$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_3 R_3 R_L \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth: } & \frac{R_3 + R_L}{C_3 R_3 R_L} \\ \text{K-LP: } & 0 \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

$$3.101 \quad \text{BP-101} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

Parameters:

$$\begin{aligned} \text{Q: } & R_3 \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L) \\ \text{wo: } & \sqrt{\frac{1}{L_3 (C_3 + C_L)}} \\ \text{bandwidth: } & \frac{1}{R_3 (C_3 + C_L)} \\ \text{K-LP: } & 0 \\ \text{K-HP: } & 0 \\ \text{K-BP: } & R_3 \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 s}{C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + L_3 s + R_3}$$

$$3.102 \quad \text{BP-102} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{R_3 R_L \sqrt{\frac{1}{L_3 (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L} \\ \text{wo: } & \sqrt{\frac{1}{L_3 (C_3 + C_L)}} \\ \text{bandwidth: } & \frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)} \\ \text{K-LP: } & 0 \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{QZ: } & 0 \\ \text{Wz: } & \text{None} \end{aligned}$$

$$H(s) = \frac{L_3 R_3 R_L s}{C_3 L_3 R_3 R_L s^2 + C_L L_3 R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**3.103 BP-103**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L R_3 s}{C_3 L_3 L_L R_3 s^2 + C_L L_3 L_L R_3 s^2 + L_3 L_L s + L_3 R_3 + L_L R_3}$$

**Parameters:**

Q:  $R_3 \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{1}{R_3 (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $R_3$

QZ: 0

WZ: None

**3.104 BP-104**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_3 L_L R_3 R_L s}{C_3 L_3 L_L R_3 R_L s^2 + C_L L_3 L_L R_3 R_L s^2 + L_3 L_L R_3 s + L_3 L_L R_L s + L_3 R_3 R_L + L_L R_3 R_L}$$

**Parameters:**

Q:  $\frac{R_3 R_L \sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}} (C_3 + C_L)}{R_3 + R_L}$

wo:  $\sqrt{\frac{L_3 + L_L}{L_3 L_L (C_3 + C_L)}}$

bandwidth:  $\frac{R_3 + R_L}{R_3 R_L (C_3 + C_L)}$

K-LP: 0

K-HP: 0

K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$

QZ: 0

WZ: None

## 4 LP

## 5 BS

**5.1 BS-1**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3}$

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

bandwidth:  $\frac{R_3}{L_L}$

K-LP:  $R_3$

K-HP:  $R_3$

K-BP: 0  
QZ: None  
WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.2 BS-2**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-BP: 0  
QZ: None  
WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.3 BS-3**  $Z(s) = \left( \infty, R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L}$   
wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
bandwidth:  $\frac{R_L}{L_3}$   
K-LP:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
QZ: None  
WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

**5.4 BS-4**  $Z(s) = \left( \infty, R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L}$   
wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
bandwidth:  $\frac{R_3 R_L}{L_3 (R_3 + R_L)}$   
K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-BP: 0

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

Qz: None  
Wz:  $\sqrt{\frac{1}{C_3 L_3}}$

**5.5 BS-5**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3}{L_L}$   
K-LP:  $R_3$   
K-HP:  $R_3$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

**5.6 BS-6**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
wo:  $\sqrt{\frac{1}{C_L L_L}}$   
bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

**5.7 BS-7**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L}$   
wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
bandwidth:  $\frac{R_L}{L_3}$   
K-LP:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
Qz: None

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

$$\text{Wz: } \sqrt{\frac{1}{C_3 L_3}}$$

$$\mathbf{5.8 \quad BS-8} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth: } & \frac{R_3 R_L}{L_3 (R_3 + R_L)} \\ \text{K-LP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP: } & 0 \\ \text{Qz: } & \text{None} \\ \text{Wz: } & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

$$\mathbf{5.9 \quad BS-9} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{R_3}{L_L} \\ \text{K-LP: } & R_3 \\ \text{K-HP: } & R_3 \\ \text{K-BP: } & 0 \\ \text{Qz: } & \text{None} \\ \text{Wz: } & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

$$\mathbf{5.10 \quad BS-10} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{R_3 R_L}{L_L (R_3 + R_L)} \\ \text{K-LP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP: } & 0 \\ \text{Qz: } & \text{None} \end{aligned}$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$



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

$$5.11 \quad \text{BS-11} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & 0 \\ \text{Qz:} & \text{None} \\ W_z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

$$5.12 \quad \text{BS-12} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 R_L}{L_3 (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & 0 \\ \text{Qz:} & \text{None} \\ W_z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

$$5.13 \quad \text{BS-13} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3}{L_L} \\ \text{K-LP:} & R_3 \\ \text{K-HP:} & R_3 \\ \text{K-BP:} & 0 \\ \text{Qz:} & \text{None} \\ W_z: & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

$$5.14 \quad \text{BS-14} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & \frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3 R_L}{L_L (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & 0 \\ \text{QZ:} & \text{None} \\ \text{WZ:} & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$5.15 \quad \text{BS-15} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad L_3 s + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & 0 \\ \text{QZ:} & \text{None} \\ \text{WZ:} & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

$$5.16 \quad \text{BS-16} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q:} & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 R_L}{L_3 (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & 0 \\ \text{QZ:} & \text{None} \\ \text{WZ:} & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

**5.17 BS-17**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3}{L_L}$   
 K-LP:  $R_3$   
 K-HP:  $R_3$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.18 BS-18**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.19 BS-19**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_L}{L_3}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

**5.20 BS-20**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3 \left( L_3s + \frac{1}{C_3s} \right)}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 R_L}{L_3 (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

**5.21 BS-21**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3}{L_L}$   
 K-LP:  $R_3$   
 K-HP:  $R_3$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.22 BS-22**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3, \infty, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

**5.23 BS-23**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L (C_3L_3s^2 + 1)}{C_3L_3s^2 + C_3R_Ls + 1}$$

**Parameters:**

Q:  $\frac{L_3\sqrt{\frac{1}{C_3L_3}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_3L_3}}$   
 bandwidth:  $\frac{R_L}{L_3}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3L_3}}$

**5.24 BS-24**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_3R_L (C_3L_3s^2 + 1)}{C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_3R_3R_Ls + R_3 + R_L}$$

**Parameters:**

Q:  $\frac{L_3\sqrt{\frac{1}{C_3L_3}}(R_3 + R_L)}{R_3R_L}$   
 wo:  $\sqrt{\frac{1}{C_3L_3}}$   
 bandwidth:  $\frac{R_3R_L}{L_3(R_3 + R_L)}$   
 K-LP:  $\frac{R_3R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3L_3}}$

**5.25 BS-25**  $Z(s) = \left( \infty, \frac{L_2s}{C_2L_2s^2 + 1} + R_2, R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_3 (C_LL_Ls^2 + 1)}{C_LL_Ls^2 + C_LR_3s + 1}$$

**Parameters:**

Q:  $\frac{L_L\sqrt{\frac{1}{C_LL_L}}}{R_3}$   
 wo:  $\sqrt{\frac{1}{C_LL_L}}$   
 bandwidth:  $\frac{R_3}{L_L}$   
 K-LP:  $R_3$   
 K-HP:  $R_3$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_LL_L}}$

**5.26 BS-26**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

**5.27 BS-27**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_L}{L_3}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

**5.28 BS-28**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 R_L}{L_3 (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

**5.29 BS-29**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3}{L_L}$   
 K-LP:  $R_3$   
 K-HP:  $R_3$   
 K-BP: 0  
 QZ: None  
 Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_3 s + 1}$$

**5.30 BS-30**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 R_L}{L_L (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 Wz:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

**5.31 BS-31**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_L}{L_3}$   
 K-LP:  $R_L$   
 K-HP:  $R_L$   
 K-BP: 0  
 QZ: None  
 Wz:  $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 s^2 + C_3 R_L s + 1}$$

**5.32 BS-32**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L \right)$

**Parameters:**

Q:  $\frac{L_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)}{R_3 R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 L_3}}$   
 bandwidth:  $\frac{R_3 R_L}{L_3 (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP: 0  
 QZ: None  
 WZ:  $\sqrt{\frac{1}{C_3 L_3}}$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + R_3 + R_L}$$

## 6 GE

**6.1 GE-1**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

**Parameters:**

Q:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{R_3 + R_L}{L_L}$   
 K-LP:  $R_3$   
 K-HP:  $R_3$   
 K-BP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 QZ:  $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$   
 WZ:  $\sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

**6.2 GE-2**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

**Parameters:**

Q:  $C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$   
 wo:  $\sqrt{\frac{1}{C_L L_L}}$   
 bandwidth:  $\frac{1}{C_L (R_3 + R_L)}$   
 K-LP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-HP:  $\frac{R_3 R_L}{R_3 + R_L}$   
 K-BP:  $R_3$   
 QZ:  $C_L R_L \sqrt{\frac{1}{C_L L_L}}$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$



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

$$\mathbf{6.3 \quad GE-3} \quad Z(s) = \left( \infty, \quad R_2, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3} \\ W_Z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$\mathbf{6.4 \quad GE-4} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L) \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{1}{C_3 (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & R_L \\ Q_Z: & C_3 R_3 \sqrt{\frac{1}{C_3 L_3}} \\ W_Z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$\mathbf{6.5 \quad GE-5} \quad Z(s) = \left( \infty, \quad \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_L} \\ \text{K-LP:} & R_3 \\ \text{K-HP:} & R_3 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

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

$$\mathbf{6.6 \quad GE-6} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$Q: C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$$

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

$$\text{bandwidth: } \frac{1}{C_L (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-BP: } R_3$$

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

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

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$\mathbf{6.7 \quad GE-7} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$Q: \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$$

$$w_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{R_3 + R_L}{L_3}$$

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

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

$$K\text{-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$Q_Z: \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$\mathbf{6.8 \quad GE-8} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$Q: C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)$$

$$w_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{1}{C_3 (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

$$Q_Z: C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$6.9 \quad \text{GE-9} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_L} \\ \text{K-LP:} & R_3 \\ \text{K-HP:} & R_3 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\ W_Z: & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$6.10 \quad \text{GE-10} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L) \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{1}{C_L (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & R_3 \\ Q_Z: & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ W_Z: & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$6.11 \quad \text{GE-11} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$\mathbf{6.12 \quad GE-12} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$Q: C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)$$

$$W_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{1}{C_3 (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

$$Q_Z: C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$\mathbf{6.13 \quad GE-13} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$Q: \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$$

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

$$\text{bandwidth: } \frac{R_3 + R_L}{L_L}$$

$$K\text{-LP: } R_3$$

$$K\text{-HP: } R_3$$

$$K\text{-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

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

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$\mathbf{6.14 \quad GE-14} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$Q: C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$$

