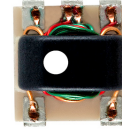


# Surface Mount RF Transformer

50Ω      2 to 200 MHz

TC9-1X+  
Upgraded Version\*

TC9-1+



CASE STYLE: AT224-1

## Maximum Ratings

Operating Temperature	-20°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

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

## Features

- good return loss
- excellent amplitude unbalance, 0.1 dB typ. and phase unbalance, 1 deg typ. in 1 dB band width
- plastic base with leads
- aqueous washable

## Applications

- impedance matching

\*Addition of Top hat™ feature

### Benefits

- Allows faster pick-and-place
- Enables visual identification marking

### +RoHS Compliant

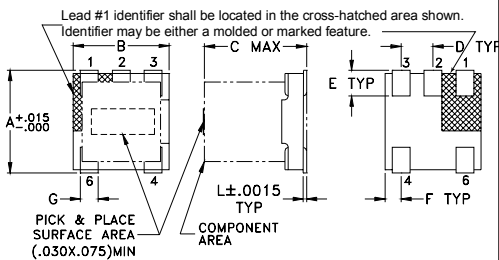
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

## Transformer Electrical Specifications

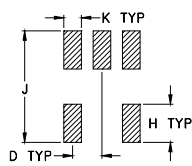
Ω RATIO (Secondary/Primary)	FREQUENCY (MHz)	INSERTION LOSS*		
		3 dB MHz	2 dB MHz	1 dB MHz
9	2-200	2-200	3-100	5-40

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

## Outline Drawing AT224-1



## PCB Land Pattern



## 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	L	wt
.028	.065	.190	.030	.007	grams
0.71	1.65	4.83	0.76	0.18	0.15

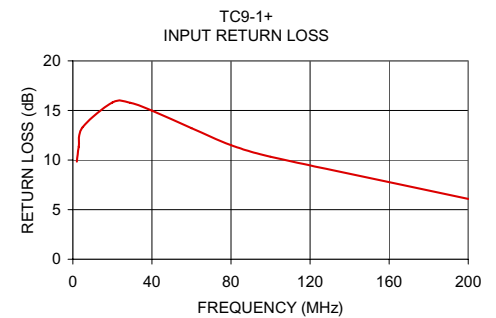
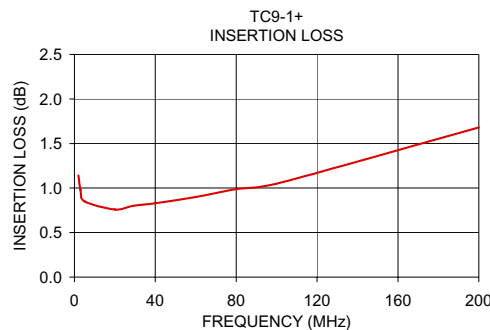
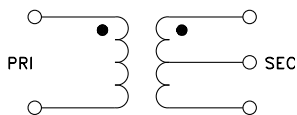
Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500
13"	1000, 2000

## 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	11.50
100.00	1.05	10.34
200.00	1.68	6.08

## Config. A



## 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/WCLStore/terms.jsp](http://www.minicircuits.com/WCLStore/terms.jsp)

