

# Balanced to Unbalanced RF Transformer

100 to 75Ω      5 to 1800 MHz

## TC1.33-152X-2+

### Features

- suitable for tin/lead and RoHS solder systems
- wideband, 5 to 1800 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		1800	MHz
Insertion Loss*	5 - 1800		1.2	2.3	dB
Amplitude Unbalance	5 - 1200		0.4	1.0	dB
	1200 - 1800		1.3	2.1	
Phase Unbalance	5 - 1800		5	10	Degree

\* 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.

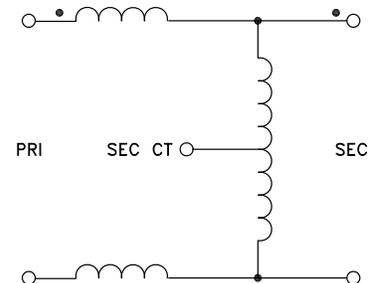
### Pin Connections

Function	Pin Number
PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
SECONDARY CT	2

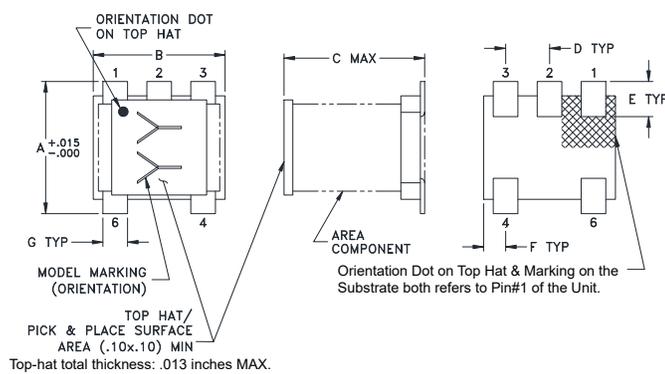
### Product Marking



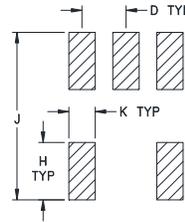
### Config. M1



## Outline Drawing



## PCB Land Pattern



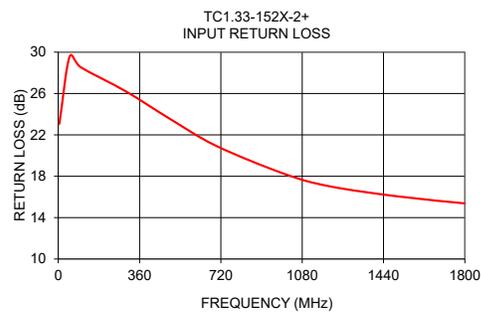
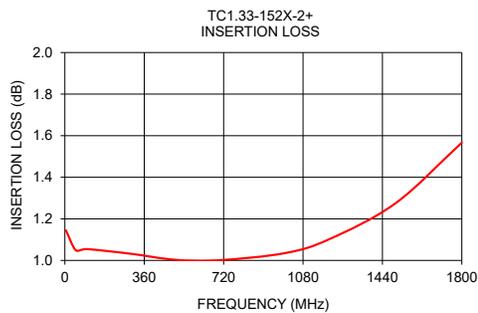
Suggested Layout,  
Tolerance to be within  $\pm 0.02$

## Outline Dimensions (inch/mm)

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	1.14	23.07	0.03	0.23
50.00	1.05	29.55	0.02	0.15
100.00	1.05	28.53	0.02	0.40
300.00	1.03	26.20	0.01	1.08
500.00	1.00	23.47	0.04	1.52
700.00	1.00	20.93	0.14	1.70
1000.00	1.04	18.24	0.34	1.77
1200.00	1.10	17.03	0.56	1.42
1500.00	1.28	16.06	1.09	0.80
1800.00	1.57	15.38	1.68	0.55



## 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.
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