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

$$\text{bandwidth: } \frac{1}{C_L (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-BP: } R_3$$

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

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

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

$$6.15 \quad \mathbf{GE-15} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3} \\ W_Z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$6.16 \quad \mathbf{GE-16} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} Q: & C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L) \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{1}{C_3 (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & R_L \\ Q_Z: & C_3 R_3 \sqrt{\frac{1}{C_3 L_3}} \\ W_Z: & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$6.17 \quad \mathbf{GE-17} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_L} \\ \text{K-LP:} & R_3 \\ \text{K-HP:} & R_3 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

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

$$6.18 \quad \mathbf{GE-18} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$Q: C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$$

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

$$\text{bandwidth: } \frac{1}{C_L (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-BP: } R_3$$

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

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

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$6.19 \quad \mathbf{GE-19} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$Q: \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$$

$$w_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{R_3 + R_L}{L_3}$$

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

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

$$K\text{-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$Q_Z: \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$6.20 \quad \mathbf{GE-20} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$Q: C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)$$

$$w_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{1}{C_3 (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

$$Q_Z: C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$6.21 \quad \text{GE-21} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_L} \\ \text{K-LP:} & R_3 \\ \text{K-HP:} & R_3 \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \\ W_Z: & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$6.22 \quad \text{GE-22} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

**Parameters:**

$$\begin{aligned} Q: & C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L) \\ \text{wo:} & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth:} & \frac{1}{C_L (R_3 + R_L)} \\ \text{K-LP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP:} & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP:} & R_3 \\ Q_Z: & C_L R_L \sqrt{\frac{1}{C_L L_L}} \\ W_Z: & \sqrt{\frac{1}{C_L L_L}} \end{aligned}$$

$$6.23 \quad \text{GE-23} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad L_3 s + R_3 + \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

**Parameters:**

$$\begin{aligned} Q: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo:} & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth:} & \frac{R_3 + R_L}{L_3} \\ \text{K-LP:} & R_L \\ \text{K-HP:} & R_L \\ \text{K-BP:} & \frac{R_3 R_L}{R_3 + R_L} \\ Q_Z: & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3} \end{aligned}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$\mathbf{6.24 \quad GE-24} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \quad \infty, \quad \infty, \quad R_L \right)$$

**Parameters:**

$$Q: C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)$$

$$w_O: \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{1}{C_3 (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

$$Q_Z: C_3 R_3 \sqrt{\frac{1}{C_3 L_3}}$$

$$W_Z: \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$\mathbf{6.25 \quad GE-25} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$Q: \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L}$$

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

$$\text{bandwidth: } \frac{R_3 + R_L}{L_L}$$

$$K\text{-LP: } R_3$$

$$K\text{-HP: } R_3$$

$$K\text{-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

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

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$\mathbf{6.26 \quad GE-26} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$Q: C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$$

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

$$\text{bandwidth: } \frac{1}{C_L (R_3 + R_L)}$$

$$K\text{-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$K\text{-BP: } R_3$$

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

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$



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

$$\mathbf{6.27 \quad GE-27} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth: } & \frac{R_3 + R_L}{L_3} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & R_L \\ \text{K-BP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{Qz: } & \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3} \\ \text{Wz: } & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$\mathbf{6.28 \quad GE-28} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L) \\ \text{wo: } & \sqrt{\frac{1}{C_3 L_3}} \\ \text{bandwidth: } & \frac{1}{C_3 (R_3 + R_L)} \\ \text{K-LP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-HP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{K-BP: } & R_L \\ \text{Qz: } & C_3 R_3 \sqrt{\frac{1}{C_3 L_3}} \\ \text{Wz: } & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$\mathbf{6.29 \quad GE-29} \quad Z(s) = \left( \infty, \frac{R_2 (L_2 s + \frac{1}{C_2 s})}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

**Parameters:**

$$\begin{aligned} \text{Q: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_3 + R_L} \\ \text{wo: } & \sqrt{\frac{1}{C_L L_L}} \\ \text{bandwidth: } & \frac{R_3 + R_L}{L_L} \\ \text{K-LP: } & R_3 \\ \text{K-HP: } & R_3 \\ \text{K-BP: } & \frac{R_3 R_L}{R_3 + R_L} \\ \text{Qz: } & \frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L} \end{aligned}$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

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

$$\mathbf{6.30 \quad GE-30} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

**Parameters:**

$$\text{Q: } C_L \sqrt{\frac{1}{C_L L_L}} (R_3 + R_L)$$

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

$$\text{bandwidth: } \frac{1}{C_L (R_3 + R_L)}$$

$$\text{K-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{K-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{K-BP: } R_3$$

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

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

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$\mathbf{6.31 \quad GE-31} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

**Parameters:**

$$\text{Q: } \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3 + R_L}$$

$$\text{wo: } \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{R_3 + R_L}{L_3}$$

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

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

$$\text{K-BP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{Qz: } \frac{L_3 \sqrt{\frac{1}{C_3 L_3}}}{R_3}$$

$$\text{Wz: } \sqrt{\frac{1}{C_3 L_3}}$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + 1}$$

$$\mathbf{6.32 \quad GE-32} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L \right)$$

**Parameters:**

$$\text{Q: } C_3 \sqrt{\frac{1}{C_3 L_3}} (R_3 + R_L)$$

$$\text{wo: } \sqrt{\frac{1}{C_3 L_3}}$$

$$\text{bandwidth: } \frac{1}{C_3 (R_3 + R_L)}$$

$$\text{K-LP: } \frac{R_3 R_L}{R_3 + R_L}$$

$$\text{K-HP: } \frac{R_3 R_L}{R_3 + R_L}$$

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

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + L_3 s + R_3 + R_L}$$

$$\begin{aligned} \text{QZ: } & C_3 R_3 \sqrt{\frac{1}{C_3 L_3}} \\ \text{WZ: } & \sqrt{\frac{1}{C_3 L_3}} \end{aligned}$$

## 7 AP

## 8 INVALID-NUMER

### 8.1 INVALID-NUMER-1

$$Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_L R_3 + C_L R_L} \\ \text{wO: } & \sqrt{\frac{1}{C_3 C_L R_3 R_L}} \\ \text{bandwidth: } & \frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L} \\ \text{K-LP: } & R_3 \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L} \\ \text{QZ: } & 0 \\ \text{WZ: } & \text{None} \end{aligned}$$

### 8.2 INVALID-NUMER-2

$$Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_3 R_L + C_L R_L} \\ \text{wO: } & \sqrt{\frac{1}{C_3 C_L R_3 R_L}} \\ \text{bandwidth: } & \frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L} \\ \text{K-LP: } & R_L \\ \text{K-HP: } & 0 \\ \text{K-BP: } & \frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L} \\ \text{QZ: } & 0 \\ \text{WZ: } & \text{None} \end{aligned}$$

### 8.3 INVALID-NUMER-3

$$Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

Parameters:

$$\begin{aligned} \text{Q: } & \frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_L R_3 + C_L R_L} \\ \text{wO: } & \sqrt{\frac{1}{C_3 C_L R_3 R_L}} \end{aligned}$$

bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
K-LP:  $R_3$   
K-HP: 0  
K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
QZ: 0  
WZ: None

**8.4 INVALID-NUMER-4**  $Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_3 R_L + C_L R_L}$   
wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
bandwidth:  $\frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L}$   
K-LP:  $R_L$   
K-HP: 0  
K-BP:  $\frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L}$   
QZ: 0  
WZ: None

**8.5 INVALID-NUMER-5**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_L R_3 + C_L R_L}$   
wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
K-LP:  $R_3$   
K-HP: 0  
K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
QZ: 0  
WZ: None

**8.6 INVALID-NUMER-6**  $Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_3 R_L + C_L R_L}$   
wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
bandwidth:  $\frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L}$   
K-LP:  $R_L$   
K-HP: 0  
K-BP:  $\frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L}$

Qz: 0  
Wz: None

**8.7 INVALID-NUMER-7**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_3$   
 K-HP: 0  
 K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 Qz: 0  
 Wz: None

**8.8 INVALID-NUMER-8**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_L$   
 K-HP: 0  
 K-BP:  $\frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 Qz: 0  
 Wz: None

**8.9 INVALID-NUMER-9**  $Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_3$   
 K-HP: 0  
 K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 Qz: 0  
 Wz: None

**8.10 INVALID-NUMER-10**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_3R_3s + 1)}{C_3C_LR_3R_Ls^2 + C_3R_3s + C_3R_Ls + C_LR_Ls + 1}$$

**Parameters:**

Q:  $\frac{C_3C_LR_3R_L\sqrt{\frac{1}{C_3C_LR_3R_L}}}{C_3R_3+C_3R_L+C_LR_L}$   
 wo:  $\sqrt{\frac{1}{C_3C_LR_3R_L}}$   
 bandwidth:  $\frac{C_3R_3+C_3R_L+C_LR_L}{C_3C_LR_3R_L}$   
 K-LP:  $R_L$   
 K-HP: 0  
 K-BP:  $\frac{C_3R_3R_L}{C_3R_3+C_3R_L+C_LR_L}$   
 QZ: 0  
 Wz: None

**8.11 INVALID-NUMER-11**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{R_3 (C_LR_Ls + 1)}{C_3C_LR_3R_Ls^2 + C_3R_3s + C_LR_3s + C_LR_Ls + 1}$$

**Parameters:**

Q:  $\frac{C_3C_LR_3R_L\sqrt{\frac{1}{C_3C_LR_3R_L}}}{C_3R_3+C_LR_3+C_LR_L}$   
 wo:  $\sqrt{\frac{1}{C_3C_LR_3R_L}}$   
 bandwidth:  $\frac{C_3R_3+C_LR_3+C_LR_L}{C_3C_LR_3R_L}$   
 K-LP:  $R_3$   
 K-HP: 0  
 K-BP:  $\frac{C_LR_3R_L}{C_3R_3+C_LR_3+C_LR_L}$   
 QZ: 0  
 Wz: None

**8.12 INVALID-NUMER-12**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_3R_3s + 1)}{C_3C_LR_3R_Ls^2 + C_3R_3s + C_3R_Ls + C_LR_Ls + 1}$$

**Parameters:**

Q:  $\frac{C_3C_LR_3R_L\sqrt{\frac{1}{C_3C_LR_3R_L}}}{C_3R_3+C_3R_L+C_LR_L}$   
 wo:  $\sqrt{\frac{1}{C_3C_LR_3R_L}}$   
 bandwidth:  $\frac{C_3R_3+C_3R_L+C_LR_L}{C_3C_LR_3R_L}$   
 K-LP:  $R_L$   
 K-HP: 0  
 K-BP:  $\frac{C_3R_3R_L}{C_3R_3+C_3R_L+C_LR_L}$   
 QZ: 0  
 Wz: None

