

# Surface Mount RF Transformer

50Ω

40 to 300 MHz

TX16-R3T+



Generic photo used for illustration purposes only

CASE STYLE: TT240

**+RoHS Compliant**

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

## Maximum Ratings

Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	250mW
DC Current	30mA

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

## Pin Connections

PRIMARY DOT	4
PRIMARY	6
SECONDARY DOT	3
SECONDARY	1
SECONDARY CT	2
NOT USED	5

## Features

- wideband, 40 to 300 MHz
- high impedance ratio 16:1
- leadless surface mount

## Applications

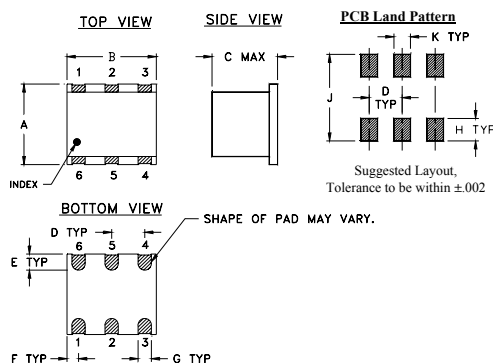
- impedance matching of amplifiers
- push-pull amplifiers
- VHF/UHF receivers/transmitters

## Transformer Electrical Specifications

Ω RATIO	FREQUENCY (MHz)	INSERTION LOSS*		
		3 dB MHz	2 dB MHz	1 dB MHz
16	40-300	40-300	60-220	70-150

\* Insertion Loss is referenced to mid-band loss, 0.8 dB typ.

## Outline Drawing



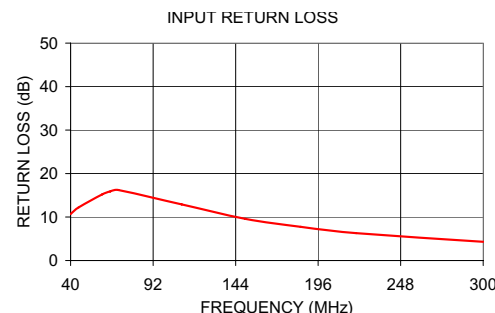
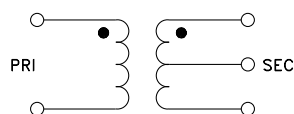
## Outline Dimensions (inch/mm)

A	B	C	D	E	F
.250	.31	.20	.100	.050	.055
6.35	7.87	5.08	2.54	1.27	1.40
G	H	J	K	wt	
.040	.070	.270	.050	grams	
1.02	1.78	6.86	1.27	0.50	

## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)
40.00	0.78	10.69
45.00	0.81	12.21
60.00	0.91	15.24
65.00	0.94	15.89
70.00	0.96	16.23
110.00	1.13	12.90
150.00	1.44	9.60
185.00	1.58	7.74
220.00	2.00	6.29
300.00	2.74	4.30

## Config. A



## 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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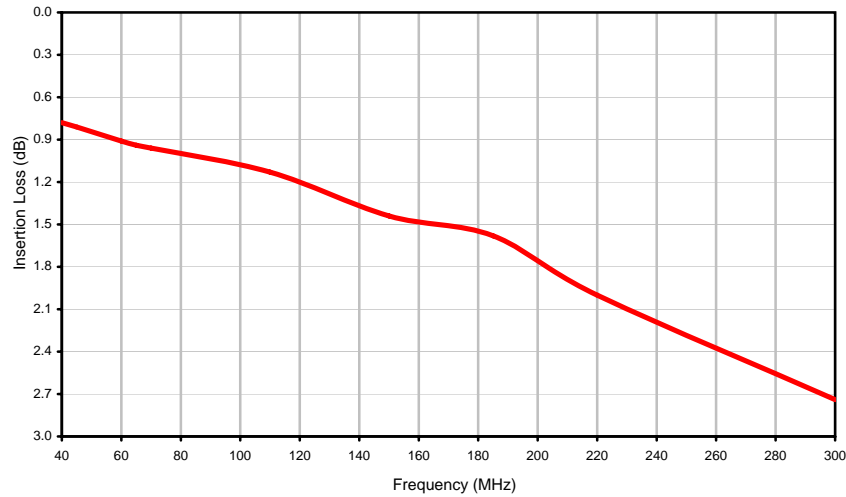
REV. B  
M151107  
TX16-R3T+  
IG/TD/CP/AM  
200815  
Page 1 of 1

