

## Specification for a 2-Pole Spectrum Cleanup Crystal Filter MtronPTI P/N: 6880-010

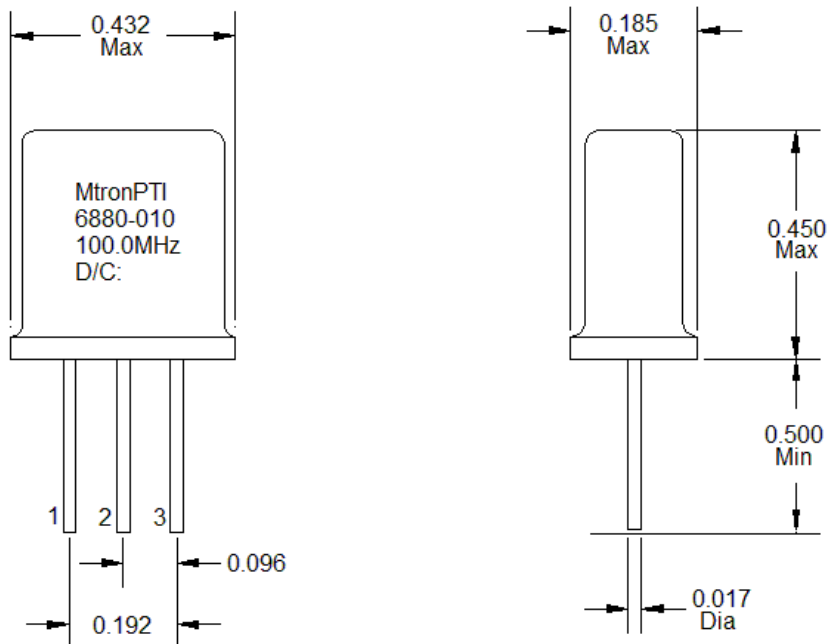
### I. General & Electrical Requirements

1. Center Frequency ( $F_{ON}$ ): 100.0MHz
2. 3dB Passband:  $\leq F_{ON} \pm 7.5\text{kHz}$
3. Insertion Loss (@ peak of transmission within the 3dB passband):  $\leq 6\text{dB}$
4. Passband Ripple (peak-valley):  $\leq 1.0\text{dB}$
5. Rejection (Minimum, Relative to Insertion Loss)  
 $15\text{dB}: \leq F_{ON} \pm 37.5\text{kHz}$
6. Ultimate Attenuation: 25dB minimum
7. Spurious Response: -15dB minimum @  $F_{ON} + 35\text{kHz}$  to  $F_{ON} + 500\text{kHz}$
8. Input Signal Level:  $\leq +5\text{dBm}$
9.  $Z_{IN}/Z_{OUT}$ :  $1450\Omega // -1\text{pF} \pm 2\text{pF}$  (Reference Figure 2 for Suggested  $50\Omega$  Matching Circuit)

### II. Environmental & Physical Requirements:

1. Temperature Range  
 Operating:  $0^\circ\text{C}$  to  $+75^\circ\text{C}$   
 Storage:  $-45^\circ\text{C}$  to  $+90^\circ\text{C}$
2. Solderability: Per EIAJ-STD-002
3. Package: Reference Drawing Figure 1

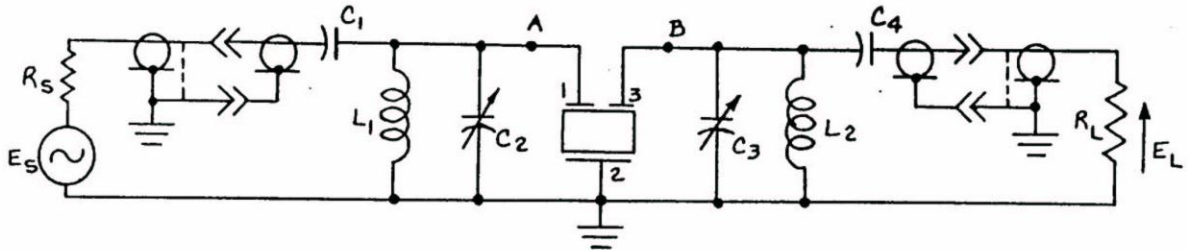
All Dimensions are in Inches



Pin # 2 is Case Ground

**Figure 1 – 6880-010 Package Outline Drawing**

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$R_S = R_L = 50 \text{ Ohms}$

$C_1 = 6.2 \text{ pF Nom. (Select for correct source parallel resistance.)}$

$C_4 = 6.2 \text{ pF Nom. (Select for correct load parallel resistance.)}$

$C_2 = C_3 = 0.8 - 10 \text{ pF (Note 1)}$

$L_1 = L_2 = 8 \text{ T \#32 AWG. ON } 3/16 \times 60 \text{ REXOLITE CORE}$

$Z_{\text{source}} = 1450 \Omega \text{ } // -1 \pm 2$

$Z_{\text{load}} = 1450 \Omega \text{ } // -1 \pm 2$

$Z_{\text{source}}$  and  $Z_{\text{load}}$  are the impedances at points A and B, respectively, with the filter removed and the test fixture terminated with a 50 ohm resistive load.

- NOTES: 1.)  $C_2$  and  $C_3$  are adjusted for (Check One):  
 optimum passband characteristic  
 specified source and load reactance of \_\_\_\_ pF.
- 2.) Attenuation reference is (Check One):  
 Peak of transmission  
 Loss at reference frequency: \_\_\_\_ kHz.
- 3.) Flat loss is the ratio of power delivered to the load, to the available power, expressed in dB.  
 a. Excluding test fixture loss (Equal source & load resistance): Flat Loss =  $20 \text{ LOG}_{10} (E_{L1}/E_{L2})$   
 $E_{L1} = E_L$  with filter replaced by a short from A to B &  $C_2, C_3$  tuned for max.  $E_L$  at  $f_{\text{on}}$ .  
 $E_{L2} = E_L$  with filter installed,  $C_2$  &  $C_3$  tuned per note 1, and frequency per note 2.  
 b. Including test fixture loss  
 Flat Loss =  $20 \text{ LOG}_{10} (E_{L3}/E_{L2})$   
 $E_{L3} = E_L$  with test fixture removed & C connected to D
- 4.) Initial level of  $E_S$  such that  $E_{L3} = 0.224 \text{ Volts } \pm 10\%$ .  
 (Source Power =  $0 \pm 1 \text{ dBm}$ .)  
 $E_S$  held constant during all measurement.

Figure 2 – 6880-010 Suggested 50Ω Matching Circuit