**8.13 INVALID-NUMER-13**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{C_3 C_L R_3 R_L}}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_3$   
 K-HP: 0  
 K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 QZ: 0  
 WZ: None

**8.14 INVALID-NUMER-14**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{C_3 C_L R_3 R_L}}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_L$   
 K-HP: 0  
 K-BP:  $\frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 QZ: 0  
 WZ: None

**8.15 INVALID-NUMER-15**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{C_3 C_L R_3 R_L}}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_L R_3 + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_3$   
 K-HP: 0  
 K-BP:  $\frac{C_L R_3 R_L}{C_3 R_3 + C_L R_3 + C_L R_L}$   
 QZ: 0  
 WZ: None

**8.16 INVALID-NUMER-16**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**Parameters:**

Q:  $\frac{C_3 C_L R_3 R_L \sqrt{\frac{1}{C_3 C_L R_3 R_L}}}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 wo:  $\sqrt{\frac{1}{C_3 C_L R_3 R_L}}$   
 bandwidth:  $\frac{C_3 R_3 + C_3 R_L + C_L R_L}{C_3 C_L R_3 R_L}$   
 K-LP:  $R_L$   
 K-HP: 0  
 K-BP:  $\frac{C_3 R_3 R_L}{C_3 R_3 + C_3 R_L + C_L R_L}$   
 QZ: 0  
 Wz: None

## 9 INVALID-WZ

## 10 INVALID-ORDER

**10.1 INVALID-ORDER-1**  $Z(s) = (\infty, R_2, R_3, \infty, \infty, R_L)$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

**10.2 INVALID-ORDER-2**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

**10.3 INVALID-ORDER-3**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

**10.4 INVALID-ORDER-4**  $Z(s) = \left( \infty, R_2, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

**10.5 INVALID-ORDER-5**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$



$$10.6 \quad \text{INVALID-ORDER-6} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s(C_3 + C_L)}$$

$$10.7 \quad \text{INVALID-ORDER-7} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.8 \quad \text{INVALID-ORDER-8} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s(C_3 C_L R_L s + C_3 + C_L)}$$

$$10.9 \quad \text{INVALID-ORDER-9} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.10 \quad \text{INVALID-ORDER-10} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.11 \quad \text{INVALID-ORDER-11} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.12 \quad \text{INVALID-ORDER-12} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.13 \quad \text{INVALID-ORDER-13} \quad Z(s) = \left( \infty, R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.14 \quad \text{INVALID-ORDER-14} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.15 \quad \text{INVALID-ORDER-15} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$

$$10.16 \quad \text{INVALID-ORDER-16} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.17 \quad \text{INVALID-ORDER-17} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.18 \quad \text{INVALID-ORDER-18} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.19 \quad \text{INVALID-ORDER-19} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.20 \quad \text{INVALID-ORDER-20} \quad Z(s) = \left( \infty, R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.21 \quad \text{INVALID-ORDER-21} \quad Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.22 \quad \text{INVALID-ORDER-22} \quad Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.23 \quad \text{INVALID-ORDER-23} \quad Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

**10.24 INVALID-ORDER-24**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L s^2 + 1)}{s(C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

**10.25 INVALID-ORDER-25**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

**10.26 INVALID-ORDER-26**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

**10.27 INVALID-ORDER-27**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.28 INVALID-ORDER-28**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

**10.29 INVALID-ORDER-29**  $Z(s) = \left( \infty, R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)(C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.30 INVALID-ORDER-30**  $Z(s) = \left( \infty, R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s(C_3 C_L L_3 s^2 + C_3 + C_L)}$$

**10.31 INVALID-ORDER-31**  $Z(s) = \left( \infty, R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.32 \quad \text{INVALID-ORDER-32} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.33 \quad \text{INVALID-ORDER-33} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3 + C_L)}$$

$$10.34 \quad \text{INVALID-ORDER-34} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_Ls(C_3L_3s^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3L_3s^2 + C_3L_Ls^2 + C_LL_Ls^2 + 1}$$

$$10.35 \quad \text{INVALID-ORDER-35} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.36 \quad \text{INVALID-ORDER-36} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

$$10.37 \quad \text{INVALID-ORDER-37} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_Ls + C_LL_Ls^2 + 1}$$

$$10.38 \quad \text{INVALID-ORDER-38} \quad Z(s) = \left( \infty, R_2, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.39 \quad \text{INVALID-ORDER-39} \quad Z(s) = \left( \infty, R_2, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{L_3s}{C_3L_3s^2 + C_LL_3s^2 + 1}$$

**10.40 INVALID-ORDER-40**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1}$$

**10.41 INVALID-ORDER-41**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1}$$

**10.42 INVALID-ORDER-42**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L}$$

**10.43 INVALID-ORDER-43**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1}$$

**10.44 INVALID-ORDER-44**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}$$

**10.45 INVALID-ORDER-45**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$

**10.46 INVALID-ORDER-46**  $Z(s) = \left( \infty, R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

**10.47 INVALID-ORDER-47**  $Z(s) = \left( \infty, R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

**10.48 INVALID-ORDER-48**  $Z(s) = \left( \infty, R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

**10.49 INVALID-ORDER-49**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

**10.50 INVALID-ORDER-50**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

**10.51 INVALID-ORDER-51**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

**10.52 INVALID-ORDER-52**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3C_LL_LR_3R_Ls^3 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.53 INVALID-ORDER-53**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + 1}$$

**10.54 INVALID-ORDER-54**  $Z(s) = \left( \infty, R_2, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.55 INVALID-ORDER-55**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LR_Ls + 1)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3}$$

**10.56 INVALID-ORDER-56**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_3s^4 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + L_3s + R_3}$$

**10.57 INVALID-ORDER-57**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

**10.58 INVALID-ORDER-58**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 R_L}$$

**10.59 INVALID-ORDER-59**  $Z(s) = \left( \infty, R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**10.60 INVALID-ORDER-60**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}$$

**10.61 INVALID-ORDER-61**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

**10.62 INVALID-ORDER-62**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1}$$

**10.63 INVALID-ORDER-63**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1}$$

**10.64 INVALID-ORDER-64**  $Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3}$$

$$10.65 \quad \text{INVALID-ORDER-65} \quad Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.66 \quad \text{INVALID-ORDER-66} \quad Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.67 \quad \text{INVALID-ORDER-67} \quad Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_L}$$

$$10.68 \quad \text{INVALID-ORDER-68} \quad Z(s) = \left( \infty, R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.69 \quad \text{INVALID-ORDER-69} \quad Z(s) = \left( \infty, R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.70 \quad \text{INVALID-ORDER-70} \quad Z(s) = \left( \infty, R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.71 \quad \text{INVALID-ORDER-71} \quad Z(s) = \left( \infty, R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.72 \quad \text{INVALID-ORDER-72} \quad Z(s) = \left( \infty, R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$



$$10.73 \quad \text{INVALID-ORDER-73} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.74 \quad \text{INVALID-ORDER-74} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.75 \quad \text{INVALID-ORDER-75} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.76 \quad \text{INVALID-ORDER-76} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.77 \quad \text{INVALID-ORDER-77} \quad Z(s) = \left( \infty, \quad R_2, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.78 \quad \text{INVALID-ORDER-78} \quad Z(s) = \left( \infty, \quad \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.79 \quad \text{INVALID-ORDER-79} \quad Z(s) = \left( \infty, \quad \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.80 \quad \text{INVALID-ORDER-80} \quad Z(s) = \left( \infty, \quad \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.81 \quad \text{INVALID-ORDER-81} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.82 \quad \text{INVALID-ORDER-82} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.83 \quad \text{INVALID-ORDER-83} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.84 \quad \text{INVALID-ORDER-84} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.85 \quad \text{INVALID-ORDER-85} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.86 \quad \text{INVALID-ORDER-86} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.87 \quad \text{INVALID-ORDER-87} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.88 \quad \text{INVALID-ORDER-88} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s (C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.89 \quad \text{INVALID-ORDER-89} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.90 \quad \text{INVALID-ORDER-90} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.91 \quad \text{INVALID-ORDER-91} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.92 \quad \text{INVALID-ORDER-92} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$

$$10.93 \quad \text{INVALID-ORDER-93} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.94 \quad \text{INVALID-ORDER-94} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.95 \quad \text{INVALID-ORDER-95} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.96 \quad \text{INVALID-ORDER-96} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.97 \quad \text{INVALID-ORDER-97} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.98 \quad \text{INVALID-ORDER-98} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.99 \quad \text{INVALID-ORDER-99} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s(C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.100 \quad \text{INVALID-ORDER-100} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L R_L s + 1)}{s(C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.101 \quad \text{INVALID-ORDER-101} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L s^2 + 1)}{s(C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.102 \quad \text{INVALID-ORDER-102} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s(C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.103 \quad \text{INVALID-ORDER-103} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.104 \quad \text{INVALID-ORDER-104} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s(C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.105 \quad \text{INVALID-ORDER-105} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.106 \quad \text{INVALID-ORDER-106} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L(L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L(C_3 R_3 s + 1)(C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.107 \quad \text{INVALID-ORDER-107} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s(C_3 C_L L_3 s^2 + C_3 + C_L)}$$

$$10.108 \quad \text{INVALID-ORDER-108} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.109 \quad \text{INVALID-ORDER-109} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.110 \quad \text{INVALID-ORDER-110} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.111 \quad \text{INVALID-ORDER-111} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.112 \quad \text{INVALID-ORDER-112} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.113 \quad \text{INVALID-ORDER-113} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.114 \quad \text{INVALID-ORDER-114} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.115 \quad \text{INVALID-ORDER-115} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.116 \quad \text{INVALID-ORDER-116} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + C_L L_3 s^2 + 1}$$

$$10.117 \quad \text{INVALID-ORDER-117} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1}$$

$$10.118 \quad \text{INVALID-ORDER-118} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1}$$

$$10.119 \quad \text{INVALID-ORDER-119} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L}$$

$$10.120 \quad \text{INVALID-ORDER-120} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.121 \quad \text{INVALID-ORDER-121} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}$$

$$10.122 \quad \text{INVALID-ORDER-122} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$

$$10.123 \quad \text{INVALID-ORDER-123} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.124 \quad \text{INVALID-ORDER-124} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

10.125 INVALID-ORDER-125  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.126 INVALID-ORDER-126  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

10.127 INVALID-ORDER-127  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

10.128 INVALID-ORDER-128  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.129 INVALID-ORDER-129  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3C_LL_LR_3R_Ls^3 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.130 INVALID-ORDER-130  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + 1}$$

