Surface Mount

RF Transformer

TC1-1T-152X+

50 Ω 5 to 1500 MHz

CASE STYLE: AT1521

The Big Deal

- Super wideband, 5 to 1500 MHz
- Low insertion loss, 1.5 dB typ.
- Amplitude Unbalance, ±0.2 dB typ.
- Good input return loss, 14 dB typ.
- Low phase unbalance, ±1.5˚ typ.
- Common mode rejection, 30 dB typ.

Product Overview

Mini-Circuits' TC1-1T-152X+ is a surface-mount transmission line transformer (with bias center tap) covering a very wide frequency range from 5 to 1500 MHz. The transformer provides low insertion loss with excellent phase and amplitude performance. Featuring core and wire construction on a 5-lead unit measures 0.15 x 0.15 x 0.16 inch.

Key Features

Feature	Advantages
Wideband, 5 to 1500 MHz	Super wide frequency range covers bandwidth requirements for many broadband applications.
Low insertion loss, 1.5 dB typ.	This unit provides excellent signal transmission from input to output with consistent performance across its entire frequency range.
Good Phase and Amplitude Unbalance	Provides good CMRR.
DC current 200 mA	Supply DC current from center tap.

Balanced to Unbalanced top hat®

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Generic photo used for illustration purposes only

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+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

- suitable for tin/lead and RoHS solder systems
- wideband, 5 to 1500 MHz
- balanced transmission line
- excellent phase unbalance, 1.5° typ
- excellent amplitude unbalance, 0.2 dB typ.
- aqueous washable

Applications

- VHF/UHF transmitters
- cellular
- GPS
- communication

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio			1		Ohm
Frequency Range		5		1500	MHz
Insertion Loss*	5 - 870	—	1.0	1.6	dB
	870 - 1000	—	1.2	1.7	
	1000 - 1500	—	1.8	2.5	
Amplitude Unbalance	5 - 870	—	0.1	0.7	dB
	870 - 1000	—	0.3	0.9	
	1000 - 1500	—	0.5	1.8	
Phase Unbalance	5 - 870	—	1.0	6	Degree
	870 - 1000	—	2.0	8	
	1000 - 1500	—	3.0	10	
Common mode rejection	5-1000	22	33	—	dB
	1000-1500	20	28	—	
Input Return Loss	5-870	—	15	—	dB
	870-1000	—	12	—	

* Insertion Loss is referenced to mid-band loss, 0.7 dB typ.

Maximum Ratings

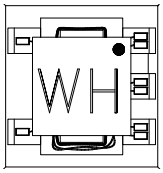
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.5W
DC Current	200mA

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

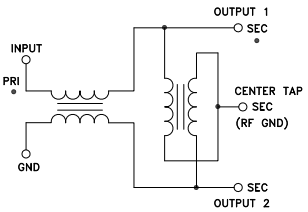
Pin Connections

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

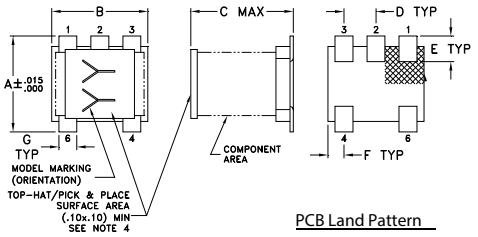
Product Marking



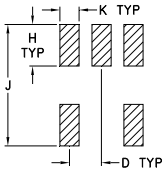
Config. M1



Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within±.002

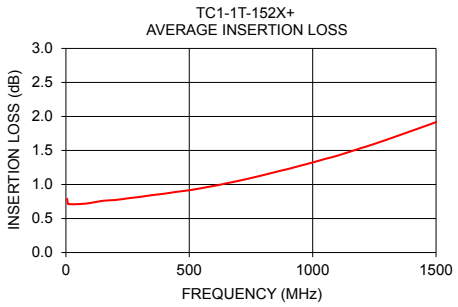
Note:
1. Case Material Plastic
2. Termination Finish: Tin plate over Nickel plate.
3. Lead #1 identifier shall be located in the cross-hatched area shown, on bottom view. Identifier may be either a molded or marked feature.
4. Top-Hat total thickness: .013 inches max.

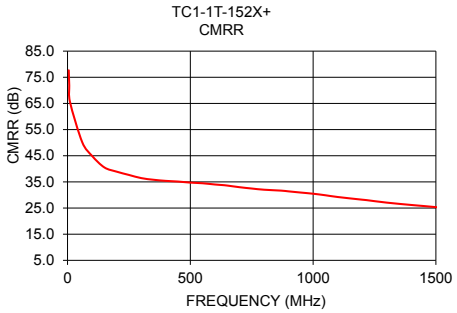
Outline Dimensions (inch / mm)

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)	AVERAGE INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)	CMRR (dB)
5	0.79	21.59	0.00	0.00	77.68
10	0.71	24.37	0.00	0.06	65.55
100	0.73	24.80	0.02	0.64	44.93
200	0.77	21.92	0.05	1.25	38.91
400	0.87	17.73	0.11	1.80	35.39
600	0.98	15.25	0.04	2.27	34.01
800	1.14	13.56	0.05	2.86	32.01
1000	1.32	12.43	0.24	3.05	30.47
1200	1.54	11.48	0.47	3.23	28.19
1400	1.79	10.65	0.70	3.24	26.17
1500	1.92	10.27	0.81	3.16	25.34





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