

Directional Coupler

DBTC-ED12343/1

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : AT1030

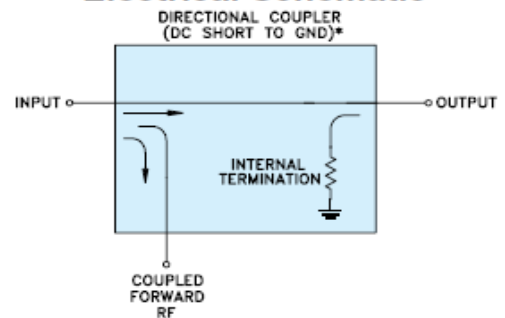
ELECTRICAL SPECIFICATIONS 75Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		1		1200	MHz
Coupling	Nominal		12.3±0.3		dB
	Flatness		±0.42		dB
Mainline Loss **	1-10 MHz		1.00		dB
	10-600 MHz		1.00		dB
	600-1200 MHz		1.30		dB
Directivity	1-10 MHz		29		dB
	10-600 MHz		35		dB
	600-1200 MHz		21		dB
VSWR	1-1200 MHz		1.37		(:1)
RF Power Input	1-50 MHz			0.5	W
	50-1200 MHz			1.0	

Note: ** Mainline loss includes theoretical coupled power loss of 0.263 dB at 12.3 dB coupling.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

PIN CONNECTIONS	
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
ISOLATE (DO NOT USE)	6

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

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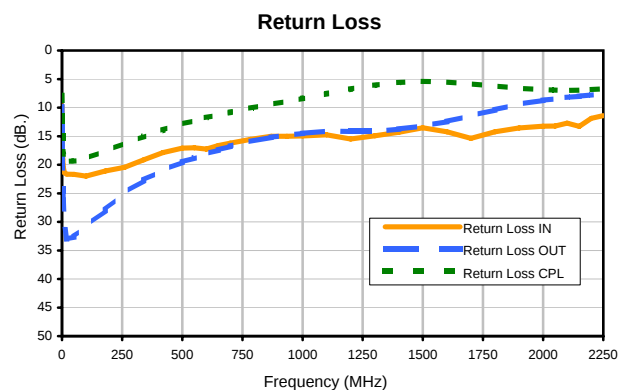
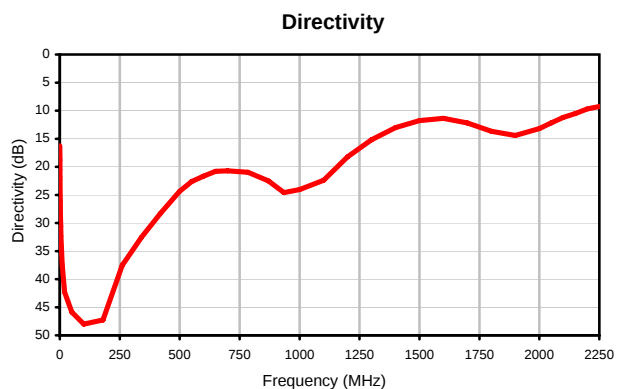
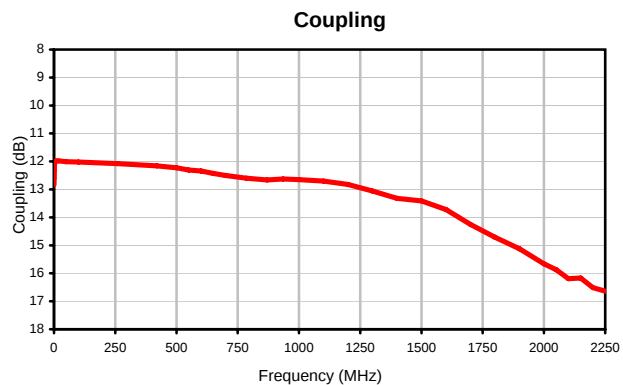
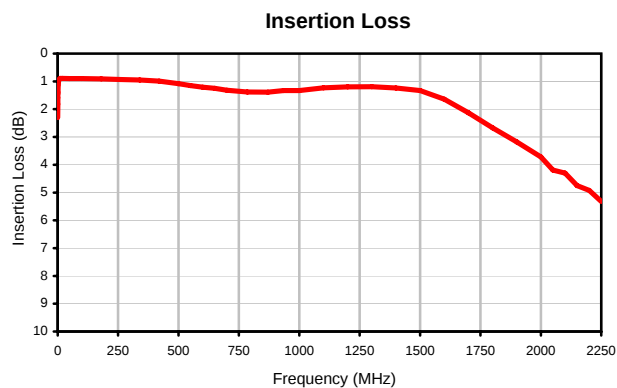
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
0.3	2.30	12.84	16.28	9.68	9.82	7.83
0.5	1.82	12.59	18.80	11.96	12.46	9.94
0.7	1.59	12.46	20.51	13.41	14.22	11.31
0.9	1.45	12.36	21.76	14.46	15.57	12.32
1.0	1.40	12.32	22.28	14.90	16.14	12.74
2.0	1.13	12.12	26.10	17.63	20.14	15.41
3.0	1.02	12.05	28.67	19.04	22.69	16.80
4.0	0.97	12.02	30.60	19.89	24.62	17.65
5.0	0.94	12.00	32.30	20.42	26.14	18.16
10.0	0.89	11.98	37.43	21.39	30.52	19.14
20.0	0.89	11.98	42.31	21.64	32.99	19.40
50.0	0.90	12.01	45.88	21.67	32.62	19.34
100.0	0.90	12.02	48.00	21.98	30.75	18.88
180.0	0.91	12.05	47.26	21.09	27.94	17.60
260.0	0.93	12.08	37.56	20.46	24.90	16.22
340.0	0.95	12.12	32.55	19.14	22.69	15.02
420.0	0.99	12.16	28.29	17.87	20.97	13.92
500.0	1.08	12.23	24.36	17.10	19.53	12.87
550.0	1.15	12.31	22.62	17.02	18.79	12.30
600.0	1.21	12.34	21.65	17.26	18.09	11.75
650.0	1.25	12.43	20.81	16.65	17.42	11.28
700.0	1.32	12.50	20.71	16.23	16.75	10.80
785.0	1.38	12.60	20.98	15.55	15.92	10.09
870.0	1.39	12.66	22.52	15.01	15.18	9.40
935.0	1.33	12.63	24.59	15.00	14.81	8.87
1000.0	1.33	12.65	24.04	14.97	14.52	8.37
1100.0	1.23	12.70	22.40	14.77	14.13	7.56
1200.0	1.20	12.82	18.22	15.48	14.16	6.76
1300.0	1.19	13.06	15.19	14.94	14.17	6.09
1400.0	1.24	13.32	13.03	14.31	13.76	5.60
1500.0	1.33	13.41	11.76	13.54	13.23	5.41
1600.0	1.64	13.72	11.36	14.23	12.44	5.52
1700.0	2.13	14.25	12.19	15.38	11.40	5.82
1800.0	2.67	14.71	13.68	14.23	10.39	6.22
1900.0	3.18	15.12	14.41	13.55	9.37	6.60
2000.0	3.72	15.66	13.18	13.25	8.72	6.87
2050.0	4.19	15.87	12.17	13.23	8.46	6.96
2100.0	4.30	16.19	11.21	12.73	8.22	6.97
2150.0	4.75	16.17	10.51	13.27	8.02	6.95
2200.0	4.92	16.51	9.68	11.87	7.76	6.84
2250.0	5.32	16.64	9.25	11.40	7.69	6.72

Directional Coupler

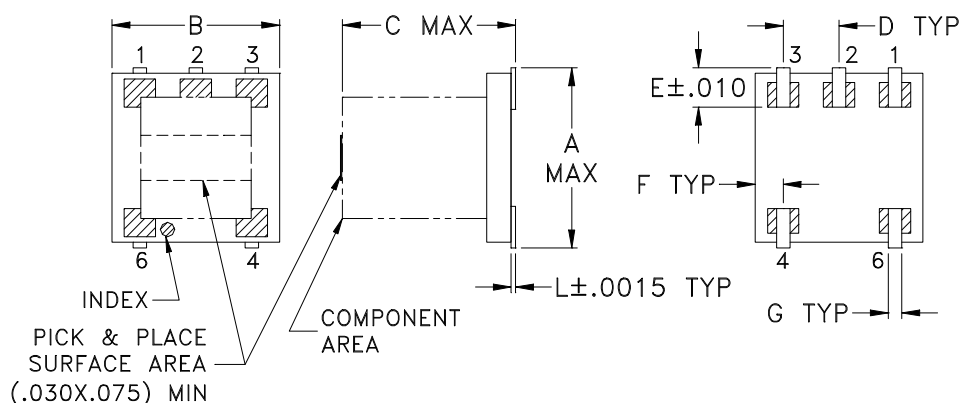
Typical Performance Curves

DBTC-ED12343/1

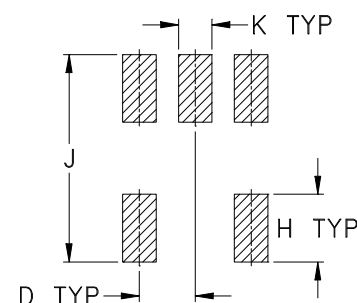


Outline Dimensions

AT1030



PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAMS
AT1030	.166 (4.22)	.150 (3.81)	.155 (3.94)	.050 (1.27)	.037 (0.94)	.025 (0.64)	.012 (0.30)	.060 (1.52)	.184 (4.67)	.030 (0.76)	.004 (0.10)	.10

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

Notes:

- Open style, ceramic base.
- Termination finish:
For RoHS Case Styles: Tin plate.
For RoHS-5 Case Styles: Tin-Lead plate.



P.O. Box 350186, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site

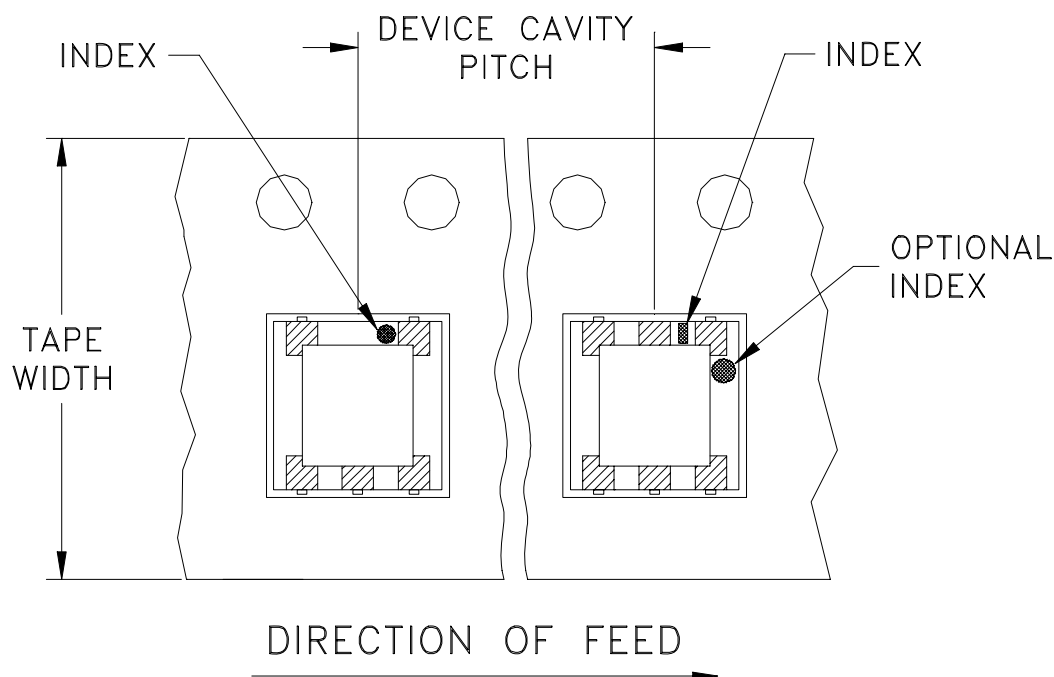


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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F76

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
12	8	7	20
			50
			100
			200
			500
		13	1000
			2000

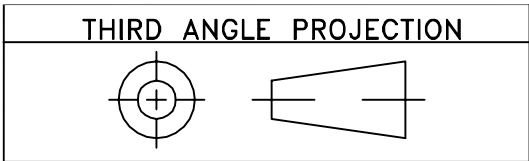
Note: Please consult individual model data sheet to determine device per reel availability.

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

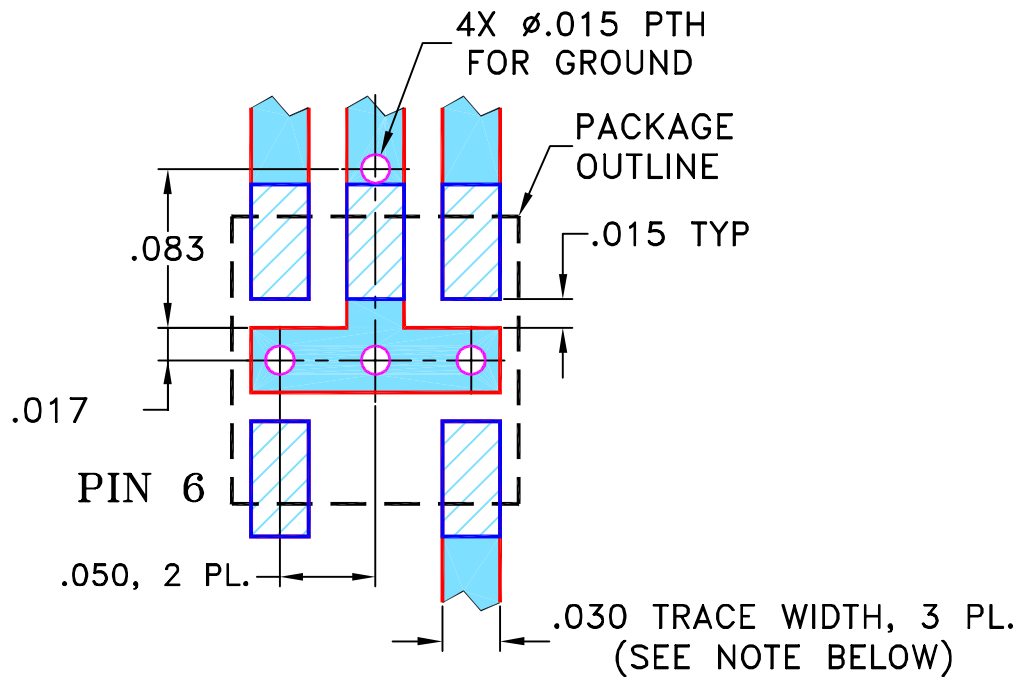


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REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M90455	NEW RELEASE	01/16/04	AV	WP
A	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL

SUGGESTED MOUNTING CONFIGURATION FOR
AT1029 CASE STYLE, "na" PIN CONNECTION



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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.



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



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± .005 ANGLES ± FRACTIONS ±	DRAWN	AV	01/07/04
	CHECKED	IL	01/16/04
	APPROVED	WP	01/16/04



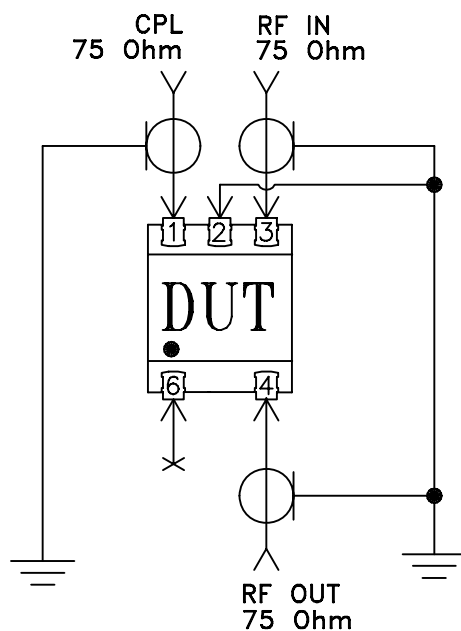
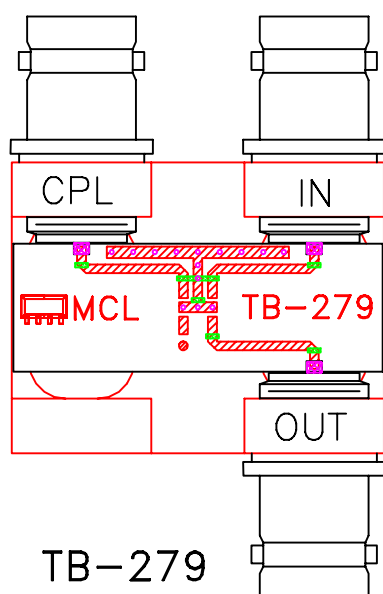
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PL, na, 75, AT1029, DBTC, TB-279

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SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-151	REV: A
FILE: 98PL151	SCALE: 10:1	SHEET: 1 OF 1	

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

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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