## Typical Performance Data

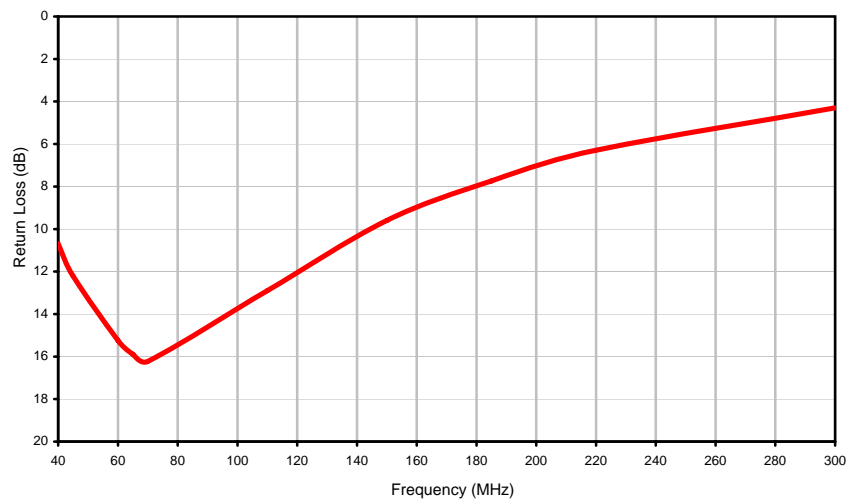
FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
40.00	0.78	10.69
45.00	0.81	12.21
60.00	0.91	15.24
65.00	0.94	15.89
70.00	0.96	16.23
110.00	1.13	12.90
150.00	1.44	9.60
185.00	1.58	7.74
220.00	2.00	6.29
300.00	2.74	4.30

