

Surface Mount RF Transformer

TX1-R5+ TX1-R5

50Ω 0.8 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: TT240

+RoHS Compliant

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

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -20°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 0.25W |
| DC Current | 30mA |

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

Pin Connections

| | |
|---------------|-----|
| PRIMARY DOT | 4 |
| PRIMARY | 6 |
| SECONDARY DOT | 3 |
| SECONDARY | 1 |
| NOT USED | 2,5 |

Features

- wideband, 0.8 to 500 MHz
- excellent return loss

Applications

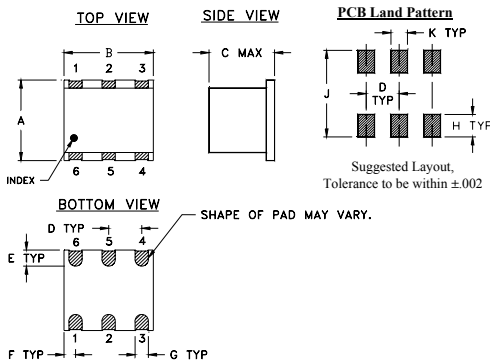
- VHF/UHF
- receivers/transmitters

Transformer Electrical Specifications

| Ω RATIO | FREQUENCY (MHz) | INSERTION LOSS* | | |
|---------|-----------------|-----------------|----------|----------|
| | | 3 dB MHz | 2 dB MHz | 1 dB MHz |
| 1 | 0.8-500 | 0.8-500 | 1.2-350 | 3.2-180 |

* Insertion Loss is referenced to mid-band loss, 0.7 dB typ.

Outline Drawing



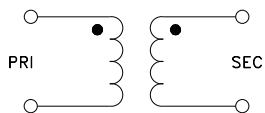
Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|-------|------|
| .250 | .31 | .20 | .100 | .050 | .055 |
| 6.35 | 7.87 | 5.08 | 2.54 | 1.27 | 1.40 |
| G | H | J | K | wt | |
| .040 | .070 | .270 | .050 | grams | |
| 1.02 | 1.78 | 6.86 | 1.27 | 0.50 | |

Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) |
|-----------------|---------------------|--------------------|
| 0.80 | 0.87 | 11.84 |
| 1.20 | 0.87 | 13.26 |
| 2.20 | 0.87 | 15.37 |
| 3.20 | 0.86 | 16.68 |
| 91.60 | 0.74 | 14.38 |
| 180.00 | 0.92 | 10.21 |
| 265.00 | 1.32 | 7.79 |
| 350.00 | 1.28 | 6.22 |
| 425.00 | 1.87 | 5.32 |
| 500.00 | 2.01 | 4.63 |

Config. C



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



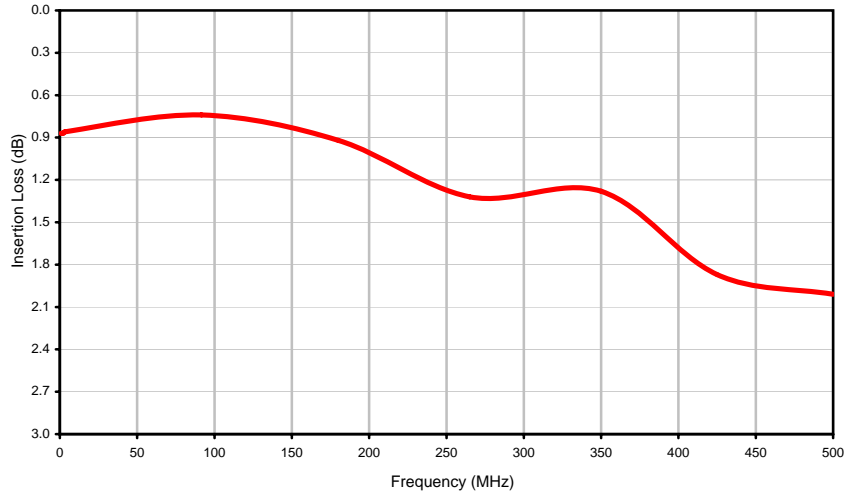
Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | RETURN LOSS (dB) |
|--------------------|---------------------------|------------------------|
| 0.80 | 0.87 | 11.84 |
| 1.20 | 0.87 | 13.26 |
| 2.20 | 0.87 | 15.37 |
| 3.20 | 0.86 | 16.68 |
| 91.60 | 0.74 | 14.38 |
| 180.00 | 0.92 | 10.21 |
| 265.00 | 1.32 | 7.79 |
| 350.00 | 1.28 | 6.22 |
| 425.00 | 1.87 | 5.32 |
| 500.00 | 2.01 | 4.63 |

