**Surface Mount RF Transformer**

**TCM1-83X+**

50Ω  10 to 8000 MHz

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**Maximum Ratings**
- **Operating Temperature**: -40°C to 85°C
- **Storage Temperature**: -55°C to 100°C
- **RF Power**: 0.2W
- **DC Current**: 30mA

Permanent damage may occur if any of these limits are exceeded.

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**Pin Connections**

- **PRIMARY DOT**: 3
- **PRIMARY**: 2
- **SECONDARY DOT**: 5
- **SECONDARY**: 4
- **GND**: 2
- **NOT USED**: 1, 6

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**Features**
- ultra wide bandwidth 10 to 8000 MHz
- one model covers all telecommunication bands
- flat insertion loss
- good return loss
- aqueous washable
- protected by US Patent 9,071,229B1

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**Applications**
- differential modulator/demodulator and active mixers
- wideband push-pull amplifiers
- LTE, Cellular, PCS, UMTS, WiFi, WiMAX

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**Electrical Specifications at 25°C**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (MHz)</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impedance Ratio</strong></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency Range</strong></td>
<td>10-8000</td>
<td>1.3</td>
<td>2.5</td>
<td>2.5</td>
<td>dB</td>
</tr>
<tr>
<td><strong>Insertion Loss</strong></td>
<td>10-6000</td>
<td>1.3</td>
<td>3.0</td>
<td>3.0</td>
<td>dB</td>
</tr>
<tr>
<td><strong>Amplitude Unbalance</strong></td>
<td>10-6000</td>
<td>0.5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td><strong>Phase Unbalance</strong></td>
<td>10-6000</td>
<td>8</td>
<td></td>
<td></td>
<td>Degree</td>
</tr>
</tbody>
</table>

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**Typical Performance Data**

<table>
<thead>
<tr>
<th>FREQUENCY (MHz)</th>
<th>INSERTION LOSS (dB)</th>
<th>INPUT R. LOSS (dB)</th>
<th>AMPLITUDE UNBALANCE (dB)</th>
<th>PHASE UNBALANCE (deg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.62</td>
<td>15.68</td>
<td>0.14</td>
<td>0.26</td>
</tr>
<tr>
<td>100</td>
<td>1.62</td>
<td>16.58</td>
<td>0.15</td>
<td>1.19</td>
</tr>
<tr>
<td>1000</td>
<td>1.25</td>
<td>18.55</td>
<td>0.55</td>
<td>7.54</td>
</tr>
<tr>
<td>2000</td>
<td>1.19</td>
<td>15.35</td>
<td>0.59</td>
<td>11.27</td>
</tr>
<tr>
<td>3000</td>
<td>1.51</td>
<td>10.56</td>
<td>0.54</td>
<td>13.02</td>
</tr>
<tr>
<td>4000</td>
<td>1.30</td>
<td>11.57</td>
<td>0.21</td>
<td>11.93</td>
</tr>
<tr>
<td>5000</td>
<td>0.97</td>
<td>16.70</td>
<td>0.31</td>
<td>9.77</td>
</tr>
<tr>
<td>6000</td>
<td>0.95</td>
<td>17.74</td>
<td>0.76</td>
<td>5.81</td>
</tr>
<tr>
<td>7000</td>
<td>1.35</td>
<td>14.39</td>
<td>1.14</td>
<td>0.67</td>
</tr>
<tr>
<td>8000</td>
<td>1.54</td>
<td>14.19</td>
<td>1.32</td>
<td>4.03</td>
</tr>
</tbody>
</table>

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**Outline Drawing**

**Outline Dimensions**: A = 0.160, B = 0.150, C = 0.050, D = 0.040, E = 0.025, F = 0.500, G = 0.028, H = 0.065, I = 0.190, J = 0.030, K = 0.156, L = 0.160, M = 0.160, N = 0.400, O = 0.025

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**Notes**
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit’s applicable established test performance criteria and measurement instructions.
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**Demo Board MCL P/N: TB-717+**

**Suggested PCB Layout (PL-395)**

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**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our website for RoHS Compliance methodologies and qualifications.