Surface Mount \mathbf{I} **RF Transformer** 75 Ω 0.3 to 475 MHz

Features

- wideband 0.3-475 MHz
- good return loss, 23 dB typ in 1 dB bandwidth
- step-down 9:1 autotransformer
- plastic base with leads
- aqueous washable

Applications

• matching laser diode





Generic photo used for illustration purposes only

CASE STYLE: AT1521

+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	Condition	Min.	Тур.	Max.	Unit
Impedance Ratio (secondary / primary)			75/8		Ohm
Frequency Range		0.3		475	MHz
	0.3-475		3.0		
Insertion Loss*	0.5-450		2.0		dB
	0.9-370		1.0		

* Insertion Loss is referenced to mid-band loss, 0.4 dB typ.

Stepdown, 75 ohm primary, 51 pF across secondary

Maximum Ratings

Parameter	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.

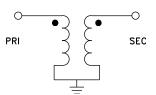
Product Marking

Pin Connections

Pin Number
6
3
1
3

Demo Board MCL P/N: TB-276



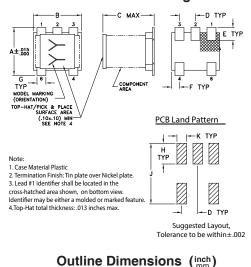


REV. A M151107 TC9-1-75X+ IG/TD/CP/AM 151222 Page 1 of 2

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

TC9-1-75X+

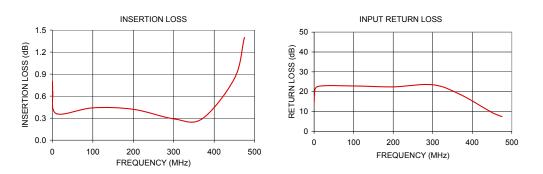
Outline Drawing



·	• • • • • • • •					
	F	E	D	С	В	Α
	.025	.040	.050	.160	.150	.150
	0.64	1.02	1.27	4.06	3.81	3.81
	wt		к	J	н	G
	grams		.030	.190	.065	.028
	0.15		0.76	4.83	1.65	0.71

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	
0.30	0.80	14.70	
0.50	0.71	16.80	
0.90	0.66	18.13	
10.00	0.36	22.63	
100.00	0.44	22.86	
200.00	0.42	22.40	
300.00	0.29	23.48	
370.00	0.29	18.53	
450.00	0.84	9.48	
475.00	1.40	7.44	



Additional 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/MCLStore/terms.jsp



RF Transformer

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
0.3	0.80	14.70
0.5	0.71	16.80
0.9	0.66	18.13
10.0	0.36	22.63
100.0	0.44	22.86
200.0	0.42	22.40
300.0	0.29	23.48
370.0	0.29	18.53
450.0	0.84	9.48
475.0	1.40	7.44





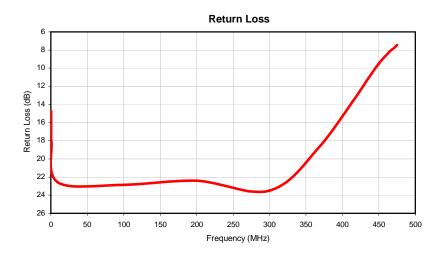
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site TC9: The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

REV. X1

RF Transformer

Typical Performance Data







P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com
3/21/

IF/RF MICROWAVE COMPONENTS

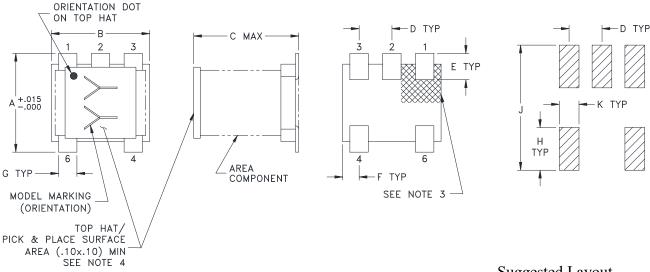
REV. X1 TC9-1-75X+ 3/21/2012 Page 1 of 1

