



Mini-Circuits

SURFACE MOUNT

RF Transformer

50Ω 2 to 200 MHz

TC9-1+

Upgraded Version*
TC9-1X+

*Addition of Top Hat® Feature Benefits

- Allows Faster Pick-and-Place
- Enables Visual Identification Marking



Generic photo used for illustration purposes only

CASE STYLE: AT224-1A

+RoHS Compliant

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

FEATURES

- Good Return Loss
- Excellent Amplitude Unbalance, 0.1 dB Typ. and Phase Unbalance, 1 deg. Typ. in 1 dB Bandwidth
- Plastic Base with Leads
- Aqueous Washable

APPLICATIONS

- Impedance Matching

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (Secondary/Primary)			9		Ohms
Frequency Range		2		200	MHz
Insertion Loss ¹	2-200		3		dB
	3-100		2		
	5-40		1		

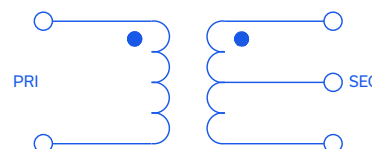
1. Insertion Loss is referenced to mid-band loss, 0.7 dB typ.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-20°C to +85°C
Storage Temperature	-55°C to +100°C
RF Power	0.25 W
DC Current	30 mA

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

CONFIG. A



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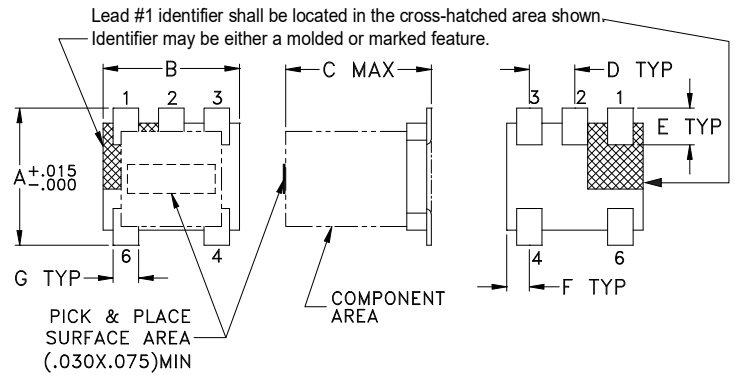
PIN CONNECTIONS

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

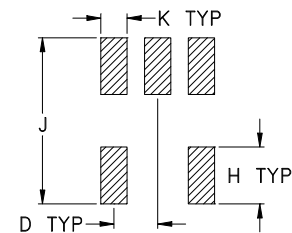
PRODUCT MARKING: N/A

DEMOBOARD MCL P/N: TB-TC9-1+

OUTLINE DRAWING



PCB Land Pattern

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

TAPE & REEL INFORMATION: F17



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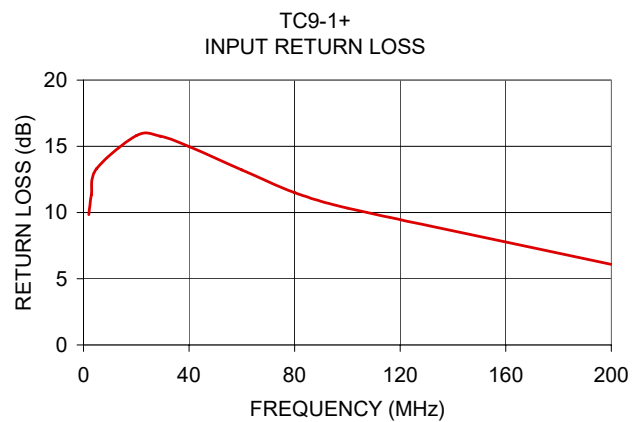
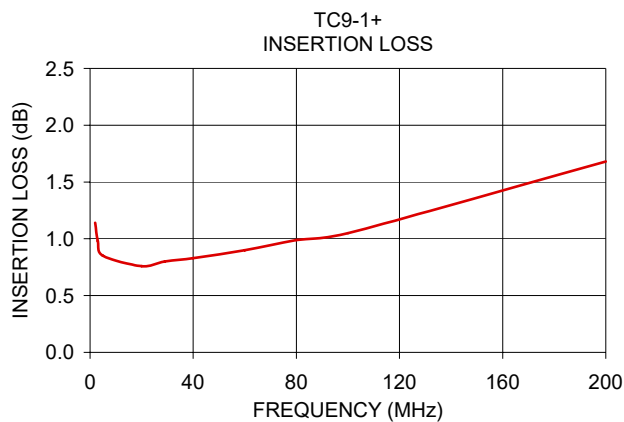
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TYPICAL PERFORMANCE DATA

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)
2.00	1.14	9.85
3.00	0.98	11.35
5.00	0.85	13.33
20.00	0.76	15.80
29.00	0.80	15.77
40.00	0.83	14.99
60.00	0.90	13.22
80.00	0.99	11.5
100.00	1.05	10.34
200.00	1.68	6.08



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.
- 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