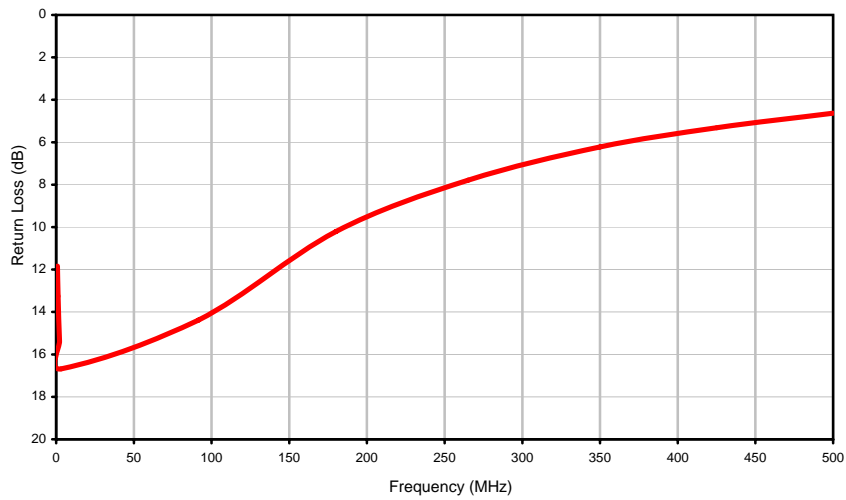


Typical Performance Curves

Insertion Loss

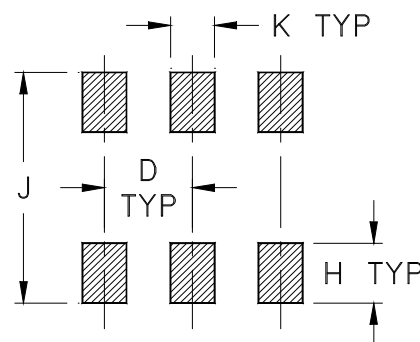
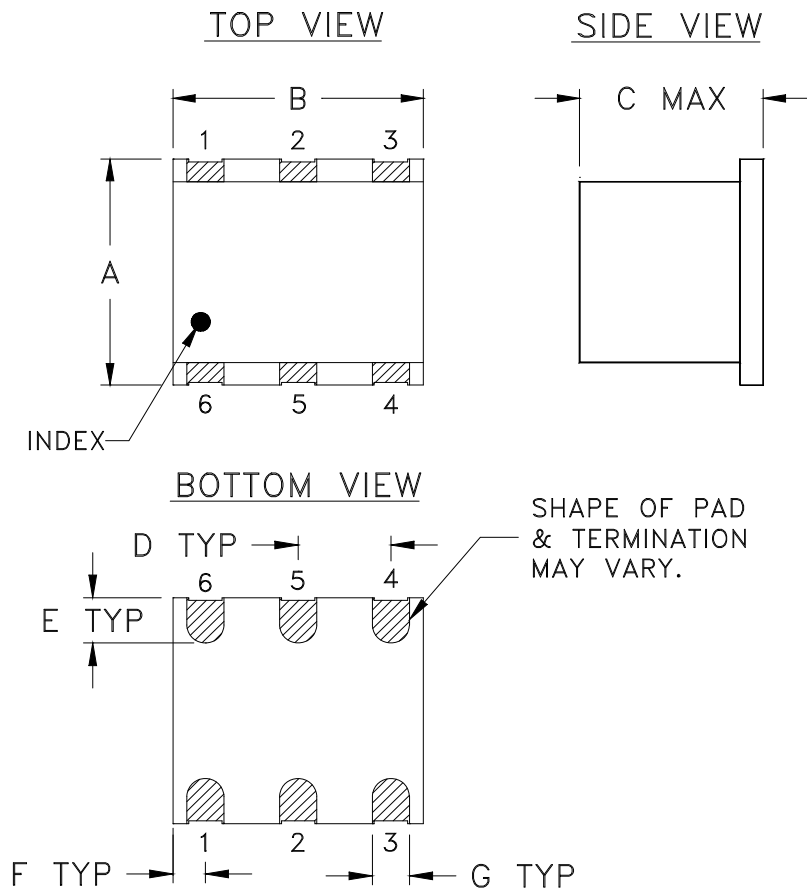