10.131 INVALID-ORDER-131  $Z(s) = \left( \infty, \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.132 INVALID-ORDER-132  $Z(s) = \left( \infty, \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LR_Ls + 1)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3}$$

$$10.133 \quad \text{INVALID-ORDER-133} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + L_3 s + R_3}$$

$$10.134 \quad \text{INVALID-ORDER-134} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

$$10.135 \quad \text{INVALID-ORDER-135} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 R_L}$$

$$10.136 \quad \text{INVALID-ORDER-136} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

$$10.137 \quad \text{INVALID-ORDER-137} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}$$

$$10.138 \quad \text{INVALID-ORDER-138} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.139 \quad \text{INVALID-ORDER-139} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.140 \quad \text{INVALID-ORDER-140} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1}$$



$$10.141 \quad \text{INVALID-ORDER-141} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3}$$

$$10.142 \quad \text{INVALID-ORDER-142} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.143 \quad \text{INVALID-ORDER-143} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.144 \quad \text{INVALID-ORDER-144} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_L}$$

$$10.145 \quad \text{INVALID-ORDER-145} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.146 \quad \text{INVALID-ORDER-146} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.147 \quad \text{INVALID-ORDER-147} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.148 \quad \text{INVALID-ORDER-148} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.149 \quad \text{INVALID-ORDER-149} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.150 \quad \text{INVALID-ORDER-150} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.151 \quad \text{INVALID-ORDER-151} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.152 \quad \text{INVALID-ORDER-152} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.153 \quad \text{INVALID-ORDER-153} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.154 \quad \text{INVALID-ORDER-154} \quad Z(s) = \left( \infty, \frac{1}{C_2 s}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.155 \quad \text{INVALID-ORDER-155} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.156 \quad \text{INVALID-ORDER-156} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.157 \quad \text{INVALID-ORDER-157} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.158 \quad \text{INVALID-ORDER-158} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.159 \quad \text{INVALID-ORDER-159} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.160 \quad \text{INVALID-ORDER-160} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.161 \quad \text{INVALID-ORDER-161} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.162 \quad \text{INVALID-ORDER-162} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.163 \quad \text{INVALID-ORDER-163} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.164 \quad \text{INVALID-ORDER-164} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.165 \quad \text{INVALID-ORDER-165} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s (C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.166 \quad \text{INVALID-ORDER-166} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.167 \quad \text{INVALID-ORDER-167} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.168 \quad \text{INVALID-ORDER-168} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.169 \quad \text{INVALID-ORDER-169} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$

$$10.170 \quad \text{INVALID-ORDER-170} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.171 \quad \text{INVALID-ORDER-171} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.172 \quad \text{INVALID-ORDER-172} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.173 \quad \text{INVALID-ORDER-173} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.174 \quad \text{INVALID-ORDER-174} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.175 \quad \text{INVALID-ORDER-175} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.176 \quad \text{INVALID-ORDER-176} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.177 \quad \text{INVALID-ORDER-177} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.178 \quad \text{INVALID-ORDER-178} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.179 \quad \text{INVALID-ORDER-179} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.180 \quad \text{INVALID-ORDER-180} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.181 \quad \text{INVALID-ORDER-181} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.182 \quad \text{INVALID-ORDER-182} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.183 \quad \text{INVALID-ORDER-183} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.184 \quad \text{INVALID-ORDER-184} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s (C_3 C_L L_3 s^2 + C_3 + C_L)}$$

$$10.185 \quad \text{INVALID-ORDER-185} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.186 \quad \text{INVALID-ORDER-186} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.187 \quad \text{INVALID-ORDER-187} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.188 \quad \text{INVALID-ORDER-188} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.189 \quad \text{INVALID-ORDER-189} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.190 \quad \text{INVALID-ORDER-190} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.191 \quad \text{INVALID-ORDER-191} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.192 \quad \text{INVALID-ORDER-192} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.193 \quad \text{INVALID-ORDER-193} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + C_L L_3 s^2 + 1}$$

$$10.194 \quad \text{INVALID-ORDER-194} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1}$$

$$10.195 \quad \text{INVALID-ORDER-195} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1}$$

$$10.196 \quad \text{INVALID-ORDER-196} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L}$$

$$10.197 \quad \text{INVALID-ORDER-197} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.198 \quad \text{INVALID-ORDER-198} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}$$

$$10.199 \quad \text{INVALID-ORDER-199} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$

$$10.200 \quad \text{INVALID-ORDER-200} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.201 \quad \text{INVALID-ORDER-201} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

$$10.202 \quad \text{INVALID-ORDER-202} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.203 \quad \text{INVALID-ORDER-203} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.204 \quad \text{INVALID-ORDER-204} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.205 \quad \text{INVALID-ORDER-205} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.206 \quad \text{INVALID-ORDER-206} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.207 \quad \text{INVALID-ORDER-207} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.208 \quad \text{INVALID-ORDER-208} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$



$$10.209 \quad \text{INVALID-ORDER-209} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

$$10.210 \quad \text{INVALID-ORDER-210} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + L_3 s + R_3}$$

$$10.211 \quad \text{INVALID-ORDER-211} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

$$10.212 \quad \text{INVALID-ORDER-212} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 R_L}$$

$$10.213 \quad \text{INVALID-ORDER-213} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

$$10.214 \quad \text{INVALID-ORDER-214} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}$$

$$10.215 \quad \text{INVALID-ORDER-215} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.216 \quad \text{INVALID-ORDER-216} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.217 \quad \text{INVALID-ORDER-217} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1)(C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.218 \quad \text{INVALID-ORDER-218} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3}$$

$$10.219 \quad \text{INVALID-ORDER-219} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1)(C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.220 \quad \text{INVALID-ORDER-220} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.221 \quad \text{INVALID-ORDER-221} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3)(C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_L}$$

$$10.222 \quad \text{INVALID-ORDER-222} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)(C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.223 \quad \text{INVALID-ORDER-223} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.224 \quad \text{INVALID-ORDER-224} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.225 \quad \text{INVALID-ORDER-225} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.226 \quad \text{INVALID-ORDER-226} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.227 \quad \text{INVALID-ORDER-227} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.228 \quad \text{INVALID-ORDER-228} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.229 \quad \text{INVALID-ORDER-229} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.230 \quad \text{INVALID-ORDER-230} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.231 \quad \text{INVALID-ORDER-231} \quad Z(s) = \left( \infty, \frac{R_2}{C_2 R_2 s + 1}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.232 \quad \text{INVALID-ORDER-232} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.233 \quad \text{INVALID-ORDER-233} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.234 \quad \text{INVALID-ORDER-234} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.235 \quad \text{INVALID-ORDER-235} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.236 \quad \text{INVALID-ORDER-236} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.237 \quad \text{INVALID-ORDER-237} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.238 \quad \text{INVALID-ORDER-238} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.239 \quad \text{INVALID-ORDER-239} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.240 \quad \text{INVALID-ORDER-240} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.241 \quad \text{INVALID-ORDER-241} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.242 \quad \text{INVALID-ORDER-242} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s (C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.243 \quad \text{INVALID-ORDER-243} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.244 \quad \text{INVALID-ORDER-244} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.245 \quad \text{INVALID-ORDER-245} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.246 \quad \text{INVALID-ORDER-246} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$

$$10.247 \quad \text{INVALID-ORDER-247} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.248 \quad \text{INVALID-ORDER-248} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.249 \quad \text{INVALID-ORDER-249} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.250 \quad \text{INVALID-ORDER-250} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.251 \quad \text{INVALID-ORDER-251} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.252 \quad \text{INVALID-ORDER-252} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.253 \quad \text{INVALID-ORDER-253} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.254 \quad \text{INVALID-ORDER-254} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.255 \quad \text{INVALID-ORDER-255} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.256 \quad \text{INVALID-ORDER-256} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.257 \quad \text{INVALID-ORDER-257} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.258 \quad \text{INVALID-ORDER-258} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.259 \quad \text{INVALID-ORDER-259} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.260 \quad \text{INVALID-ORDER-260} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.261 \quad \text{INVALID-ORDER-261} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s (C_3 C_L L_3 s^2 + C_3 + C_L)}$$

$$10.262 \quad \text{INVALID-ORDER-262} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.263 \quad \text{INVALID-ORDER-263} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.264 \quad \text{INVALID-ORDER-264} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.265 \quad \text{INVALID-ORDER-265} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.266 \quad \text{INVALID-ORDER-266} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.267 \quad \text{INVALID-ORDER-267} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.268 INVALID-ORDER-268**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

**10.269 INVALID-ORDER-269**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.270 INVALID-ORDER-270**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + C_L L_3 s^2 + 1}$$

**10.271 INVALID-ORDER-271**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1}$$

**10.272 INVALID-ORDER-272**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1}$$

**10.273 INVALID-ORDER-273**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L}$$

**10.274 INVALID-ORDER-274**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1}$$

**10.275 INVALID-ORDER-275**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}$$

**10.276 INVALID-ORDER-276**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$



10.277 INVALID-ORDER-277  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3 + C_L)}$$

10.278 INVALID-ORDER-278  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3R_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LR_Ls + 1}$$

10.279 INVALID-ORDER-279  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.280 INVALID-ORDER-280  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

10.281 INVALID-ORDER-281  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

10.282 INVALID-ORDER-282  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.283 INVALID-ORDER-283  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3C_LL_LR_3R_Ls^3 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.284 INVALID-ORDER-284  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + 1}$$

**10.285 INVALID-ORDER-285**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.286 INVALID-ORDER-286**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

**10.287 INVALID-ORDER-287**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + L_3 s + R_3}$$

**10.288 INVALID-ORDER-288**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

**10.289 INVALID-ORDER-289**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 R_L}$$

**10.290 INVALID-ORDER-290**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**10.291 INVALID-ORDER-291**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}$$

