



top hat[®]
SURFACE MOUNT
RF Transformer

TC1-6X+

50Ω 0.15 to 350 MHz

FEATURES

- Good return loss
- Usable over 0.05-400 MHz
- Excellent amplitude unbalance, 0.1 dB typ. and phase unbalance, 2 deg typ. in 1 dB bandwidth
- Plastic base with leads



Generic photo used for illustration purposes only

CASE STYLE: AT1521

+RoHS Compliant

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

APPLICATIONS

- Balanced to unbalanced transformation
- Push-pull amplifiers

ELECTRICAL SPECIFICATIONS AT +25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|-----------------|-----------------|------|------|------|------|
| Impedance Ratio | | | 1 | | Ohm |
| Frequency Range | | 0.15 | | 350 | MHz |
| Insertion Loss* | 0.15 - 350 | | 3.0 | | dB |
| | 0.25 - 250 | | 2.0 | | |
| | 0.3 - 125 | | 1.0 | | |

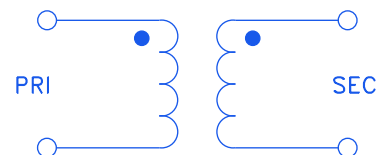
* Insertion Loss is referenced to mid-band loss, 0.2 dB typ.

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.

CONFIG. C



REV. B
 ECO-021763
 TC1-6X+
 MCL NY
 240510





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Mini-Circuits

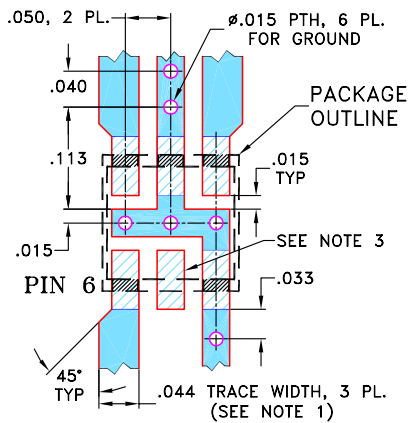
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PIN CONNECTIONS

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

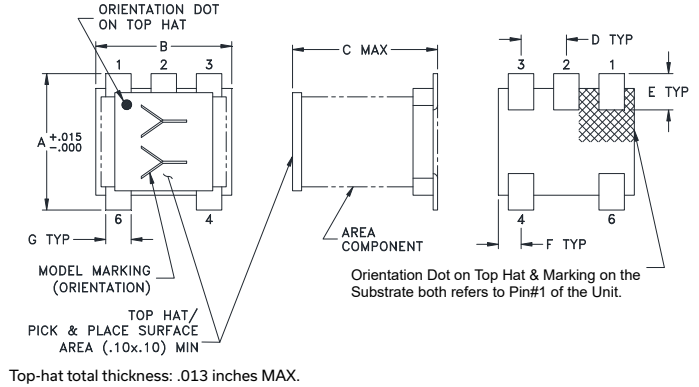
PRODUCT MARKING: CT

**DEMO BOARD MCL P/N: TB-145
SUGGESTED PCB LAYOUT (PL-244)**

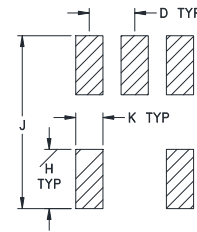


1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
 3. THIS PAD IS NOT REQUIRED FOR AT224 CASE STYLE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inch mm)

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

Weight: 0.15 grams

TAPE & REEL INFORMATION: F17



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TYPICAL PERFORMANCE DATA

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) |
|-----------------|---------------------|--------------------|
| 0.15 | 0.73 | 12.89 |
| 0.25 | 0.61 | 16.56 |
| 0.30 | 0.57 | 17.77 |
| 0.50 | 0.44 | 23.21 |
| 2.00 | 0.31 | 30.49 |
| 10.00 | 0.26 | 33.62 |
| 50.00 | 0.35 | 24.13 |
| 125.00 | 0.61 | 16.90 |
| 250.00 | 1.31 | 11.59 |
| 350.00 | 2.16 | 9.26 |



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/terms/viewterm.html