Case Style

Outline Dimensions

PCB Land Pattern

AT1521



Suggested Layout, Tolerance to be within ±.002

CASE #	А	В	С	D	Е	F	G	Н	J	K	WT. GRAMS
AT1521	.150 (3.81)	.150 (3.81)	.160 (4.06)	.050 (1.27)	.040 (1.02)	.025 (.64)	.028 (.71)	.065 (1.65)	.190 (4.83)	.030 (.76)	.15

Dimensions are in inches (mm). Tolerances: 2 Pl. + .01; 3 Pl. + .005

Notes:

- 1. Case material: Plastic.
- 2. Termination finish:
 - For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
- 3. Orientation Dot on Top Hat & Marking on the Substrate both refers to Pin #1 of the Unit.
- 4. Top-Hat total thickness: .013 inches MAX.



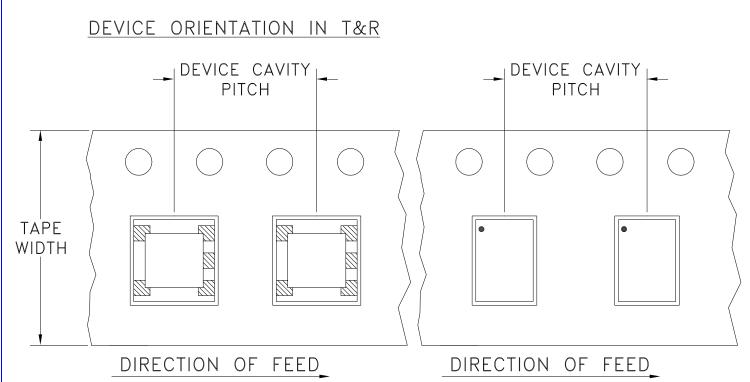


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com



AT1521 Rev.: AQ (08/05/19) M175718 File:AT1521.DOC This document and its contents are the property of Mini-Circuits. **RF/IF MICROWAVE COMPONENTS**

Tape & Reel Packaging TR-F17



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices	s per Reel
			Small	20
			quantity	50
	12 8	7	standards	100
12			(see note)	200
				500
		12	C (1 1	1000
		13	Standard	2000

