

Balanced to Unbalanced RF Transformer



100 to 75Ω

5 to 2800 MHz

TC1.33-282X+

Features

- suitable for tin/lead and RoHS solder systems
- wideband, 5 to 2800 MHz
- balanced transmission line
- good return loss, 20 dB typ. at 1 dB band
- excellent amplitude unbalance, 0.3 dB typ.
- aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: AT1521

+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 |

Electrical Specifications at 25°C

| Parameter | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|--|-----------------|------|------|------|--------|
| Impedance Ratio (<i>secondary/primary</i>) | | | 1.33 | | Ohm |
| Frequency Range | | 5 | | 2800 | MHz |
| Insertion Loss* | 5 - 2800 | | 3.0 | | dB |
| | 30 - 2000 | | 2.0 | | |
| | 50 - 1500 | | 1.0 | | |
| Amplitude Unbalance | 50 - 1500 | | 0.3 | | dB |
| | 30 - 2000 | | 1.0 | | |
| Phase Unbalance | 50 - 1500 | | 6.0 | | Degree |
| | 30 - 2000 | | 6.0 | | |

* Insertion Loss is referenced to mid-band loss, 1.0 dB typ. Measured in 75Ω system.

Maximum Ratings

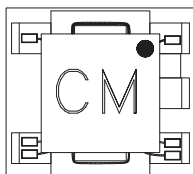
| Parameter | Ratings |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 0.25W |
| DC Current | 30mA |

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

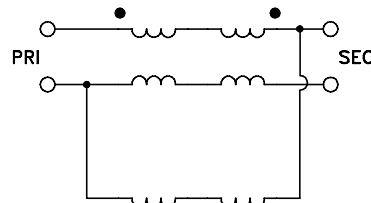
Pin Connections

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

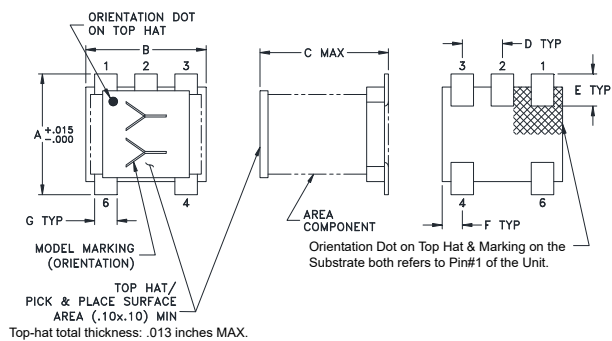
Product Marking



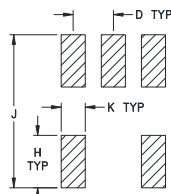
Config. K



Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±0.02

Outline Dimensions (inch)

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

Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) | AMPLITUDE UNBALANCE (dB) | PHASE UNBALANCE (Deg.) |
|-----------------|---------------------|--------------------|--------------------------|------------------------|
| 5.00 | 1.48 | 17.72 | 0.38 | 3.28 |
| 10.00 | 1.20 | 21.95 | 0.21 | 2.17 |
| 30.00 | 1.08 | 27.05 | 0.11 | 0.55 |
| 50.00 | 1.08 | 28.04 | 0.09 | 0.06 |
| 100.00 | 1.09 | 28.09 | 0.08 | 1.09 |
| 500.00 | 0.99 | 24.29 | 0.21 | 5.00 |
| 1000.00 | 0.97 | 22.66 | 0.07 | 6.34 |
| 1500.00 | 1.20 | 22.41 | 0.71 | 5.18 |
| 2000.00 | 1.64 | 21.22 | 1.49 | 1.64 |
| 2400.00 | 2.13 | 17.79 | 2.00 | 3.40 |
| 2800.00 | 2.76 | 13.83 | 2.31 | 10.70 |



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.
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