

Directional Coupler

DBTC-ED10793/1

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 : AT790-1

ELECTRICAL SPECIFICATIONS 75Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		0.1		1100	MHz
Coupling	Nominal		21.0 ± 1.0		dB
	Flatness		± 1.0		dB
Mainline Loss **	0.1-1 MHz		0.90		dB
	1-550 MHz		0.50		dB
	550-1100 MHz		0.60		dB
Directivity	0.1-1 MHz		14		dB
	1-550 MHz		20		dB
	550-1100 MHz		20		dB
VSWR	0.1-1100 MHz		1.4		(:1)
RF Power Input	0.1-1100 MHz			1.0	W

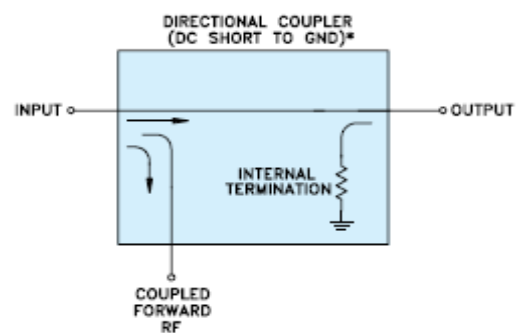
Note: ** Mainline loss includes theoretical coupled power loss of 0.035 dB at 21 dB coupling.

