

Surface Mount RF Transformer

50Ω 47 to 1400 MHz

TC1-1-13M-34+

Features

- wideband, 47 to 1400 MHz
- balanced transmission line
- good return loss
- excellent amplitude unbalance, 0.5 dB typ. and phase unbalance, 2 deg typ. in 1 dB bandwidth
- plastic base with leads
- aqueous washable

Applications

- balanced to unbalanced transformation
- push-pull amplifiers
- PCS/DCS
- MMDS



Generic photo used for illustration purposes only

CASE STYLE: AT224-1A

+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 (Secondary/Primary)			1		Ohm
Frequency Range		47		1400	MHz
Insertion Loss*	47-1000		1		dB
	1000-1400		1.5		
Phase Unbalance	47-1000		2		Deg.
	1000-1400		3		
Amplitude Unbalance	47-1000		0.5		dB
	1000-1400		0.5		

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

** At 30mA max.

Maximum Ratings

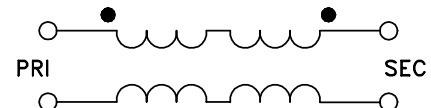
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	100mA

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

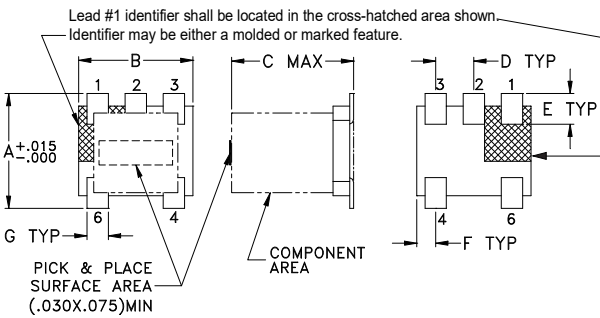
Config. G



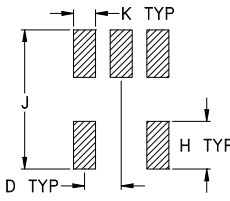
REV. B
M164261
TC1-1-13M-34+
ED-12312/2
WP/TD/CP/AM
210412

TC1-1-13M-34+

Outline Drawing

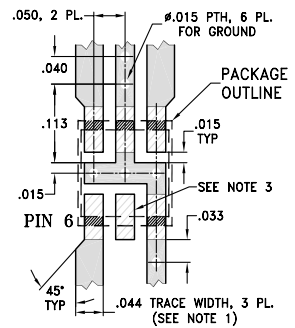


PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

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



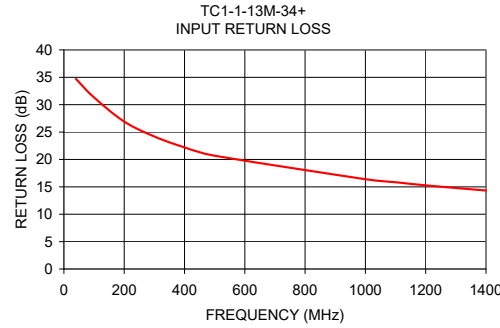
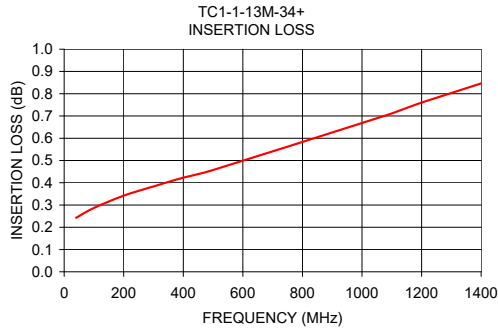
Outline Dimensions (inch/mm)

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	

- NOTES:
- THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
 - 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

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
40.0	0.24	34.70	0.66	0.03
100.0	0.29	31.33	0.66	0.35
200.0	0.34	26.92	0.66	0.79
300.0	0.38	24.19	0.64	1.19
400.0	0.42	22.21	0.61	1.62
500.0	0.46	20.68	0.57	2.00
1000.0	0.67	16.40	0.30	3.30
1100.0	0.71	15.83	0.24	3.40
1200.0	0.76	15.27	0.17	3.43
1400.0	0.85	14.32	0.03	3.48



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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