

Filter Table: None

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1 Filter Summary

Filter Order	Z Combo	Transfer Function	Valid	Filter Type	Parameters
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s + \frac{1}{R_L} + \frac{1}{L_1 s}}\right)$	$\frac{L_L R_1 R_L g_m s}{(R_1 g_m + 1)(C_L L_L R_L s^2 + L_L s + R_L)}$	Yes	BP	Q: $C_L R_L \sqrt{\frac{1}{C_L L_L}}$; wo: $\sqrt{\frac{1}{C_L L_L}}$; bandwidth: $\frac{1}{C_L R_L}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(L_1 s, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$	$\frac{L_1 R_L g_m s}{(C_L R_L s + 1)(L_1 g_m s + 1)}$	Yes	BP	Q: $\frac{C_L L_1 R_L g_m \sqrt{\frac{1}{C_L L_1 R_L g_m}}}{C_L R_L + L_1 g_m}$; wo: $\sqrt{\frac{1}{C_L L_1 R_L g_m}}$; bandwidth: $\frac{C_L R_L + L_1 g_m}{C_L L_1 R_L g_m}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{L_1 R_L g_m s}{C_1 L_1 s^2 + L_1 g_m s + 1}$	Yes	BP	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{L_1 R_1 R_L g_m s}{C_1 L_1 R_1 s^2 + L_1 R_1 g_m s + L_1 s + R_1}$	Yes	BP	Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(\frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$	$\frac{R_L g_m}{(C_1 s + g_m)(C_L R_L s + 1)}$	Yes	LP	Q: $\frac{C_1 C_L R_L \sqrt{\frac{g_m}{C_1 C_L R_L}}}{C_1 + C_L R_L g_m}$; wo: $\sqrt{\frac{g_m}{C_1 C_L R_L}}$; bandwidth: $\frac{C_1 + C_L R_L g_m}{C_1 C_L R_L}$; K-LP: R_L ; K-HP: 0; K-BP: 1
None	$\left(\frac{R_1}{C_1 R_1 s + 1}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$	$\frac{R_1 R_L g_m}{(C_L R_L s + 1)(C_1 R_1 s + R_1 g_m + 1)}$	Yes	LP	Q: $\frac{C_1 C_L R_1 R_L \sqrt{\frac{R_1 g_m + 1}{C_1 C_L R_1 R_L}}}{C_1 R_1 + C_L R_1 R_L g_m + C_L R_L}$; wo: $\sqrt{\frac{R_1 g_m + 1}{C_1 C_L R_1 R_L}}$; bandwidth: $\frac{C_1 R_1 + C_L R_1 R_L g_m + C_L R_L}{C_1 C_L R_1 R_L}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, \frac{1}{C_L s}\right)$	$\frac{L_1 g_m}{C_L (C_1 L_1 s^2 + L_1 g_m s + 1)}$	Yes	LP	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: 0; K-BP: 1
None	$\left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, \frac{1}{C_L s}\right)$	$\frac{L_1 R_1 g_m}{C_L (C_1 L_1 R_1 s^2 + L_1 R_1 g_m s + L_1 s + R_1)}$	Yes	LP	Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: 0; K-BP: 1
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{R_L (L_L s + \frac{1}{C_L s})}{L_L s + R_L + \frac{1}{C_L s}}\right)$	$\frac{R_1 R_L g_m (C_L L_L s^2 + 1)}{(R_1 g_m + 1)(C_L L_L s^2 + C_L R_L s + 1)}$	Yes	BS	Q: $\frac{L_L \sqrt{\frac{1}{C_L L_L}}}{R_L}$; wo: $\sqrt{\frac{1}{C_L L_L}}$; bandwidth: $\frac{R_L}{L_L}$; K-LP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-HP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-BP: 1
None	$\left(L_1 s + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{R_L g_m (C_1 L_1 s^2 + 1)}{C_1 L_1 g_m s^2 + C_1 s + g_m}$	Yes	BS	Q: $L_1 g_m \sqrt{\frac{1}{C_1 L_1}}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{1}{L_1 g_m}$; K-LP: R_L ; K-HP: R_L ; K-BP: 1
None	$\left(\frac{R_1 (L_1 s + \frac{1}{C_1 s})}{L_1 s + R_1 + \frac{1}{C_1 s}}, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{R_1 R_L g_m (C_1 L_1 s^2 + 1)}{C_1 L_1 R_1 g_m s^2 + C_1 L_1 s^2 + C_1 R_1 s + R_1 g_m + 1}$	Yes	BS	Q: $\frac{L_1 \sqrt{\frac{1}{C_1 L_1}} (R_1 g_m + 1)}{R_1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1}{L_1 (R_1 g_m + 1)}$; K-LP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-HP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-BP: 1
