

Surface Mount RF Transformer

50Ω 4.5 to 3000 MHz

TC1-1-13M+



Generic photo used for illustration purposes only

CASE STYLE: AT224-1A

+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

- wideband, 4.5 to 3000 MHz
- balanced transmission line
- good return loss
- excellent amplitude unbalance, 0.5 dB typ. and phase unbalance, 2 deg typ. in 1 dB bandwidth
- plastic base with leads
- aqueous washable

Applications

- balanced to unbalanced transformation
- push-pull amplifiers
- PCS/DCS
- MMDS

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|---------------------|-----------------|------|------|------|------|
| Impedance Ratio | | | 1 | | |
| Frequency Range | | 4.5 | | 3000 | MHz |
| Insertion Loss* | 2000-3000 | | 3 | | dB |
| | 1000-2000 | | 2 | | |
| | 4.5-1000 | | 1 | | |
| Phase Unbalance | 4.5-1000 | | 2 | | Deg. |
| | 1000-2000 | | 3 | | |
| Amplitude Unbalance | 4.5-1000 | | 0.5 | | dB |
| | 1000-2000 | | 0.5 | | |

*Insertion Loss is referenced to mid-band loss, 0.5 dB typ.

Maximum Ratings

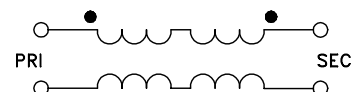
| Parameter | Ratings |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 0.25W |
| DC Current | 30mA |

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

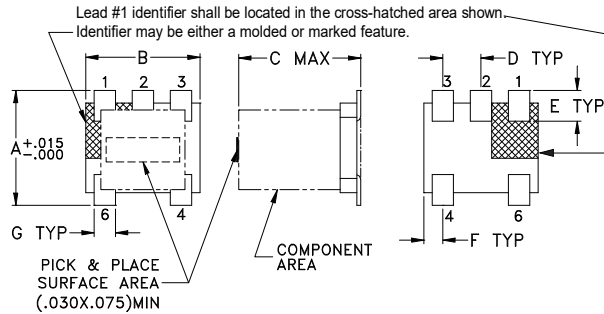
Pin Connections

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

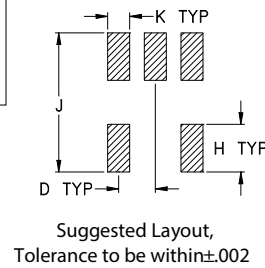
Config. G



Outline Drawing



PCB Land Pattern

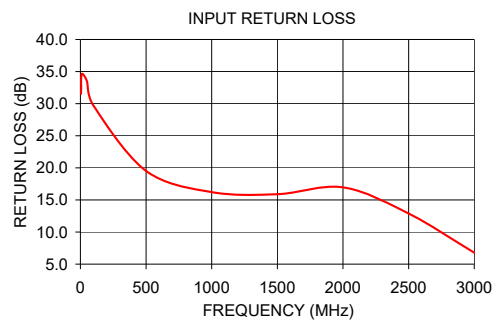
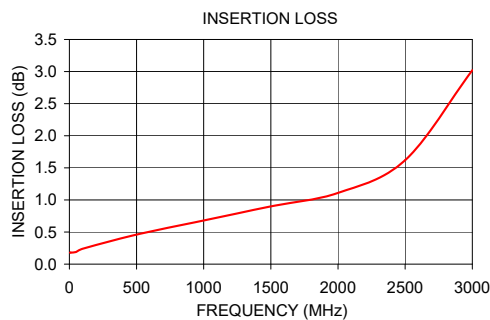


Outline Dimensions (inch/mm)

| A | B | C | D | E | F |
|------|------|------|------|-------|------|
| .150 | .150 | .160 | .050 | .040 | .025 |
| 3.81 | 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) | AMPLITUDE UNBALANCE (dB) | PHASE UNBALANCE (Deg.) |
|-----------------|---------------------|--------------------|--------------------------|------------------------|
| 4.50 | 0.18 | 31.52 | 0.69 | 3.81 |
| 10.00 | 0.18 | 34.60 | 0.56 | 1.78 |
| 50.00 | 0.19 | 33.50 | 0.56 | 0.11 |
| 100.00 | 0.24 | 29.68 | 0.55 | 0.19 |
| 500.00 | 0.46 | 19.52 | 0.45 | 0.81 |
| 1000.00 | 0.68 | 16.22 | 0.14 | 1.59 |
| 1500.00 | 0.90 | 15.89 | 0.29 | 0.89 |
| 2000.00 | 1.11 | 16.97 | 0.71 | 1.28 |
| 2500.00 | 1.62 | 12.88 | 0.78 | 5.79 |
| 3000.00 | 3.02 | 6.79 | 0.49 | 12.32 |



Additional 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.
- C. 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

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