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

PIN CONNECTIONS	
INPUT	3
OUTPUT	4
COUPLED FORWARD	1
GROUND	2
NOT USED***	5, 6

***Pin 5 & 6 must be isolated

Electrical Schematic



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

Directional Coupler

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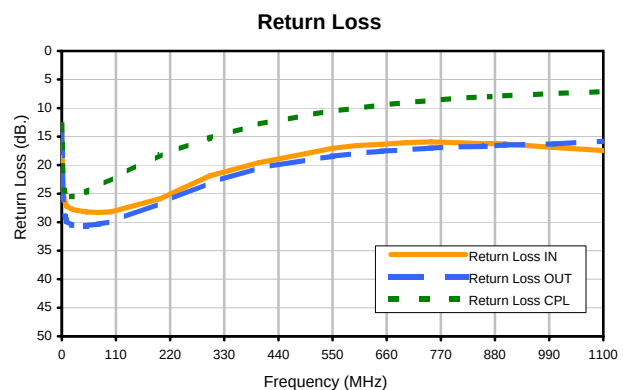
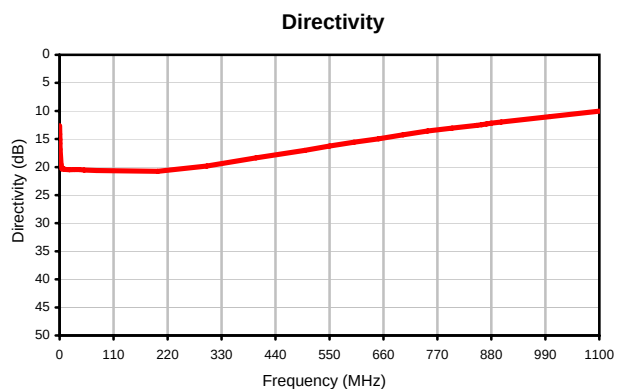
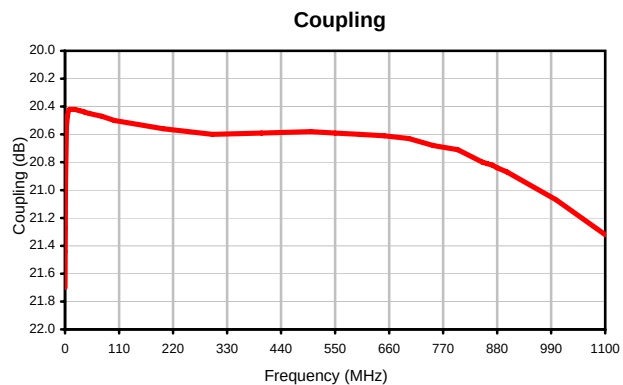
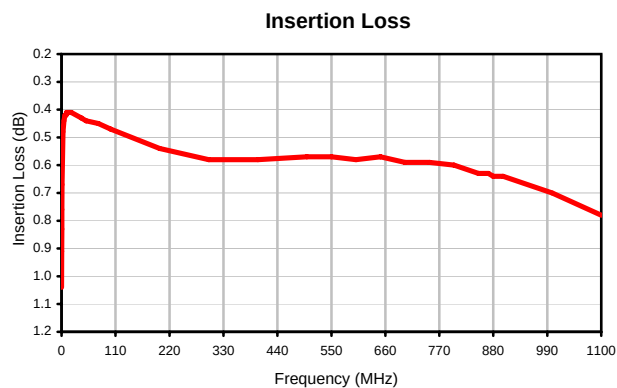
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	(dB) OUT	CPL
0.1	1.04	21.70	12.64	14.31	14.56	12.92
0.3	0.91	21.44	14.14	16.07	16.48	14.67
0.5	0.83	21.27	15.11	17.29	17.82	15.90
0.7	0.76	21.16	15.78	18.24	18.86	16.85
1.0	0.67	20.96	16.85	19.88	20.67	18.49
3.0	0.48	20.54	19.52	24.51	26.03	22.97
5.0	0.44	20.47	20.35	26.04	28.02	24.39
7.0	0.42	20.43	20.24	26.70	29.09	24.99
9.0	0.42	20.42	20.36	27.06	29.64	25.28
10.0	0.41	20.42	20.40	27.22	29.84	25.36
20.0	0.41	20.42	20.48	27.71	30.53	25.55
30.0	0.42	20.43	20.44	27.92	30.59	25.34
40.0	0.43	20.44	20.45	28.08	30.59	25.02
50.0	0.44	20.45	20.52	28.21	30.60	24.67
75.0	0.45	20.47	20.60	28.30	30.35	23.60
100.0	0.47	20.50	20.63	28.17	29.93	22.40
200.0	0.54	20.56	20.76	25.87	26.68	18.19
300.0	0.58	20.60	19.80	21.89	23.11	15.29
400.0	0.58	20.59	18.35	19.56	20.50	12.85
500.0	0.57	20.58	17.02	17.92	19.07	11.18
550.0	0.57	20.59	16.26	17.05	18.46	10.53
600.0	0.58	20.60	15.57	16.58	17.96	10.00
650.0	0.57	20.61	14.98	16.36	17.55	9.44
700.0	0.59	20.63	14.26	16.07	17.29	9.04
750.0	0.59	20.68	13.58	15.94	17.03	8.70
800.0	0.60	20.71	13.07	16.08	16.82	8.29
850.0	0.63	20.80	12.56	16.20	16.73	8.04
860.0	0.63	20.81	12.45	16.22	16.70	8.01
870.0	0.63	20.82	12.32	16.23	16.66	7.98
880.0	0.64	20.84	12.18	16.23	16.61	7.94
900.0	0.64	20.87	11.96	16.29	16.49	7.86
1000.0	0.70	21.07	11.00	16.92	16.30	7.47
1100.0	0.78	21.32	10.03	17.44	15.81	7.13