None	$\left(L_1 s + R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{R_L g_m (C_1 L_1 s^2 + C_1 R_1 s + 1)}{C_1 L_1 g_m s^2 + C_1 R_1 g_m s + C_1 s + g_m}$	Yes	GE	Q: $\frac{L_1 g_m \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{L_1 g_m}$; K-LP: R_L ; K-HP: R_L ; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1} + R_1, \infty, \infty, \infty, \infty, R_L\right)$	$\frac{R_L g_m (C_1 L_1 R_1 s^2 + L_1 s + R_1)}{C_1 L_1 R_1 g_m s^2 + C_1 L_1 s^2 + L_1 g_m s + R_1 g_m + 1}$	Yes	GE	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}} (R_1 g_m + 1)}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1 (R_1 g_m + 1)}$; K-LP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-HP: $\frac{R_1 R_L g_m}{R_1 g_m + 1}$; K-BP: 1
None	$\left(R_1 + \frac{1}{C_1 s}, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$	$\frac{R_L g_m (C_1 R_1 s + 1)}{(C_L R_L s + 1)(C_1 R_1 g_m s + C_1 s + g_m)}$	Yes	$INVALID - NUMER$	Q: $\frac{C_1 C_L R_L \sqrt{\frac{g_m}{C_1 C_L R_L (R_1 g_m + 1)}} (R_1 g_m + 1)}{C_1 R_1 g_m + C_1 + C_L R_L g_m}$; wo: $\sqrt{\frac{g_m}{C_1 C_L R_L (R_1 g_m + 1)}}$; bandwidth: $\frac{C_1 R_1 g_m + C_1 + C_L R_L g_m}{C_1 C_L R_L (R_1 g_m + 1)}$; K-LP: 0; K-HP: 0; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s}\right)$	$\frac{L_1 g_m (C_L R_L s + 1)}{C_L (C_1 L_1 s^2 + L_1 g_m s + 1)}$	Yes	$INVALID - NUMER$	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: 0; K-BP: 1
None	$\left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s}\right)$	$\frac{L_1 R_1 g_m (C_L R_L s + 1)}{C_L (C_1 L_1 R_1 s^2 + L_1 R_1 g_m s + L_1 s + R_1)}$	Yes	$INVALID - NUMER$	Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: 0; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$	$\frac{L_1 g_m (C_L L_L s^2 + 1)}{C_L (C_1 L_1 s^2 + L_1 g_m s + 1)}$	No	$INVALID - WZ$	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: $\frac{L_L g_m}{C_1}$; K-BP: 1
None	$\left(\frac{L_1 s}{C_1 L_1 s^2 + 1}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s}\right)$	$\frac{L_1 g_m (C_L L_L s^2 + C_L R_L s + 1)}{C_L (C_1 L_1 s^2 + L_1 g_m s + 1)}$	No	$INVALID - WZ$	Q: $\frac{C_1 \sqrt{\frac{1}{C_1 L_1}}}{g_m}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{g_m}{C_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: $\frac{L_L g_m}{C_1}$; K-BP: 1
None	$\left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$	$\frac{L_1 R_1 g_m (C_L L_L s^2 + 1)}{C_L (C_1 L_1 R_1 s^2 + L_1 R_1 g_m s + L_1 s + R_1)}$	No	$INVALID - WZ$	Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: $\frac{L_L g_m}{C_1}$; K-BP: 1
None	$\left(\frac{1}{C_1 s + \frac{1}{R_1} + \frac{1}{L_1 s}}, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s}\right)$	$\frac{L_1 R_1 g_m (C_L L_L s^2 + C_L R_L s + 1)}{C_L (C_1 L_1 R_1 s^2 + L_1 R_1 g_m s + L_1 s + R_1)}$	No	$INVALID - WZ$	Q: $\frac{C_1 R_1 \sqrt{\frac{1}{C_1 L_1}}}{R_1 g_m + 1}$; wo: $\sqrt{\frac{1}{C_1 L_1}}$; bandwidth: $\frac{R_1 g_m + 1}{C_1 R_1}$; K-LP: $\frac{L_1 g_m}{C_L}$; K-HP: $\frac{L_L g_m}{C_1}$; K-BP: 1