Return Loss



Outline Dimensions

PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

| CASE # | A | B | C | D | E | F | G | H | J | K | WT. GRAM |
|--------|----------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|
| TT240 | .250 (6.35) | .31 (7.87) | .20 (5.08) | .100 (2.54) | .050 (1.27) | .055 (1.40) | .040 (1.02) | .070 (1.78) | .270 (6.86) | .050 (1.27) | .50 |

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .01$; 3 Pl. $\pm .005$

Notes:

- Case material: Ceramic.
- Termination finish:
 - For RoHS Case Styles: 2-10 μ inch (.05-.25 microns) Gold plate over 100-300 μ inch (2.54-7.62 microns) Nickel plate. All models, (+) suffix.
 - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



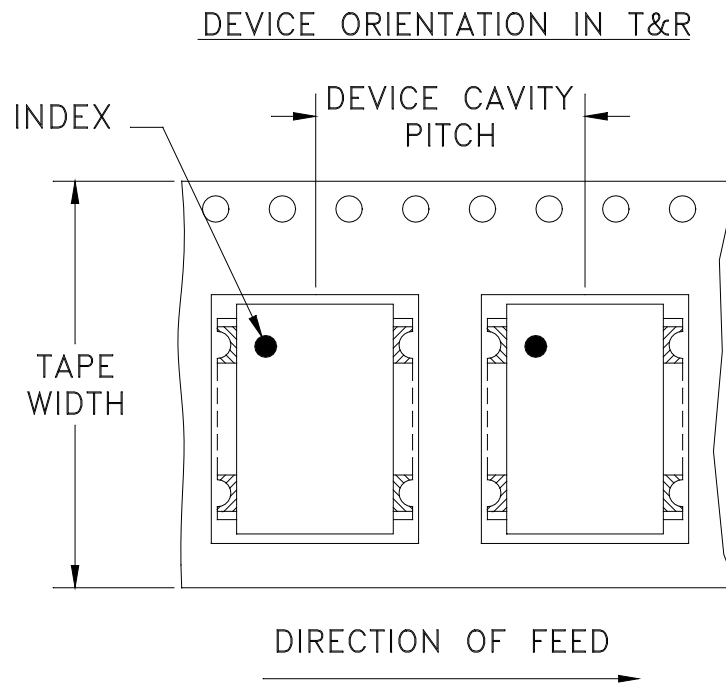
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F2



| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel See note |
|----------------|-------------------------|-------------------|------------------------------|
| 16 | 12 | 7 | 10 |
| | | | 20 |
| | | | 50 |
| | | | 100 |
| | | | 200 |
| | | 13 | 500 |
| | | | 1000 |

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|--------------------------------|---|--|
| Operating Temperature | -20° to 85°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Humidity | 90 to 95% RH, 240 hours, 50°C | MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |