

TC1-42X+

 50Ω 0.25 to 400 MHz

FEATURES

- Plastic base with solder plated leads
- Excellent amplitude unbalance, 0.2 dB typ. and phase unbalance, 3 deg. typ. in 1dB bandwidth
- · Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: AT1521

+RoHS Compliant

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

APPLICATIONS

- · Balanced to unbalanced transformation
- Push-pull amplifiers

ELECTRICAL SPECIFICATIONS AT +25°C

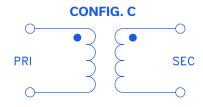
Parameter	Frequency (MHz)	Min.	Тур.	Max.	Unit
Impedance Ratio			1		Ohm
Frequency Range		0.25		400	MHz
	0.25 - 400		3.0		
Insertion Loss*	0.35 - 250		2.0		dB
	0.7 - 150		1.0		

^{*} Insertion Loss is referenced to mid-band loss, 0.3 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.



REV. B ECO-021763 TC1-42X+ MCL NY 240510





SURFACE MOUNT - Transformer

TC1-42X+

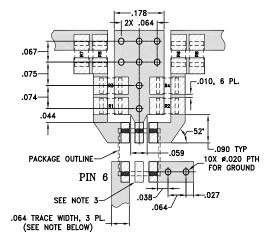
500 0.25 to 400 MHz

PIN CONNECTIONS

Function	Pin Number
PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
NOT USED	2,5

PRODUCT MARKING: CU

DEMO BOARD MCL P/N: TB-77 SUGGESTED PCB LAYOUT (PL-243)



RESISTORS R1-R8: 0805 SIZE

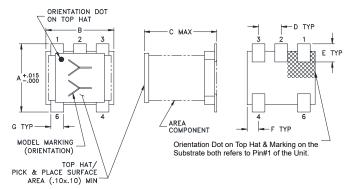
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE. 3. THIS PAD IS NOT REQUIRED FOR AT224 CASE STYLES.

- DENOTES PCB COPPER LAYOUT WITH SMOBC
- (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

RESISTORS VALUES

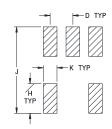
Res. No	Ohms Ω
R1	68.1
R2	68.1
R3	68.1
R4	68.1
R5	82.5
R6	82.5
R7	90.9
R8	90.9

OUTLINE DRAWING



Top-hat total thickness: .013 inches MAX.

PCB Land Pattern



Suggested Layout, Tolerance to be within ±.002

OUTLINE DIMENSIONS (Inch mm)

Α	В	С	D	Ε	F	G	Н	J	K
.150	.150	.160	.050	.040	.025	.028	.065	.190	.030
3.81	3.81	4.06	1.27	1.02	0.64	0.71	1.65	4.83	0.76

Weight: 0.15 grams

TAPE & REEL INFORMATION: F17

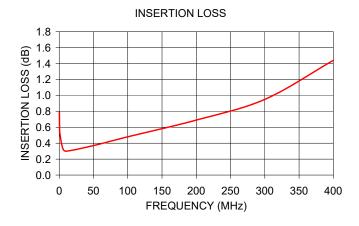


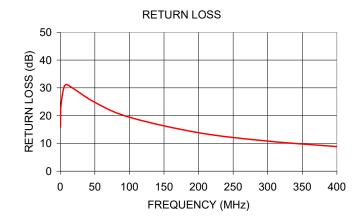
TC1-42X+

 50Ω 0.25 to 400 MHz

TYPICAL PERFORMANCE DATA

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)
0.25	0.79	15.85
0.50	0.63	20.29
1.00	0.52	23.72
5.00	0.34	29.93
10.00	0.30	31.13
50.00	0.37	24.78
100.00	0.48	19.43
200.00	0.69	13.85
300.00	0.95	10.83
400.00	1.44	8.85





NOTES

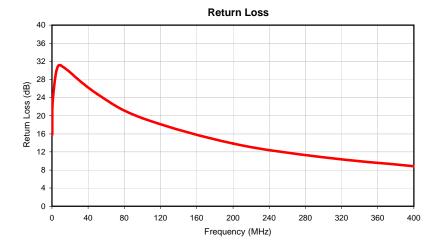
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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/terms/viewterm.html

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
0.25	0.79	15.85
0.50	0.63	20.29
1.00	0.52	23.72
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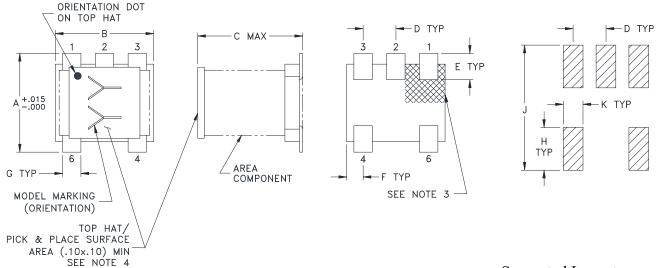




Outline Dimensions

AT1521

PCB Land Pattern



Suggested Layout, Tolerance to be within ±.002

CASE #	A	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. \pm .01; 3 Pl. \pm .005

Notes:

- Case material: Plastic.
- Termination finish:

For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.