**10.292 INVALID-ORDER-292**  $Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.293 \quad \text{INVALID-ORDER-293} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.294 \quad \text{INVALID-ORDER-294} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.295 \quad \text{INVALID-ORDER-295} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3}$$

$$10.296 \quad \text{INVALID-ORDER-296} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.297 \quad \text{INVALID-ORDER-297} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.298 \quad \text{INVALID-ORDER-298} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_L}$$

$$10.299 \quad \text{INVALID-ORDER-299} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

$$10.300 \quad \text{INVALID-ORDER-300} \quad Z(s) = \left( \infty, R_2 + \frac{1}{C_2 s}, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.301 \quad \text{INVALID-ORDER-301} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.302 \quad \text{INVALID-ORDER-302} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.303 \quad \text{INVALID-ORDER-303} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.304 \quad \text{INVALID-ORDER-304} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.305 \quad \text{INVALID-ORDER-305} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.306 \quad \text{INVALID-ORDER-306} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.307 \quad \text{INVALID-ORDER-307} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.308 \quad \text{INVALID-ORDER-308} \quad Z(s) = \left( \infty, \quad R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.309 \quad \text{INVALID-ORDER-309} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.310 \quad \text{INVALID-ORDER-310} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.311 \quad \text{INVALID-ORDER-311} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.312 \quad \text{INVALID-ORDER-312} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.313 \quad \text{INVALID-ORDER-313} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.314 \quad \text{INVALID-ORDER-314} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.315 \quad \text{INVALID-ORDER-315} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.316 \quad \text{INVALID-ORDER-316} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.317 \quad \text{INVALID-ORDER-317} \quad Z(s) = \left( \infty, L_2 s + \frac{1}{C_2 s}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.318 \quad \text{INVALID-ORDER-318} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_Ls}{C_3L_Ls^2 + C_LL_Ls^2 + 1}$$

$$10.319 \quad \text{INVALID-ORDER-319} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LL_Ls^2 + C_LR_Ls + 1}{s(C_3C_LL_Ls^2 + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.320 \quad \text{INVALID-ORDER-320} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{C_LL_LR_Ls^2 + L_Ls + R_L}{C_3C_LL_LR_Ls^3 + C_3L_Ls^2 + C_3R_Ls + C_LL_Ls^2 + 1}$$

$$10.321 \quad \text{INVALID-ORDER-321} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)}{C_3C_LL_LR_Ls^3 + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.322 \quad \text{INVALID-ORDER-322} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3R_L}{C_3R_3R_Ls + R_3 + R_L}$$

$$10.323 \quad \text{INVALID-ORDER-323} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3}{C_3R_3s + C_LR_3s + 1}$$

$$10.324 \quad \text{INVALID-ORDER-324} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_3R_L}{C_3R_3R_Ls + C_LR_3R_Ls + R_3 + R_L}$$

$$10.325 \quad \text{INVALID-ORDER-325} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_LL_Ls^2 + 1)}{C_3C_LL_LR_3s^3 + C_3R_3s + C_LL_Ls^2 + C_LR_3s + 1}$$

$$10.326 \quad \text{INVALID-ORDER-326} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_LR_3s^3 + C_3C_LR_3R_Ls^2 + C_3R_3s + C_LL_Ls^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.327 \quad \text{INVALID-ORDER-327} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_LR_3R_Ls^3 + C_3L_LR_3s^2 + C_3R_3R_Ls + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + L_Ls + R_3 + R_L}$$

$$10.328 \quad \text{INVALID-ORDER-328} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_3R_L (C_LL_Ls^2 + 1)}{C_3C_LL_LR_3R_Ls^3 + C_3R_3R_Ls + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + C_LR_3R_Ls + R_3 + R_L}$$

$$10.329 \quad \text{INVALID-ORDER-329} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3R_3s + 1)}{C_3R_3s + C_3R_Ls + 1}$$

$$10.330 \quad \text{INVALID-ORDER-330} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_3R_3s + 1}{s (C_3C_LR_3s + C_3 + C_L)}$$

$$10.331 \quad \text{INVALID-ORDER-331} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3R_3s + 1) (C_LR_Ls + 1)}{s (C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.332 \quad \text{INVALID-ORDER-332} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3R_3s + 1) (C_LL_Ls^2 + 1)}{s (C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

$$10.333 \quad \text{INVALID-ORDER-333} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_Ls (C_3R_3s + 1)}{C_3C_LL_LR_3s^3 + C_3L_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

$$10.334 \quad \text{INVALID-ORDER-334} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3R_3s + 1) (C_LL_Ls^2 + C_LR_Ls + 1)}{s (C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.335 \quad \text{INVALID-ORDER-335} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls (C_3R_3s + 1)}{C_3C_LL_LR_3R_Ls^3 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.336 INVALID-ORDER-336**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_3R_3s+1)(C_LL_LR_Ls^2+L_Ls+R_L)}{C_3C_LL_LR_3s^3+C_3C_LL_LR_Ls^3+C_3L_Ls^2+C_3R_3s+C_3R_Ls+C_LL_Ls^2+1}$$

**10.337 INVALID-ORDER-337**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls+\frac{1}{C_Ls})}{L_Ls+R_L+\frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_3R_3s+1)(C_LL_Ls^2+1)}{C_3C_LL_LR_3s^3+C_3C_LL_LR_Ls^3+C_3C_LR_3R_Ls^2+C_3R_3s+C_3R_Ls+C_LL_Ls^2+C_LR_Ls+1}$$

**10.338 INVALID-ORDER-338**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_3L_3s^2+1}{s(C_3C_LL_3s^2+C_3+C_L)}$$

**10.339 INVALID-ORDER-339**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L(C_3L_3s^2+1)}{C_3C_LL_3R_Ls^3+C_3L_3s^2+C_3R_Ls+C_LR_Ls+1}$$

**10.340 INVALID-ORDER-340**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2+1)(C_LR_Ls+1)}{s(C_3C_LL_3s^2+C_3C_LR_Ls+C_3+C_L)}$$

**10.341 INVALID-ORDER-341**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2+1)(C_LL_Ls^2+1)}{s(C_3C_LL_3s^2+C_3C_LL_Ls^2+C_3+C_L)}$$

**10.342 INVALID-ORDER-342**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls(C_3L_3s^2+1)}{C_3C_LL_3L_Ls^4+C_3L_3s^2+C_3L_Ls^2+C_LL_Ls^2+1}$$

**10.343 INVALID-ORDER-343**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2+1)(C_LL_Ls^2+C_LR_Ls+1)}{s(C_3C_LL_3s^2+C_3C_LL_Ls^2+C_3C_LR_Ls+C_3+C_L)}$$



**10.344 INVALID-ORDER-344**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.345 INVALID-ORDER-345**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_Ls + C_LL_Ls^2 + 1}$$

**10.346 INVALID-ORDER-346**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.347 INVALID-ORDER-347**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s}{C_3L_3s^2 + C_LL_3s^2 + 1}$$

**10.348 INVALID-ORDER-348**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s(C_LR_Ls + 1)}{C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_Ls + 1}$$

**10.349 INVALID-ORDER-349**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + 1}$$

**10.350 INVALID-ORDER-350**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_3L_Ls}{C_3L_3L_Ls^2 + C_LL_3L_Ls^2 + L_3 + L_L}$$

**10.351 INVALID-ORDER-351**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s(C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.352 INVALID-ORDER-352**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3s(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_LR_Ls^2 + L_3s + L_Ls + R_L}$$

$$10.353 \quad \text{INVALID-ORDER-353} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_3R_Ls(C_LL_Ls^2+1)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_3R_Ls^2 + C_LL_LR_Ls^2 + L_3s + R_L}$$

$$10.354 \quad \text{INVALID-ORDER-354} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3 + C_L)}$$

$$10.355 \quad \text{INVALID-ORDER-355} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_L(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3R_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LR_Ls + 1}$$

$$10.356 \quad \text{INVALID-ORDER-356} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LR_Ls + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.357 \quad \text{INVALID-ORDER-357} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

$$10.358 \quad \text{INVALID-ORDER-358} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

$$10.359 \quad \text{INVALID-ORDER-359} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.360 \quad \text{INVALID-ORDER-360} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3C_LL_LR_3R_Ls^3 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.361 INVALID-ORDER-361**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + 1}$$

**10.362 INVALID-ORDER-362**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.363 INVALID-ORDER-363**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LR_Ls + 1)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3}$$

**10.364 INVALID-ORDER-364**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_3s^4 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_3R_3s^2 + C_LL_LR_3s^2 + L_3s + R_3}$$

**10.365 INVALID-ORDER-365**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_3L_LR_3s^4 + C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LL_LR_3s^2 + C_LR_3R_Ls + L_3s + R_3}$$

**10.366 INVALID-ORDER-366**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{L_3R_3s(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_LR_3R_Ls^4 + C_3L_3L_LR_3s^3 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_3s^3 + C_LL_3L_LR_Ls^3 + C_LL_LR_3R_Ls^2 + L_3L_Ls^2 + L_3R_3s + L_3R_Ls + L_LR_3s + R_3R_L}$$

**10.367 INVALID-ORDER-367**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{L_3R_3R_Ls(C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_3R_Ls^4 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_3s^3 + C_LL_3L_LR_Ls^3 + C_LL_3R_3R_Ls^2 + C_LL_LR_3R_Ls^2 + L_3R_3s + L_3R_Ls + R_3R_L}$$

**10.368 INVALID-ORDER-368**  $Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_3L_3R_3s^2 + L_3s + R_3}{C_3C_LL_3R_3s^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_3s + 1}$$

$$10.369 \quad \text{INVALID-ORDER-369} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_L (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_L L_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3 + R_L}$$

$$10.370 \quad \text{INVALID-ORDER-370} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LR_Ls + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3R_3s^3 + C_3C_L L_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.371 \quad \text{INVALID-ORDER-371} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3L_Ls^4 + C_3C_L L_3R_3s^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_3s + 1}$$

$$10.372 \quad \text{INVALID-ORDER-372} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_Ls (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3L_LR_3s^4 + C_3L_3L_Ls^3 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_LR_3s^2 + L_3s + L_Ls + R_3}$$

$$10.373 \quad \text{INVALID-ORDER-373} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + C_LR_Ls + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3L_Ls^4 + C_3C_L L_3R_3s^3 + C_3C_L L_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.374 \quad \text{INVALID-ORDER-374} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3L_LR_3R_Ls^4 + C_3L_3L_LR_3s^3 + C_3L_3L_LR_Ls^3 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_Ls^3 + C_LL_LR_3R_Ls^2 + L_3L_Ls^2 + L_3R_Ls + L_LR_3s + L_LR_Ls + R_3R_L}$$

$$10.375 \quad \text{INVALID-ORDER-375} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{(C_3L_3R_3s^2 + L_3s + R_3) (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_L L_3L_LR_3s^4 + C_3C_L L_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + L_3s + L_Ls + R_3 + R_L}$$

$$10.376 \quad \text{INVALID-ORDER-376} \quad Z(s) = \left( \infty, L_2s + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L (C_LL_Ls^2 + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_L L_3L_LR_3s^4 + C_3C_L L_3L_LR_Ls^4 + C_3C_L L_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + C_LR_3R_Ls + L_3s + R_3 + R_L}$$

