

Surface Mount RF Transformer

50Ω 2 to 800 MHz

TCM9-1X+
Upgraded Version*

- * Addition of Top-hat® feature Benefits
- Allows faster pick-and-place
- Enables visual identification marking

TCM9-1+



Generic photo used for illustration purposes only

CASE STYLE: DB714

+RoHS Compliant

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

| Available Tape and Reel at no extra cost | |
|--|-----------------------|
| Reel Size | Devices/Reel |
| 7" | 20, 50, 100, 200, 500 |
| 13" | 1000, 2000 |

Features

- excellent amplitude unbalance, 0.15 dB typ. and phase unbalance, 1 deg typ. in 1 dB bandwidth
- plastic base with solder plated leads
- aqueous washable

Applications

- impedance matching
- balanced to unbalanced transformation

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|--|-----------------|------|------|------|------|
| Impedance Ratio (<i>secondary/primary</i>) | | | 9 | | Ohm |
| Frequency Range | | 2 | | 280 | MHz |
| Insertion Loss* | 2 - 280 | — | 3 | — | dB |
| | 3 - 150 | — | 2 | — | |
| | 5 - 100 | — | 1 | — | |

* Insertion Loss is referenced to mid-band loss, 0.9 dB typ.

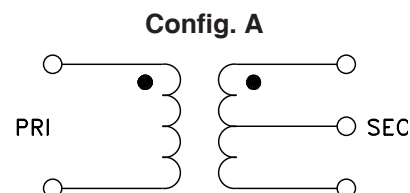
Maximum Ratings

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

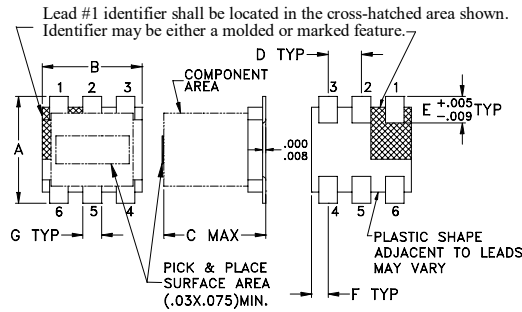
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

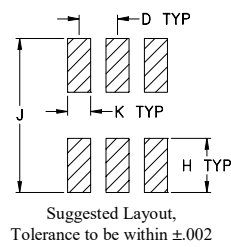
| Function | Pin Number |
|---------------|------------|
| PRIMARY DOT | 6 |
| PRIMARY | 4 |
| SECONDARY DOT | 1 |
| SECONDARY | 3 |
| SECONDARY CT | 2 |
| NOT USED | 5 |



Outline Drawing



PCB Land Pattern



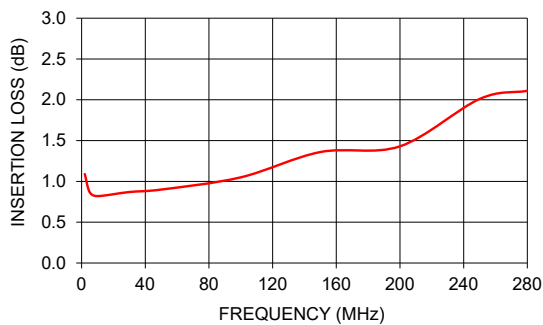
Outline Dimensions (Inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|-------|------|
| .160 | .150 | .160 | .050 | .040 | .025 |
| 4.06 | 3.81 | 4.06 | 1.27 | 1.02 | 0.64 |
| G | H | J | K | wt | |
| .028 | .065 | .190 | .030 | grams | |
| 0.71 | 1.65 | 4.83 | 0.76 | 0.15 | |

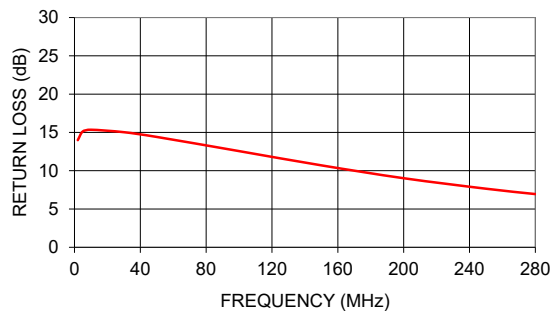
Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) |
|-----------------|---------------------|--------------------|
| 2 | 1.09 | 13.99 |
| 5 | 0.87 | 15.12 |
| 10 | 0.82 | 15.35 |
| 30 | 0.87 | 15.03 |
| 50 | 0.90 | 14.41 |
| 100 | 1.05 | 12.56 |
| 150 | 1.36 | 10.70 |
| 200 | 1.43 | 9.02 |
| 250 | 2.01 | 7.65 |
| 280 | 2.11 | 6.95 |

INSERTION LOSS



RETURN LOSS



Additional 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