

Surface Mount ^{top hat} RF Transformer

75Ω 4.5 to 3000 MHz

TC1-1-13M-75X+



CASE STYLE: AT1521

Features

- wideband, 4.5 to 3000 MHz
- balanced transmission line
- good return loss
- excellent amplitude unbalance, 0.7 dB typ. and phase unbalance, 2 deg typ. in 1 dB bandwidth
- plastic base with leads
- aqueous washable

+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			1		Ohm
Frequency Range		4.5		3000	MHz
Insertion Loss*	2000 - 3000		3.0		dB
	1000 - 2000		2.0		
	4.5 - 1000		1.0		
Amplitude Unbalance	1000 - 2000		0.5		dB
	4.5 - 1000		0.7		
Phase Unbalance	1000 - 2000		3.0		Degree
	4.5 - 1000		2.0		

* Insertion Loss is referenced to mid-band loss, 0.5 dB typ.

Maximum Ratings

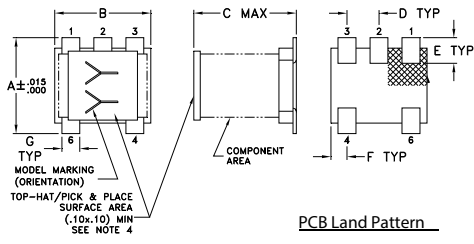
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

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

Pin Connections

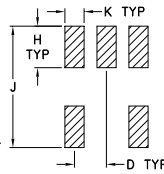
Function	Pin Number
PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
NOT USED	2

Outline Drawing



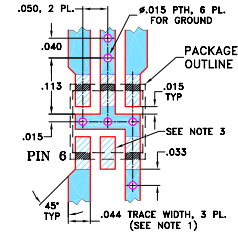
- Note:
1. Case Material Plastic
 2. Termination Finish: Tin plate over Nickel plate.
 3. Lead #1 identifier shall be located in the cross-hatched area shown, on bottom view. Identifier may be either a molded or marked feature.
 4. Top-Hat total thickness: 0.13 inches max.

PCB Land Pattern



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

Demo Board MCL P/N: TB-145+ Suggested PCB Layout (PL-244)

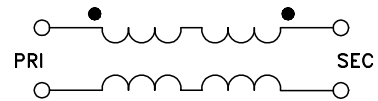


- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $.020" \pm .0015"$; COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. THIS PAD IS NOT REQUIRED FOR AT224 CASE STYLE.
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Dimensions (inch/mm)

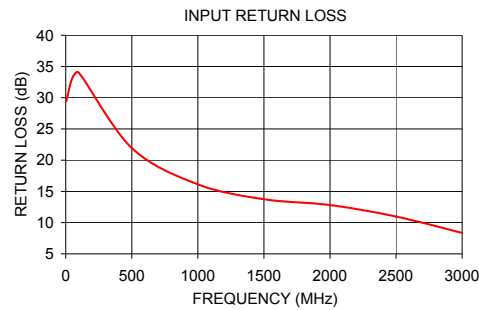
A	B	C	D	E	F
.150	.150	.160	.050	.040	.025
3.81	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	

Config. G



Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
4.50	0.31	29.45	1.10	5.08
10.00	0.29	29.98	0.90	2.60
50.00	0.30	33.14	0.88	0.06
100.00	0.33	34.00	0.91	0.32
500.00	0.55	21.95	0.65	0.81
1000.00	0.71	16.13	0.61	2.12
1500.00	0.96	13.75	0.21	1.23
2000.00	1.19	12.82	0.30	0.38
2500.00	1.63	10.98	0.47	4.03
3000.00	2.39	8.36	0.49	8.50



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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