None	$(R_1, \infty, \infty, \infty, \infty, R_L)$	$\frac{R_1 R_L g_m}{R_1 g_m + 1}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{1}{C_L s}\right)$	$\frac{R_1 g_m}{C_L s (R_1 g_m + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{R_L}{C_L R_L s + 1}\right)$	$\frac{R_1 R_L g_m}{(R_1 g_m + 1)(C_L R_L s + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s}\right)$	$\frac{R_1 g_m (C_L R_L s + 1)}{C_L s (R_1 g_m + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$	$\frac{R_1 g_m (C_L L_L s^2 + 1)}{C_L s (R_1 g_m + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1}\right)$	$\frac{L_L R_1 g_m s}{(R_1 g_m + 1)(C_L L_L s^2 + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, L_L s + R_L + \frac{1}{C_L s}\right)$	$\frac{R_1 g_m (C_L L_L s^2 + C_L R_L s + 1)}{C_L s (R_1 g_m + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(R_1, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L\right)$	$\frac{R_1 g_m (C_L L_L R_L s^2 + L_L s + R_L)}{(R_1 g_m + 1)(C_L L_L s^2 + 1)}$	No	$INVALID - ORDER$	NONE
None	$(L_1 s, \infty, \infty, \infty, \infty, R_L)$	$\frac{L_1 R_L g_m s}{L_1 g_m s + 1}$	No	$INVALID - ORDER$	NONE
None	$\left(L_1 s, \infty, \infty, \infty, \infty, \frac{1}{C_L s}\right)$	$\frac{L_1 g_m}{C_L (L_1 g_m s + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(L_1 s, \infty, \infty, \infty, \infty, R_L + \frac{1}{C_L s}\right)$	$\frac{L_1 g_m (C_L R_L s + 1)}{C_L (L_1 g_m s + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(L_1 s, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$	$\frac{L_1 g_m (C_L L_L s^2 + 1)}{C_L (L_1 g_m s + 1)}$	No	$INVALID - ORDER$	NONE
None	$\left(L_1 s, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1}\right)$	$\frac{L_1 L_L g_m s^2}{(C_L L_L s^2 + 1)(L_1 g_m s + 1)}$	No	$INVALID - ORDER$	NONE

None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, L_Ls + \frac{1}{C_Ls}\right)$	$\frac{R_1g_m(C_1L_1s^2+1)(C_LL_Ls^2+1)}{C_Ls(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE
None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1}\right)$	$\frac{L_LR_1g_ms(C_1L_1s^2+1)}{(C_LL_Ls^2+1)(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE
None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, L_Ls + R_L + \frac{1}{C_Ls}\right)$	$\frac{R_1g_m(C_1L_1s^2+1)(C_LL_Ls^2+C_LR_Ls+1)}{C_Ls(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE
None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, \frac{1}{C_Ls+\frac{1}{R_L}+\frac{1}{L_Ls}}\right)$	$\frac{L_LR_1R_Lg_ms(C_1L_1s^2+1)}{(C_LL_LR_Ls^2+L_Ls+R_L)(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE
None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, \frac{L_Ls}{C_LL_Ls^2+1} + R_L\right)$	$\frac{R_1g_m(C_1L_1s^2+1)(C_LL_LR_Ls^2+L_Ls+R_L)}{(C_LL_Ls^2+1)(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE
None	$\left(\frac{R_1\left(L_1s+\frac{1}{C_1s}\right)}{L_1s+R_1+\frac{1}{C_1s}}, \infty, \infty, \infty, \infty, \frac{R_L\left(L_Ls+\frac{1}{C_Ls}\right)}{L_Ls+R_L+\frac{1}{C_Ls}}\right)$	$\frac{R_1R_Lg_m(C_1L_1s^2+1)(C_LL_Ls^2+1)}{(C_LL_Ls^2+C_LR_Ls+1)(C_1L_1R_1g_ms^2+C_1L_1s^2+C_1R_1s+R_1g_m+1)}$	No	<i>INVALID – ORDER</i>	NONE