$$10.377 \quad \text{INVALID-ORDER-377} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.378 \quad \text{INVALID-ORDER-378} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.379 \quad \text{INVALID-ORDER-379} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.380 \quad \text{INVALID-ORDER-380} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.381 \quad \text{INVALID-ORDER-381} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.382 \quad \text{INVALID-ORDER-382} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.383 \quad \text{INVALID-ORDER-383} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.384 \quad \text{INVALID-ORDER-384} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.385 \quad \text{INVALID-ORDER-385} \quad Z(s) = \left( \infty, \quad L_2 s + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.386 \quad \text{INVALID-ORDER-386} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.387 \quad \text{INVALID-ORDER-387} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.388 \quad \text{INVALID-ORDER-388} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.389 \quad \text{INVALID-ORDER-389} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad R_3, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.390 \quad \text{INVALID-ORDER-390} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.391 \quad \text{INVALID-ORDER-391} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.392 \quad \text{INVALID-ORDER-392} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.393 \quad \text{INVALID-ORDER-393} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.394 \quad \text{INVALID-ORDER-394} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LL_Ls^2 + 1}{s(C_3C_LL_Ls^2 + C_3 + C_L)}$$

$$10.395 \quad \text{INVALID-ORDER-395} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_Ls}{C_3L_Ls^2 + C_LL_Ls^2 + 1}$$

$$10.396 \quad \text{INVALID-ORDER-396} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_LL_Ls^2 + C_LR_Ls + 1}{s(C_3C_LL_Ls^2 + C_3C_LR_Ls + C_3 + C_L)}$$

$$10.397 \quad \text{INVALID-ORDER-397} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_LL_LR_Ls^2 + L_Ls + R_L}{C_3C_LL_LR_Ls^3 + C_3L_Ls^2 + C_3R_Ls + C_LL_Ls^2 + 1}$$

$$10.398 \quad \text{INVALID-ORDER-398} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)}{C_3C_LL_LR_Ls^3 + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

$$10.399 \quad \text{INVALID-ORDER-399} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3R_L}{C_3R_3R_Ls + R_3 + R_L}$$

$$10.400 \quad \text{INVALID-ORDER-400} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3}{C_3R_3s + C_LR_3s + 1}$$

$$10.401 \quad \text{INVALID-ORDER-401} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_3R_L}{C_3R_3R_Ls + C_LR_3R_Ls + R_3 + R_L}$$

$$10.402 \quad \text{INVALID-ORDER-402} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s + 1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_LL_Ls^2 + 1)}{C_3C_LL_LR_3s^3 + C_3R_3s + C_LL_Ls^2 + C_LR_3s + 1}$$

$$10.403 \quad \text{INVALID-ORDER-403} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.404 \quad \text{INVALID-ORDER-404} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{L_Ls}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.405 \quad \text{INVALID-ORDER-405} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3}{C_3R_3s+1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.406 \quad \text{INVALID-ORDER-406} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.407 \quad \text{INVALID-ORDER-407} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.408 \quad \text{INVALID-ORDER-408} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.409 \quad \text{INVALID-ORDER-409} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.410 \quad \text{INVALID-ORDER-410} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.411 \quad \text{INVALID-ORDER-411} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$



$$\begin{aligned}
10.412 \quad \text{INVALID-ORDER-412} \quad Z(s) &= \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right) \\
H(s) &= \frac{L_LR_Ls(C_3R_3s + 1)}{C_3C_LL_LR_3R_Ls^3 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_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}, R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right) \\
H(s) &= \frac{(C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_Ls^2 + C_3R_3s + C_3R_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}, R_3 + \frac{1}{C_3s}, \infty, \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_3R_3s + 1)(C_LL_Ls^2 + 1)}{C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3C_LR_3R_Ls^2 + C_3R_3s + C_3R_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}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right) \\
H(s) &= \frac{C_3L_3s^2 + 1}{s(C_3C_LL_3s^2 + C_3 + C_L)} \\
10.416 \quad \text{INVALID-ORDER-416} \quad Z(s) &= \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right) \\
H(s) &= \frac{R_L(C_3L_3s^2 + 1)}{C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_3R_Ls + C_LR_Ls + 1} \\
10.417 \quad \text{INVALID-ORDER-417} \quad Z(s) &= \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right) \\
H(s) &= \frac{(C_3L_3s^2 + 1)(C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_Ls + C_3 + C_L)} \\
10.418 \quad \text{INVALID-ORDER-418} \quad Z(s) &= \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right) \\
H(s) &= \frac{(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3 + C_L)} \\
10.419 \quad \text{INVALID-ORDER-419} \quad Z(s) &= \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right) \\
H(s) &= \frac{L_Ls(C_3L_3s^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3L_3s^2 + C_3L_Ls^2 + C_LL_Ls^2 + 1}
\end{aligned}$$

**10.420 INVALID-ORDER-420**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_Ls + C_3 + C_L)}$$

**10.421 INVALID-ORDER-421**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_Ls^2 + C_LL_LR_Ls^2 + L_Ls + R_L}$$

**10.422 INVALID-ORDER-422**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_Ls + C_LL_Ls^2 + 1}$$

**10.423 INVALID-ORDER-423**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

**10.424 INVALID-ORDER-424**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s}{C_3L_3s^2 + C_LL_3s^2 + 1}$$

**10.425 INVALID-ORDER-425**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s(C_LR_Ls + 1)}{C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_Ls + 1}$$

**10.426 INVALID-ORDER-426**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + 1}$$

**10.427 INVALID-ORDER-427**  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$

$$H(s) = \frac{L_3L_Ls}{C_3L_3L_Ls^2 + C_LL_3L_Ls^2 + L_3 + L_L}$$

10.428 INVALID-ORDER-428  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3s (C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.429 INVALID-ORDER-429  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$

$$H(s) = \frac{L_3s (C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_LR_Ls^2 + L_3s + L_Ls + R_L}$$

10.430 INVALID-ORDER-430  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{L_3R_Ls (C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_3R_Ls^2 + C_LL_LR_Ls^2 + L_3s + R_L}$$

10.431 INVALID-ORDER-431  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls} \right)$

$$H(s) = \frac{C_3L_3s^2 + C_3R_3s + 1}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3 + C_L)}$$

10.432 INVALID-ORDER-432  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$

$$H(s) = \frac{R_L (C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3R_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LR_Ls + 1}$$

10.433 INVALID-ORDER-433  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LR_Ls + 1) (C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.434 INVALID-ORDER-434  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_3L_3s^2 + C_3R_3s + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3 + C_L)}$$

10.435 INVALID-ORDER-435  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$

$$H(s) = \frac{L_Ls (C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_LL_Ls^2 + C_3R_3s + C_LL_Ls^2 + 1}$$

10.436 INVALID-ORDER-436  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{s(C_3C_LL_3s^2 + C_3C_LL_Ls^2 + C_3C_LR_3s + C_3C_LR_Ls + C_3 + C_L)}$$

10.437 INVALID-ORDER-437  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$

$$H(s) = \frac{L_LR_Ls(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_LR_Ls^4 + C_3C_LL_LR_3R_Ls^3 + C_3L_3L_Ls^3 + C_3L_3R_Ls^2 + C_3L_LR_3s^2 + C_3L_LR_Ls^2 + C_3R_3R_Ls + C_LL_LR_Ls^2 + L_Ls + R_L}$$

10.438 INVALID-ORDER-438  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3L_3s^2 + C_3R_3s + 1)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_Ls^4 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3L_3s^2 + C_3L_Ls^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + 1}$$

10.439 INVALID-ORDER-439  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, L_3s + R_3 + \frac{1}{C_3s}, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_3L_3s^2 + C_3R_3s + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_3s^3 + C_3C_LL_LR_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_3R_Ls + C_LL_Ls^2 + C_LR_Ls + 1}$$

10.440 INVALID-ORDER-440  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LR_Ls + 1)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3}$$

10.441 INVALID-ORDER-441  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_3s^4 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_3R_3s^2 + C_LL_LR_3s^2 + L_3s + R_3}$$

10.442 INVALID-ORDER-442  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$

$$H(s) = \frac{L_3R_3s(C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_3L_LR_3s^4 + C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_3R_3s^2 + C_LL_3R_Ls^2 + C_LL_LR_3s^2 + C_LR_3R_Ls + L_3s + R_3}$$

10.443 INVALID-ORDER-443  $Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3R_3s(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_LR_3R_Ls^4 + C_3L_3L_LR_3s^3 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_3s^3 + C_LL_3L_LR_Ls^3 + C_LL_LR_3R_Ls^2 + L_3L_Ls^2 + L_3R_3s + L_3R_Ls + L_LR_3s + R_3R_L}$$

$$10.444 \quad \text{INVALID-ORDER-444} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{1}{C_3s + \frac{1}{R_3} + \frac{1}{L_3s}}, \infty, \infty, \frac{R_L \left( L_Ls + \frac{1}{C_Ls} \right)}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{L_3R_3R_Ls (C_LL_Ls^2 + 1)}{C_3C_LL_3L_LR_3R_Ls^4 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_3s^3 + C_LL_3L_LR_Ls^3 + C_LL_3R_3R_Ls^2 + C_LL_LR_3R_Ls^2 + L_3R_3s + L_3R_Ls + R_3R_L}$$

$$10.445 \quad \text{INVALID-ORDER-445} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{C_3L_3R_3s^2 + L_3s + R_3}{C_3C_LL_3R_3s^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_3s + 1}$$

$$10.446 \quad \text{INVALID-ORDER-446} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_LR_Ls + 1} \right)$$

$$H(s) = \frac{R_L (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_LL_3R_Ls^2 + C_LR_3R_Ls + L_3s + R_3 + R_L}$$

$$10.447 \quad \text{INVALID-ORDER-447} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LR_Ls + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3R_3s^3 + C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.448 \quad \text{INVALID-ORDER-448} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_3s^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_3s + 1}$$

$$10.449 \quad \text{INVALID-ORDER-449} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2 + 1} \right)$$

$$H(s) = \frac{L_Ls (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3L_LR_3s^4 + C_3L_3L_Ls^3 + C_3L_3R_3s^2 + C_LL_3L_Ls^3 + C_LL_LR_3s^2 + L_3s + L_Ls + R_3}$$

$$10.450 \quad \text{INVALID-ORDER-450} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{(C_LL_Ls^2 + C_LR_Ls + 1) (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_3s^3 + C_3C_LL_3R_Ls^3 + C_3L_3s^2 + C_LL_3s^2 + C_LL_Ls^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.451 \quad \text{INVALID-ORDER-451} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_Ls + \frac{1}{R_L} + \frac{1}{L_Ls}} \right)$$