Directional Coupler

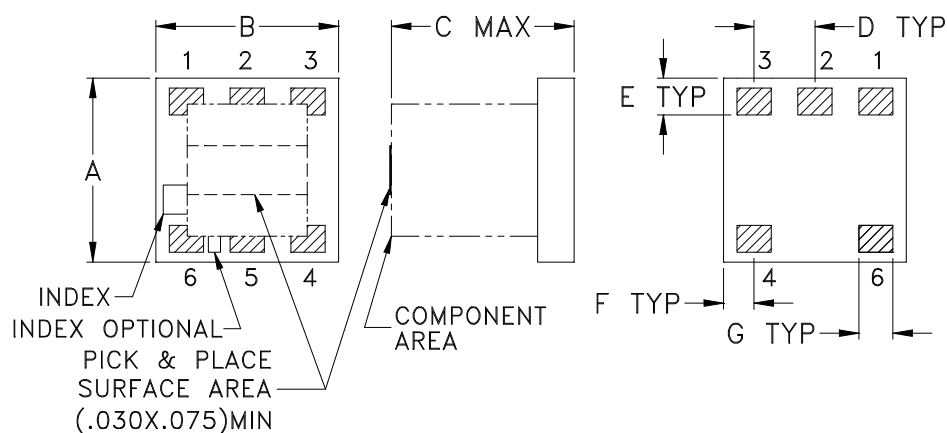
Typical Performance Curves

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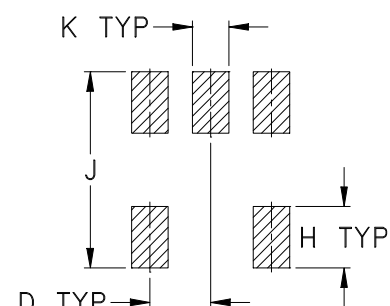


Outline Dimensions

AT790



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
AT790	.150 (3.81)	.150 (3.81)	.150 (3.81)	.050 (1.27)	.030 (0.76)	.025 (0.64)	.028 (0.71)	.050 (1.27)	.160 (4.06)	.030 (0.76)	-- --	.10

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

Notes:

1. Open style, Ceramic base.
2. Termination finish: Silver palladium or gold over nickel based on stock availability.



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

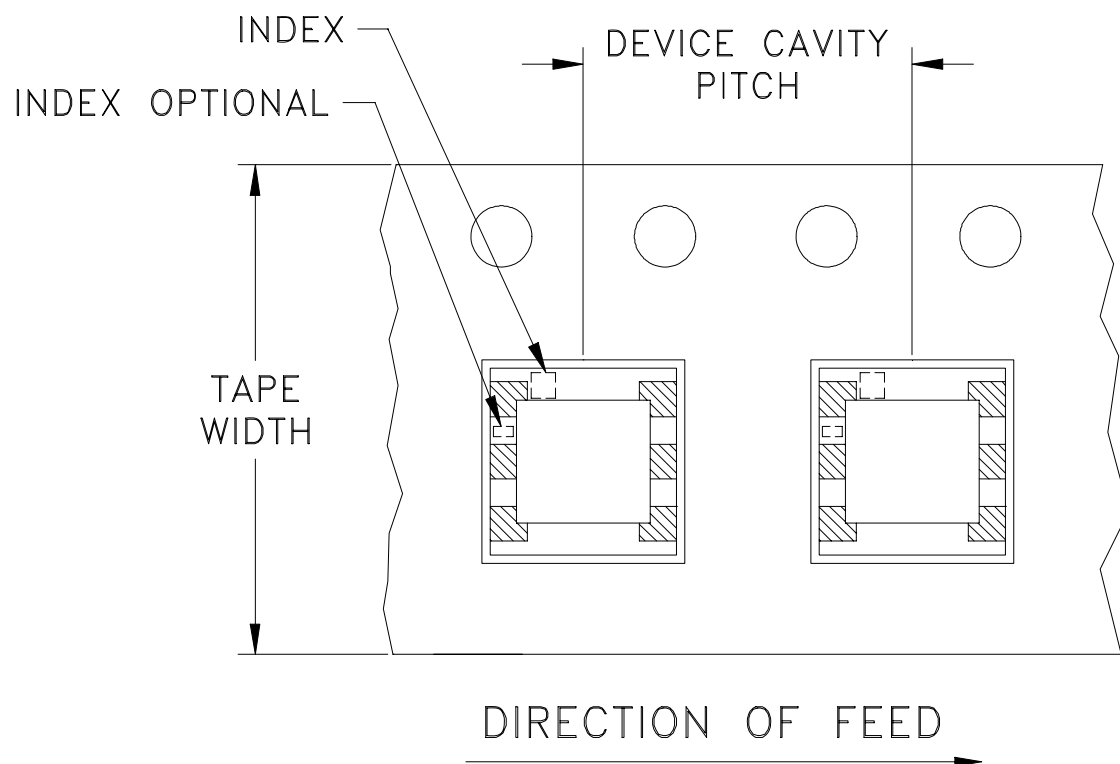


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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F15

