SURFACE MOUNT top hat®

RF Transformer

TC4-13TX+

50Ω 100 to 1000 MHz

THE BIG DEAL

- Wideband, 100 to 1000 MHz
- DC isolated up to 1000 MHz
- Good return loss
- Excellent amplitude unbalance, 0.5 dB typ. in 1 dB bandwidth
- Plastic base with leads
- Aqueous washable



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

- Impedance matching
- Balanced to unbalanced transformation
- Push-pull amplifiers

PRODUCT OVERVIEW

TC4-13TX+ is a surface-mount, DC-isolated transformer with a center-tap on its secondary winding, covering the 100 to 1000 MHz band. This model provides a 4:1 secondary/primary impedance ratio, 0.6 dB insertion loss, 0.5 dB amplitude unbalance (in 1 dB bandwidth) and 9° phase unbalance. It features core and wire construction mounted on a 5-lead plastic base with tin over nickel termination finish. It measures 0.15 x 0.15 x 0.16", easily accommodating dense circuit board layouts, and features Mini-Circuits' Top Hat® feature for faster, more accurate pick-and-place assembly.

KEY FEATURES

Features	Advantages
Wide bandwidth, 40 to 1250 MHz	Wide frequency range covers bandwidth requirements for DOCSIS® 3.1 systems and equipment.
Low insertion loss, 1.4 dB	Provides excellent signal power transmission from input to output.
Secondary center tap	Allows DC feed up to 30mA and DC bias without adding bias tees into the signal chain.
Small footprint (0.15 x 0.15 x 0.16")	Accommodates tight space requirements for dense PCB layouts.
Top Hat® feature	Improves speed and accuracy of pick and place assembly and provides clear device marking for visual inspection.

REV. B
ECO-014884
TC4-13TX+
ED-14469/1
SZ/CP/AM
220815

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (primary/secondary)			4		
Frequency Range		100	—	1000	MHz
Insertion Loss*	200-800	—	0.2	0.8	dB
	100-1000	—	0.6	1.4	
Amplitude Unbalance	200-800	—	0.5	1.4	dB
	100-1000	—	1	—	
Phase Unbalance	200-800	—	5	11	Degree
	100-1000	—	9	—	

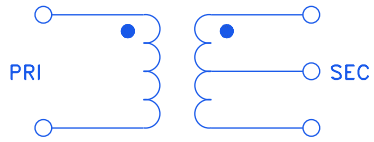
* Insertion Loss is referenced to mid-band loss, 1.8 dB typ.

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. A



SURFACE MOUNT top hat

RF Transformer

TC4-13TX+

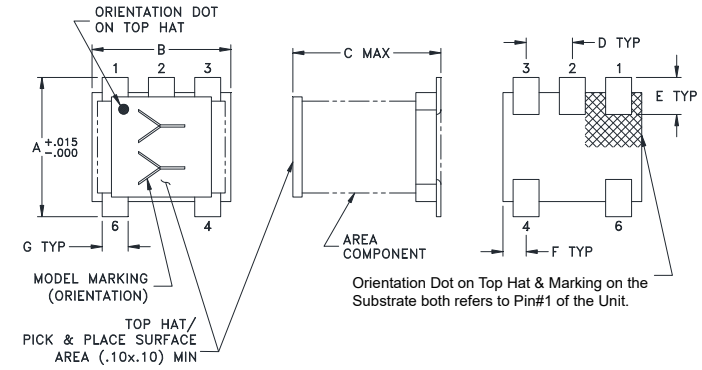
50Ω 100 to 1000 MHz

PIN CONNECTIONS

PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
SECONDARY CT	2

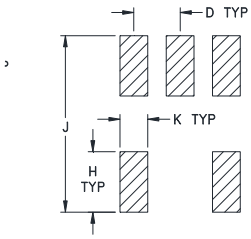
PRODUCT MARKING: FD

OUTLINE DRAWING



Top-hat total thickness: .013 inches MAX.

PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inch / mm)

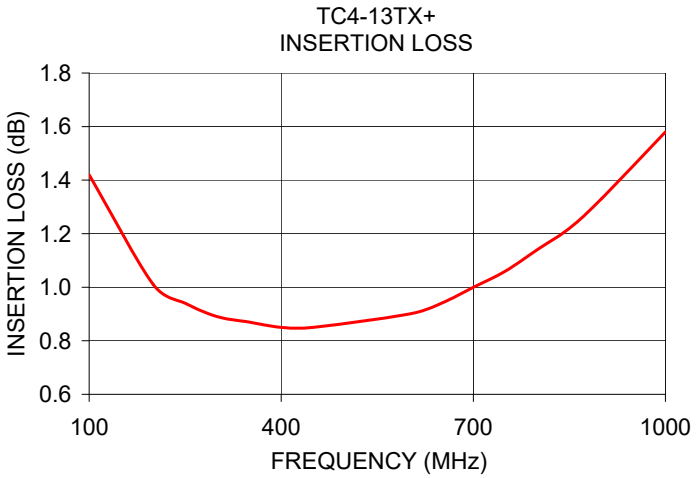
A	B	C	D	E	F	G	H	J	K
.150	.150	.160	.050	.040	.025	.028	.065	.190	.030
3.81	3.81	4.06	1.27	1.02	0.64	0.71	1.65	4.83	0.76

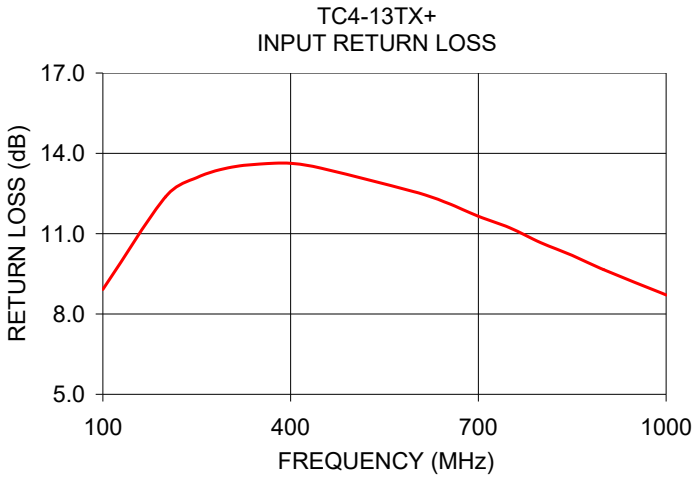
Weight: 0.15 grams

TAPE & REEL INFORMATION: F17

TYPICAL PERFORMANCE DATA

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (deg.)
100.00	1.42	8.92	0.04	0.09
200.00	1.01	12.37	0.10	0.22
300.00	0.89	13.46	0.18	0.35
400.00	0.85	13.63	0.28	0.73
600.00	0.90	12.55	0.59	2.26
700.00	1.00	11.65	0.76	3.68
800.00	1.14	10.66	0.93	5.77
900.00	1.33	9.66	1.11	8.78
1000.00	1.58	8.71	1.29	13.02





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