$$H(s) = \frac{L_LR_Ls (C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3L_LR_3R_Ls^4 + C_3L_3L_LR_3s^3 + C_3L_3L_LR_Ls^3 + C_3L_3R_3R_Ls^2 + C_LL_3L_LR_Ls^3 + C_LL_LR_3R_Ls^2 + L_3L_Ls^2 + L_3R_Ls + L_LR_3s + L_LR_Ls + R_3R_L}$$

$$10.452 \quad \text{INVALID-ORDER-452} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L \right)$$

$$H(s) = \frac{(C_3L_3R_3s^2 + L_3s + R_3)(C_LL_LR_Ls^2 + L_Ls + R_L)}{C_3C_LL_3L_LR_3s^4 + C_3C_LL_3L_LR_Ls^4 + C_3L_3L_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + L_3s + L_Ls + R_3 + R_L}$$

$$10.453 \quad \text{INVALID-ORDER-453} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{L_3s}{C_3L_3s^2+1} + R_3, \infty, \infty, \frac{R_L(L_Ls + \frac{1}{C_Ls})}{L_Ls + R_L + \frac{1}{C_Ls}} \right)$$

$$H(s) = \frac{R_L(C_LL_Ls^2 + 1)(C_3L_3R_3s^2 + L_3s + R_3)}{C_3C_LL_3L_LR_3s^4 + C_3C_LL_3L_LR_Ls^4 + C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_LL_3L_Ls^3 + C_LL_3R_Ls^2 + C_LL_LR_3s^2 + C_LL_LR_Ls^2 + C_LR_3R_Ls + L_3s + R_3 + R_L}$$

$$10.454 \quad \text{INVALID-ORDER-454} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_3L_3s^2 + 1)}{C_3C_LL_3R_3s^3 + C_3L_3s^2 + C_3R_3s + C_LR_3s + 1}$$

$$10.455 \quad \text{INVALID-ORDER-455} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{R_L}{C_LR_Ls+1} \right)$$

$$H(s) = \frac{R_3R_L(C_3L_3s^2 + 1)}{C_3C_LL_3R_3R_Ls^3 + C_3L_3R_3s^2 + C_3L_3R_Ls^2 + C_3R_3R_Ls + C_LR_3R_Ls + R_3 + R_L}$$

$$10.456 \quad \text{INVALID-ORDER-456} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_3L_3s^2 + 1)(C_LR_Ls + 1)}{C_3C_LL_3R_3s^3 + C_3C_LL_3R_Ls^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_LR_3s + C_LR_Ls + 1}$$

$$10.457 \quad \text{INVALID-ORDER-457} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, L_Ls + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_3L_3s^2 + 1)(C_LL_Ls^2 + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_3s^3 + C_3C_LL_LR_3s^3 + C_3L_3s^2 + C_3R_3s + C_LL_Ls^2 + C_LR_3s + 1}$$

$$10.458 \quad \text{INVALID-ORDER-458} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} \right)$$

$$H(s) = \frac{L_LR_3s(C_3L_3s^2 + 1)}{C_3C_LL_3L_LR_3s^4 + C_3L_3L_Ls^3 + C_3L_3R_3s^2 + C_3L_LR_3s^2 + C_LL_LR_3s^2 + L_Ls + R_3}$$

$$10.459 \quad \text{INVALID-ORDER-459} \quad Z(s) = \left( \infty, L_2s + R_2 + \frac{1}{C_2s}, \frac{R_3(L_3s + \frac{1}{C_3s})}{L_3s + R_3 + \frac{1}{C_3s}}, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls} \right)$$

$$H(s) = \frac{R_3(C_3L_3s^2 + 1)(C_LL_Ls^2 + C_LR_Ls + 1)}{C_3C_LL_3L_Ls^4 + C_3C_LL_3R_3s^3 + C_3C_LL_3R_Ls^3 + C_3C_LL_LR_3s^3 + C_3C_LR_3R_Ls^2 + C_3L_3s^2 + C_3R_3s + C_LL_Ls^2 + C_LR_3s + C_LR_Ls + 1}$$

$$10.460 \quad \text{INVALID-ORDER-460} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.461 \quad \text{INVALID-ORDER-461} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.462 \quad \text{INVALID-ORDER-462} \quad Z(s) = \left( \infty, \quad L_2 s + R_2 + \frac{1}{C_2 s}, \quad \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \quad \infty, \quad \infty, \quad \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.463 \quad \text{INVALID-ORDER-463} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.464 \quad \text{INVALID-ORDER-464} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.465 \quad \text{INVALID-ORDER-465} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.466 \quad \text{INVALID-ORDER-466} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad R_3, \quad \infty, \quad \infty, \quad R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$

$$10.467 \quad \text{INVALID-ORDER-467} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.468 \quad \text{INVALID-ORDER-468} \quad Z(s) = \left( \infty, \quad \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \quad \frac{1}{C_3 s}, \quad \infty, \quad \infty, \quad \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s (C_3 + C_L)}$$

$$10.469 \quad \text{INVALID-ORDER-469} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.470 \quad \text{INVALID-ORDER-470} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s (C_3 C_L R_L s + C_3 + C_L)}$$

$$10.471 \quad \text{INVALID-ORDER-471} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s (C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.472 \quad \text{INVALID-ORDER-472} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.473 \quad \text{INVALID-ORDER-473} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s (C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.474 \quad \text{INVALID-ORDER-474} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.475 \quad \text{INVALID-ORDER-475} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.476 \quad \text{INVALID-ORDER-476} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.477 \quad \text{INVALID-ORDER-477} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$



$$10.478 \quad \text{INVALID-ORDER-478} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.479 \quad \text{INVALID-ORDER-479} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.480 \quad \text{INVALID-ORDER-480} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.481 \quad \text{INVALID-ORDER-481} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.482 \quad \text{INVALID-ORDER-482} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.483 \quad \text{INVALID-ORDER-483} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.484 \quad \text{INVALID-ORDER-484} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.485 \quad \text{INVALID-ORDER-485} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.486 \quad \text{INVALID-ORDER-486} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.487 \quad \text{INVALID-ORDER-487} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.488 \quad \text{INVALID-ORDER-488} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.489 \quad \text{INVALID-ORDER-489} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.490 \quad \text{INVALID-ORDER-490} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.491 \quad \text{INVALID-ORDER-491} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.492 \quad \text{INVALID-ORDER-492} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s (C_3 C_L L_3 s^2 + C_3 + C_L)}$$

$$10.493 \quad \text{INVALID-ORDER-493} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.494 \quad \text{INVALID-ORDER-494} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.495 \quad \text{INVALID-ORDER-495} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1)(C_L L_L s^2 + 1)}{s(C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.496 \quad \text{INVALID-ORDER-496} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.497 \quad \text{INVALID-ORDER-497} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1)(C_L L_L s^2 + C_L R_L s + 1)}{s(C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.498 \quad \text{INVALID-ORDER-498} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.499 \quad \text{INVALID-ORDER-499} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1)(C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.500 \quad \text{INVALID-ORDER-500} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)(C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.501 \quad \text{INVALID-ORDER-501} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s}{C_3 L_3 s^2 + C_L L_3 s^2 + 1}$$

$$10.502 \quad \text{INVALID-ORDER-502} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1}$$

$$10.503 \quad \text{INVALID-ORDER-503} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1}$$

$$10.504 \quad \text{INVALID-ORDER-504} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L}$$

$$10.505 \quad \text{INVALID-ORDER-505} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.506 \quad \text{INVALID-ORDER-506} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}$$

$$10.507 \quad \text{INVALID-ORDER-507} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$

$$10.508 \quad \text{INVALID-ORDER-508} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.509 \quad \text{INVALID-ORDER-509} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

$$10.510 \quad \text{INVALID-ORDER-510} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.511 \quad \text{INVALID-ORDER-511} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

**10.512 INVALID-ORDER-512**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

**10.513 INVALID-ORDER-513**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

**10.514 INVALID-ORDER-514**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

**10.515 INVALID-ORDER-515**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

**10.516 INVALID-ORDER-516**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

**10.517 INVALID-ORDER-517**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

**10.518 INVALID-ORDER-518**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + L_3 s + R_3}$$

**10.519 INVALID-ORDER-519**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3}$$

**10.520 INVALID-ORDER-520**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 R_L}$$

**10.521 INVALID-ORDER-521**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{L_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L}$$

**10.522 INVALID-ORDER-522**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}$$

**10.523 INVALID-ORDER-523**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

**10.524 INVALID-ORDER-524**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1}$$

**10.525 INVALID-ORDER-525**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1}$$

**10.526 INVALID-ORDER-526**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3}$$

**10.527 INVALID-ORDER-527**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{(C_L L_L s^2 + C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

**10.528 INVALID-ORDER-528**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$

$$H(s) = \frac{L_L R_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 R_L}$$

**10.529 INVALID-ORDER-529**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$

$$H(s) = \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_L}$$

**10.530 INVALID-ORDER-530**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}$$

**10.531 INVALID-ORDER-531**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

**10.532 INVALID-ORDER-532**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

**10.533 INVALID-ORDER-533**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

**10.534 INVALID-ORDER-534**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

**10.535 INVALID-ORDER-535**  $Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 (L_3 s + \frac{1}{C_3 s})}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.536 \quad \text{INVALID-ORDER-536} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.537 \quad \text{INVALID-ORDER-537} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.538 \quad \text{INVALID-ORDER-538} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.539 \quad \text{INVALID-ORDER-539} \quad Z(s) = \left( \infty, \frac{L_2 s}{C_2 L_2 s^2 + 1} + R_2, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.540 \quad \text{INVALID-ORDER-540} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{R_3 + R_L}$$

$$10.541 \quad \text{INVALID-ORDER-541} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_L R_3 s + 1}$$

$$10.542 \quad \text{INVALID-ORDER-542} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_L R_3 R_L s + R_3 + R_L}$$

$$10.543 \quad \text{INVALID-ORDER-543} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L R_L s + 1)}{C_L R_3 s + C_L R_L s + 1}$$



$$10.544 \quad \text{INVALID-ORDER-544} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + 1}$$

$$10.545 \quad \text{INVALID-ORDER-545} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{1}{s(C_3 + C_L)}$$

$$10.546 \quad \text{INVALID-ORDER-546} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L}{C_3 R_L s + C_L R_L s + 1}$$

$$10.547 \quad \text{INVALID-ORDER-547} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L R_L s + 1}{s(C_3 C_L R_L s + C_3 + C_L)}$$

$$10.548 \quad \text{INVALID-ORDER-548} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + 1}{s(C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.549 \quad \text{INVALID-ORDER-549} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s}{C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.550 \quad \text{INVALID-ORDER-550} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_L L_L s^2 + C_L R_L s + 1}{s(C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.551 \quad \text{INVALID-ORDER-551} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{C_L L_L R_L s^2 + L_L s + R_L}{C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.552 \quad \text{INVALID-ORDER-552} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_L s^3 + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.553 \quad \text{INVALID-ORDER-553} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + R_3 + R_L}$$