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
		13	500
			1000
			2000

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

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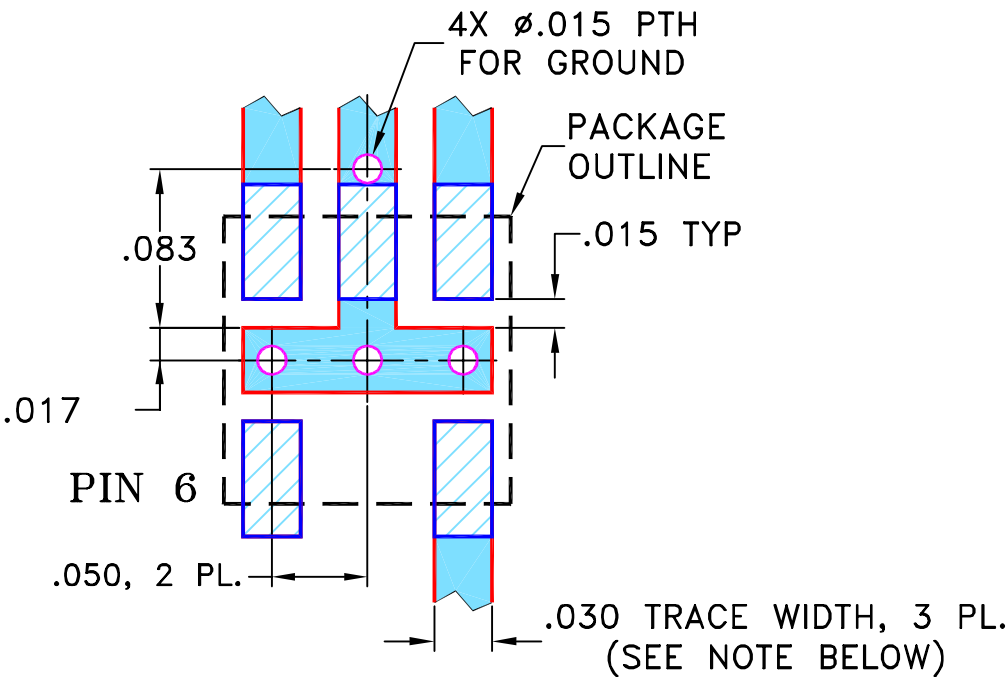
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THIRD ANGLE PROJECTION

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

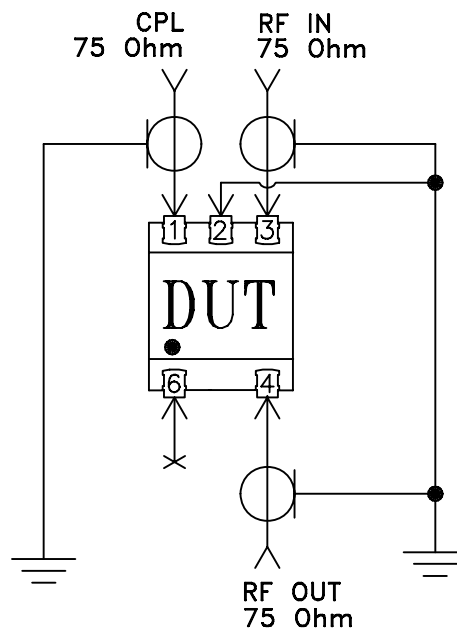
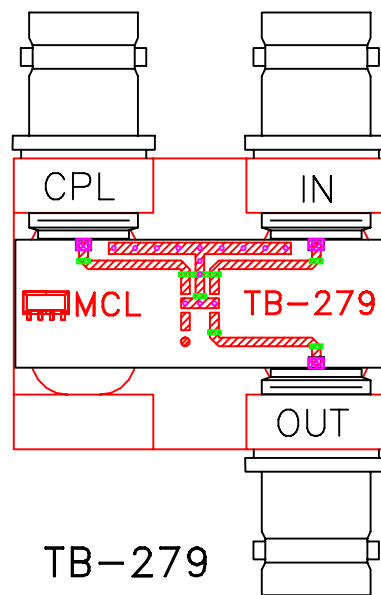
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ASHEETA1.DWG REV:A DATE:01/12/95

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-151	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