**KC Series**

**Chebyshev**

**Frequency Range from 500 Hz to 10 GHz**

**Application-Specific Designs**

<table>
<thead>
<tr>
<th>SERIES NUMBER</th>
<th>NUMBER OF POLE PAIRS (ELEMENTS)</th>
<th>INSERTION LOSS at f₀ dB TYPICAL</th>
<th>BANDWIDTH SELECTION -3dBc % f₀</th>
<th>STOPBAND ATTENUATION dBc MINIMUM</th>
<th>CENTER FREQUENCY – 500 Hz to 10 GHz – specify any f₀ within that range</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC3</td>
<td>3 (6)</td>
<td></td>
<td></td>
<td></td>
<td>8.0 - 5.0 3 to 5 -50 0.67 x f₀ 1.27 x f₀</td>
</tr>
<tr>
<td>KC4</td>
<td>4 (8)</td>
<td></td>
<td></td>
<td></td>
<td>6.0 - 3.5 &gt; 5 to 10 -50 0.65 x f₀ 1.28 x f₀</td>
</tr>
<tr>
<td>KC6</td>
<td>5 (10)</td>
<td></td>
<td></td>
<td></td>
<td>7.0 - 4.0 &gt; 5 to 10 -60 0.70 x f₀ 1.25 x f₀</td>
</tr>
<tr>
<td>KC7</td>
<td>6 (12)</td>
<td></td>
<td></td>
<td></td>
<td>9.0 - 5.0 &gt; 5 to 10 -60 0.78 x f₀ 1.20 x f₀</td>
</tr>
<tr>
<td>KC8</td>
<td>8 (16)</td>
<td></td>
<td></td>
<td></td>
<td>5.0 - 3.5 &gt; 10 to 15 -60 0.67 x f₀ 1.27 x f₀</td>
</tr>
<tr>
<td>KC9</td>
<td>9 (18)</td>
<td></td>
<td></td>
<td></td>
<td>5.5 - 4.0 &gt; 10 to 15 -60 0.75 x f₀ 1.22 x f₀</td>
</tr>
</tbody>
</table>

**Notes:**
- Operating Temperature Range: 0°C to +70°C
- Number of Pole Pairs (Elements): 3-9 (6-18)
- VSWR at f₀: 1.5:1 Typical
- Input Power: 20 mW
- Case Type: Refer to Case Selection Guide
- Case Options: PCB, SMT, BNC or SMA
- Normalized Response: Refer to Graphs
- Product Info: Refer to KC Series

**For RoHS compliant, add “R” to part number. Example: KC7R-125M-12.5M-50-69A**

TTE designates a component RoHS-compliant by adding “R” (RoHS) within the part number. These RoHS components meet the ≤ 0.1% lead requirement and they are compatible with 260°C soldering processes.

**NOTES:**
- Operating Temperature Range: 0°C to +70°C
- Number of Pole Pairs (Elements): 3-9 (6-18)
- VSWR at f₀: 1.5:1 Typical
- Input Power: 20 mW
- Case Type: Refer to Case Selection Guide
- Case Options: PCB, SMT, BNC or SMA
- Normalized Response: Refer to Graphs
- Product Info: Refer to KC Series

**TERMINATIONS:**

- 50 Ω 100 MHz - 1 GHz
- 50 Ω or 75 Ω 300 kHz - 100 MHz
- 1 kΩ - 50 Ω 10 kHz - 300 kHz
- 10 kΩ - 1 kΩ 500 Hz - 10 kHz

**STOPBAND FREQUENCY CALCULATIONS:**

Using part number KC7-125M-12.5M-50-69A, we know that the filter is a 7 pole Chebyshev bandpass filter. Scroll down to series number KC7. Moving to the right we select the 10% bandwidth range. Moving to the right again we find the stopband specification listed as -60dBc minimum at 0.82 x f₀ and 1.16 x f₀. Thus, the -60dBc frequencies are at 102.5 MHz (0.82 x 125 MHz) and at 145 MHz (1.16 x 125 MHz), respectively.

**PART NUMBER DERIVATION:**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC7</td>
<td><em>T</em></td>
<td><em>(R)</em></td>
<td>-125M</td>
<td>-12.5M</td>
<td>-50</td>
<td>-69A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Series, KC
2) Number of poles, 7
3) The "T" option specifies a filter with low THD for ADC/DAC testing. When selected therein, THD is > -80dBc, -96dBc typical.
4) "R" RoHS compliant. Allow for longer lead time.
5) The Center Frequency, f₀
6) The -3dBc passband bandwidth. It may also be specified as a percentage of f₀. Thus, instead of 12.5 MHz, use 10P.
7) Terminations
8) Case selection from the case selection guide. "T" option cases are larger than standard.