$$10.554 \quad \text{INVALID-ORDER-554} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3}{C_3 R_3 s + C_L R_3 s + 1}$$

$$10.555 \quad \text{INVALID-ORDER-555} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L}{C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.556 \quad \text{INVALID-ORDER-556} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.557 \quad \text{INVALID-ORDER-557} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.558 \quad \text{INVALID-ORDER-558} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

$$10.559 \quad \text{INVALID-ORDER-559} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3}{C_3 R_3 s + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_3 R_L (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$

$$10.560 \quad \text{INVALID-ORDER-560} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1)}{C_3 R_3 s + C_3 R_L s + 1}$$

$$10.561 \quad \text{INVALID-ORDER-561} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 R_3 s + 1}{s (C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.562 \quad \text{INVALID-ORDER-562} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L R_L s + 1)}{s (C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.563 \quad \text{INVALID-ORDER-563} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.564 \quad \text{INVALID-ORDER-564} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 s^3 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.565 \quad \text{INVALID-ORDER-565} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.566 \quad \text{INVALID-ORDER-566} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 R_3 s + 1)}{C_3 C_L L_L R_3 R_L s^3 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$10.567 \quad \text{INVALID-ORDER-567} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{(C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + 1}$$

$$10.568 \quad \text{INVALID-ORDER-568} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{R_L (C_3 R_3 s + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 R_3 s + C_3 R_L s + C_L L_L s^2 + C_L R_L s + 1}$$

$$10.569 \quad \text{INVALID-ORDER-569} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + 1}{s (C_3 C_L L_3 s^2 + C_3 + C_L)}$$

$$10.570 \quad \text{INVALID-ORDER-570} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_3 R_L s + C_L R_L s + 1}$$

$$10.571 \quad \text{INVALID-ORDER-571} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.572 \quad \text{INVALID-ORDER-572} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 + C_L)}$$

$$10.573 \quad \text{INVALID-ORDER-573} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_3 L_L s^2 + C_L L_L s^2 + 1}$$

$$10.574 \quad \text{INVALID-ORDER-574} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.575 \quad \text{INVALID-ORDER-575} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_L s^2 + C_L L_L R_L s^2 + L_L s + R_L}$$

$$\begin{aligned}
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}}, L_3 s + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right) \\
H(s) &= \frac{(C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 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}}, L_3 s + \frac{1}{C_3 s}, \infty, \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_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 s}{C_3 L_3 s^2 + C_L L_3 s^2 + 1} \\
10.579 \quad \text{INVALID-ORDER-579} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, R_L + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_L s + 1} \\
10.580 \quad \text{INVALID-ORDER-580} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + 1} \\
10.581 \quad \text{INVALID-ORDER-581} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right) \\
H(s) &= \frac{L_3 L_L s}{C_3 L_3 L_L s^2 + C_L L_3 L_L s^2 + L_3 + L_L} \\
10.582 \quad \text{INVALID-ORDER-582} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_L s + 1} \\
10.583 \quad \text{INVALID-ORDER-583} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right) \\
H(s) &= \frac{L_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_L s^2 + L_3 s + L_L s + R_L}
\end{aligned}$$

$$10.584 \quad \text{INVALID-ORDER-584} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{L_3 s}{C_3 L_3 s^2 + 1}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$$

$$H(s) = \frac{L_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_L s^2 + L_3 s + R_L}$$

$$10.585 \quad \text{INVALID-ORDER-585} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{C_3 L_3 s^2 + C_3 R_3 s + 1}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.586 \quad \text{INVALID-ORDER-586} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_L (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 R_L s + C_L R_L s + 1}$$

$$10.587 \quad \text{INVALID-ORDER-587} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L R_L s + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.588 \quad \text{INVALID-ORDER-588} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_L L_L s^2 + 1) (C_3 L_3 s^2 + C_3 R_3 s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 + C_L)}$$

$$10.589 \quad \text{INVALID-ORDER-589} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_L L_L s^2 + 1}$$

$$10.590 \quad \text{INVALID-ORDER-590} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L s^2 + C_L R_L s + 1)}{s (C_3 C_L L_3 s^2 + C_3 C_L L_L s^2 + C_3 C_L R_3 s + C_3 C_L R_L s + C_3 + C_L)}$$

$$10.591 \quad \text{INVALID-ORDER-591} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_L s (C_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 L_L R_L s^2 + C_3 R_3 R_L s + C_L L_L R_L s^2 + L_L s + R_L}$$

$$\begin{aligned}
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}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right) \\
H(s) &= \frac{(C_3 L_3 s^2 + C_3 R_3 s + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 L_3 s^2 + C_3 L_L s^2 + C_3 R_3 s + C_3 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}}, L_3 s + R_3 + \frac{1}{C_3 s}, \infty, \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_3 L_3 s^2 + C_3 R_3 s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L L_L R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_3 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}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 R_3 s (C_L R_L s + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3} \\
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}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 R_3 s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_L R_3 s^2 + L_3 s + R_3} \\
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}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right) \\
H(s) &= \frac{L_3 R_3 s (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_3 R_3 s^2 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L R_3 R_L s + L_3 s + R_3} \\
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}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right) \\
H(s) &= \frac{L_3 R_3 s (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_3 s + L_3 R_L s + L_L R_3 s + R_3 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}}, \frac{1}{C_3 s + \frac{1}{R_3} + \frac{1}{L_3 s}}, \infty, \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_3 R_3 R_L s (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_3 s^3 + C_L L_3 L_L R_L s^3 + C_L L_3 R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_3 R_3 s + L_3 R_L s + R_3 R_L} \\
10.599 \quad \text{INVALID-ORDER-599} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{1}{C_L s} \right) \\
H(s) &= \frac{C_3 L_3 R_3 s^2 + L_3 s + R_3}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + 1}
\end{aligned}$$

$$\begin{aligned}
10.600 \quad \text{INVALID-ORDER-600} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right) \\
H(s) &= \frac{R_L (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L} \\
10.601 \quad \text{INVALID-ORDER-601} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, R_L + \frac{1}{C_L s} \right) \\
H(s) &= \frac{(C_L R_L s + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L R_3 s + C_L R_L s + 1} \\
10.602 \quad \text{INVALID-ORDER-602} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, L_L s + \frac{1}{C_L s} \right) \\
H(s) &= \frac{(C_L L_L s^2 + 1) (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + 1} \\
10.603 \quad \text{INVALID-ORDER-603} \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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right) \\
H(s) &= \frac{L_L s (C_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + L_3 s + L_L s + R_3} \\
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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \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_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 L_3 s^2 + C_L L_3 s^2 + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1} \\
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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \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_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_L L_3 L_L R_L s^3 + C_L L_L R_3 R_L s^2 + L_3 L_L s^2 + L_3 R_L s + L_L R_3 s + L_L R_L s + R_3 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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right) \\
H(s) &= \frac{(C_3 L_3 R_3 s^2 + L_3 s + R_3) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_3 s + L_L s + R_3 + R_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}}, \frac{L_3 s}{C_3 L_3 s^2 + 1} + R_3, \infty, \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_3 L_3 R_3 s^2 + L_3 s + R_3)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_L L_3 L_L s^3 + C_L L_3 R_L s^2 + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + L_3 s + R_3 + R_L}
\end{aligned}$$



$$10.608 \quad \text{INVALID-ORDER-608} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + 1}$$

$$10.609 \quad \text{INVALID-ORDER-609} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L}{C_L R_L s + 1} \right)$$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L R_3 R_L s + R_3 + R_L}$$

$$10.610 \quad \text{INVALID-ORDER-610} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L R_L s + 1)}{C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L R_3 s + C_L R_L s + 1}$$

$$10.611 \quad \text{INVALID-ORDER-611} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_L R_3 s^3 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + 1}$$

$$10.612 \quad \text{INVALID-ORDER-612} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} \right)$$

$$H(s) = \frac{L_L R_3 s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_L R_3 s^2 + C_L L_L R_3 s^2 + L_L s + R_3}$$

$$10.613 \quad \text{INVALID-ORDER-613} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, L_L s + R_L + \frac{1}{C_L s} \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L s^2 + C_L R_L s + 1)}{C_3 C_L L_3 L_L s^4 + C_3 C_L L_3 R_3 s^3 + C_3 C_L L_3 R_L s^3 + C_3 C_L L_L R_3 s^3 + C_3 C_L R_3 R_L s^2 + C_3 L_3 s^2 + C_3 R_3 s + C_L L_L s^2 + C_L R_3 s + C_L R_L s + 1}$$

$$10.614 \quad \text{INVALID-ORDER-614} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_L s}} \right)$$

$$H(s) = \frac{L_L R_3 R_L s (C_3 L_3 s^2 + 1)}{C_3 C_L L_3 L_L R_3 R_L s^4 + C_3 L_3 L_L R_3 s^3 + C_3 L_3 L_L R_L s^3 + C_3 L_3 R_3 R_L s^2 + C_3 L_L R_3 R_L s^2 + C_L L_L R_3 R_L s^2 + L_L R_3 s + L_L R_L s + R_3 R_L}$$

$$10.615 \quad \text{INVALID-ORDER-615} \quad Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L \right)$$

$$H(s) = \frac{R_3 (C_3 L_3 s^2 + 1) (C_L L_L R_L s^2 + L_L s + R_L)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 L_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 L_L R_3 s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + L_L s + R_3 + R_L}$$

**10.616    INVALID-ORDER-616**  $Z(s) = \left( \infty, \frac{R_2 \left( L_2 s + \frac{1}{C_2 s} \right)}{L_2 s + R_2 + \frac{1}{C_2 s}}, \frac{R_3 \left( L_3 s + \frac{1}{C_3 s} \right)}{L_3 s + R_3 + \frac{1}{C_3 s}}, \infty, \infty, \frac{R_L \left( L_L s + \frac{1}{C_L s} \right)}{L_L s + R_L + \frac{1}{C_L s}} \right)$

$$H(s) = \frac{R_3 R_L (C_3 L_3 s^2 + 1) (C_L L_L s^2 + 1)}{C_3 C_L L_3 L_L R_3 s^4 + C_3 C_L L_3 L_L R_L s^4 + C_3 C_L L_3 R_3 R_L s^3 + C_3 C_L L_L R_3 R_L s^3 + C_3 L_3 R_3 s^2 + C_3 L_3 R_L s^2 + C_3 R_3 R_L s + C_L L_L R_3 s^2 + C_L L_L R_L s^2 + C_L R_3 R_L s + R_3 + R_L}$$