## Typical Performance Curves

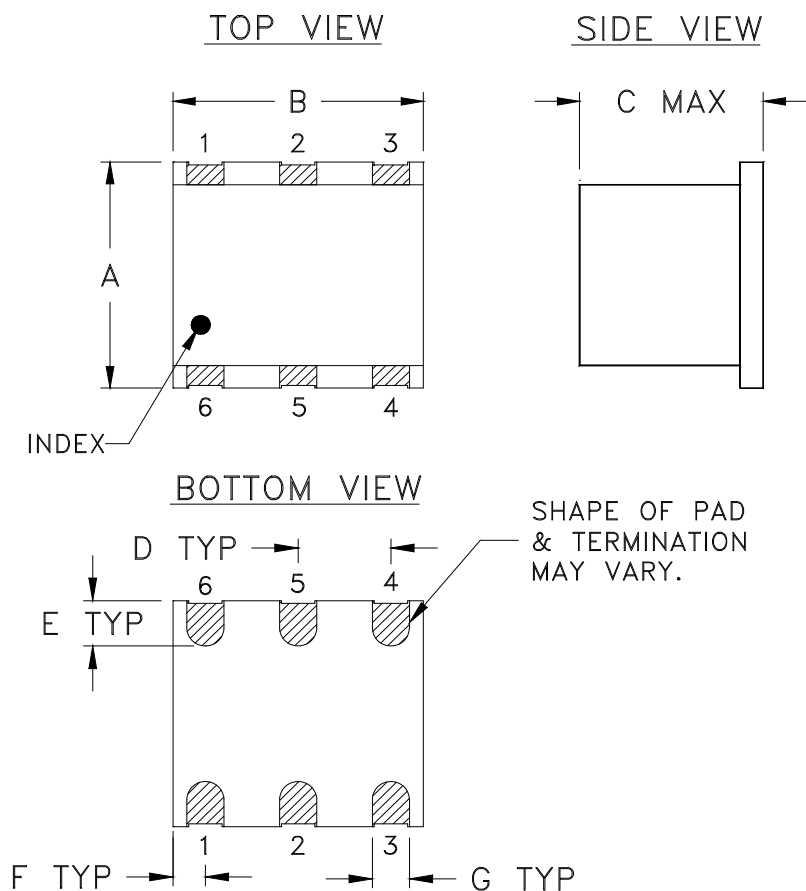
Insertion Loss



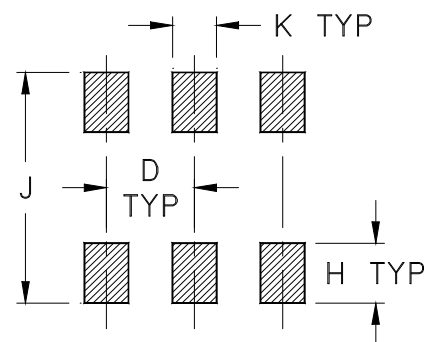
Return Loss



### Outline Dimensions



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	WT. GRAM
TT240	.250 (6.35)	.31 (7.87)	.20 (5.08)	.100 (2.54)	.050 (1.27)	.055 (1.40)	.040 (1.02)	.070 (1.78)	.270 (6.86)	.050 (1.27)	.50

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .01$ ; 3 Pl.  $\pm .005$

### Notes:

- Case material: Ceramic.
- Termination finish:
  - For RoHS Case Styles: 2-10 $\mu$  inch (.05-.25 microns) Gold plate over 100-300  $\mu$  inch (2.54-7.62 microns) Nickel plate. All models, (+) suffix.
  - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



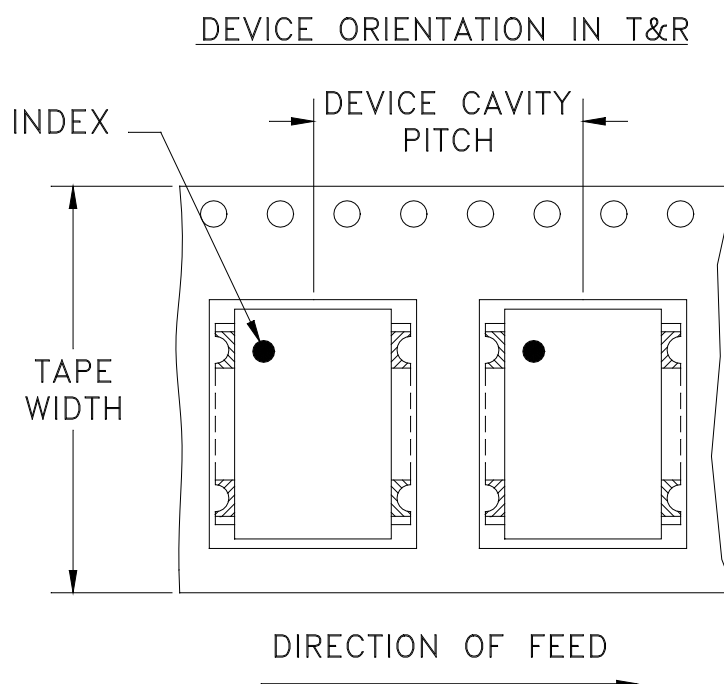
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS

# *Tape & Reel Packaging TR-F2*



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel See note
16	12	7	10
			20
			50
			100
			200
		13	500
			1000

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: [www.minicircuits.com/pages/pdfs/tape.pdf](http://www.minicircuits.com/pages/pdfs/tape.pdf)



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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-20° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215