- 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.

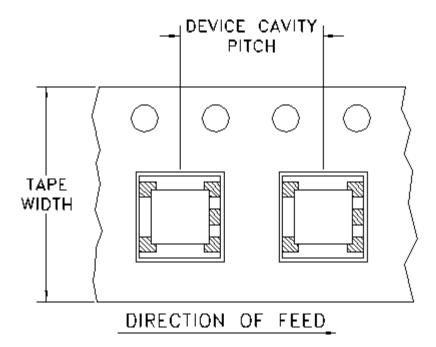




P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

Tape & Reel Packaging TR-F17

DEVICE ORIENTATION IN T&R



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





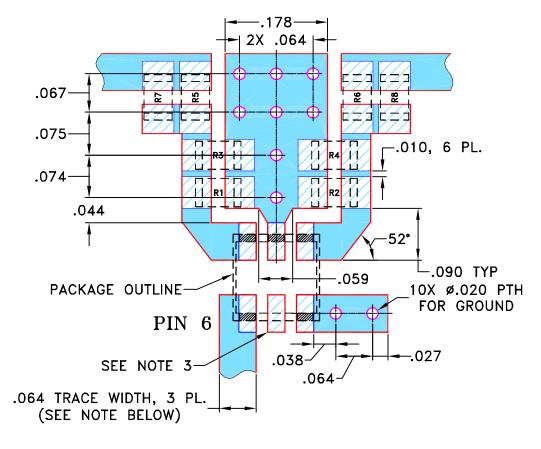
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RF/IF MICROWAVE COMPONENTS

THIRD ANGLE PROJECTION

		REVISIONS			
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M106588	NEW RELEASE	08/28/06	AV	IG

SUGGESTED MOUNTING CONFIGURATION FOR AT224/DB714 CASE STYLES, "gs/ha/hd" PIN CONNECTIONS



RESISTORS R1-R8: 0805 SIZE

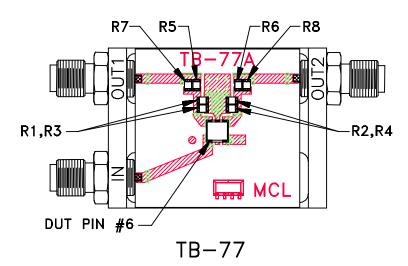
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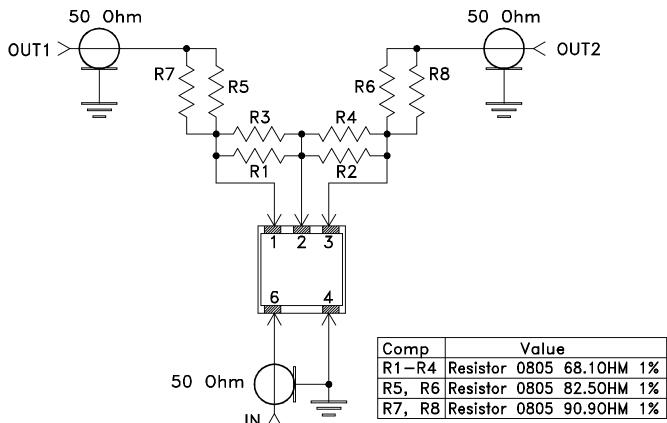
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE			• ~		• 4 R		
DIMENSIONS ARE IN INCHES	DRAWN	AV	07/31/06		\perp Mini	ı — C	ircu	its :	3 Neptu	ne Avenue NY 11235
TOLERANCES ON: 2 PL DECIMALS ±	CHECKED	IL	08/28/06						SPOORIYII	NI II235
3 PL DECIMALS ± .005	APPROVED	IG	08/28/06							
FRACTIONS ±] PL.	gs/ha/	hd.	AT224/	'DB71	4. T	C/TCM
1111	III Mini-Circuits ® THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS.				8-77				-, -	, , , , , , ,
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Evaluation Board and Circuit





Schematic Diagram

- 1. 50 Ohm SMA Female Connectors.
- 2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

III Mini-Circuits®



Environmental Specifications

ENV02T1

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	-40° 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

ENV02T1 Rev: B

02/25/11

M130240 File: ENV02T1.pdf

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