

Filter Summary Report: TIA,simple,ZL

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1    Examined  $H(z)$  for TIA simple ZL:  $Z_L$

$$H(z) = Z_L$$

2    HP

3    BP

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

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

Parameters:

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:  $R_L$   
Qz: 0  
Wz: None

4    LP

5    BS

5.1    BS-1  $Z(s) = \left( \infty, \infty, \infty, \infty, \infty, \frac{R_L (C_L L_L s^2 + 1)}{C_L L_L s^2 + C_L R_L s + 1} \right)$

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

Parameters:

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:  $R_L$   
K-HP:  $R_L$   
K-BP: 0  
Qz: None  
Wz:  $\sqrt{\frac{1}{C_L L_L}}$

6    GE

7    AP

8    INVALID-NUMER

9    INVALID-WZ

10   INVALID-ORDER

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

$$H(s) = R_L$$

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

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

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

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

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

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

10.5   INVALID-ORDER-5  $Z(s) = \left(\infty, \infty, \infty, \infty, \infty, L_L s + \frac{1}{C_L s}\right)$

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

10.6   INVALID-ORDER-6  $Z(s) = \left(\infty, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1}\right)$

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

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

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

10.8   INVALID-ORDER-8  $Z(s) = \left(\infty, \infty, \infty, \infty, \infty, \frac{L_L s}{C_L L_L s^2 + 1} + R_L\right)$

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

11   PolynomialError