Note: Please Consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

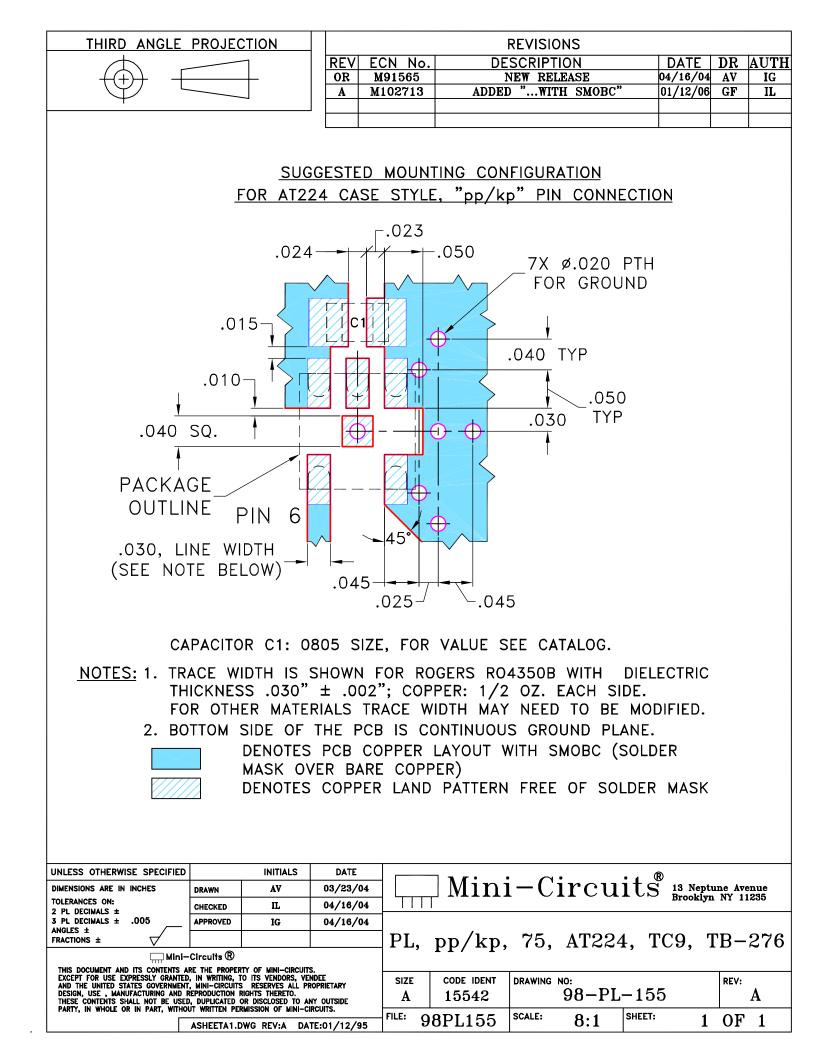


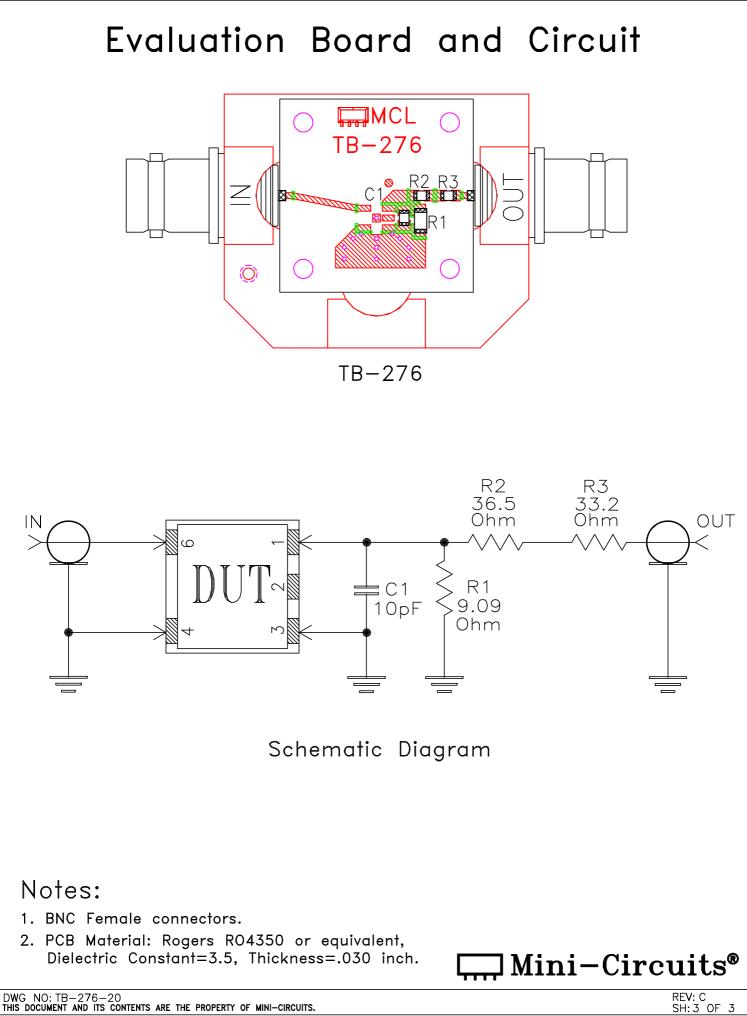


P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

98-TR-Rev.: C (02/13/18) M166283 File: 98-TR-F17.docx This document and its contents are the property of Mini-Circuits.





Mini-Circuits

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-20° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
ENV02 Rev: A 02/25/11 M130240 File: ENV		

ENV02 Rev: A 02/25/11 M130240 File: ENV02.pdf

This document and its contents are the property of Mini-Circuits.