

Directional Coupler

DBTC-ED10488/1

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

ELECTRICAL SPECIFICATIONS 75Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		0.5		1150 MHz
Coupling	Nominal		7.0 ± 1.0	dB
	Flatness		± 1.0	dB
Mainline Loss **	0.5-5 MHz		3.20	dB
	5-575 MHz		2.20	dB
	575-1150 MHz		2.30	dB
Directivity	0.5-5 MHz		13	dB
	5-575 MHz		15	dB
	575-1150 MHz		13	dB
VSWR	0.5-1150 MHz		1.4	(:1)
RF Power Input	0.5-1150 MHz			0.5 W

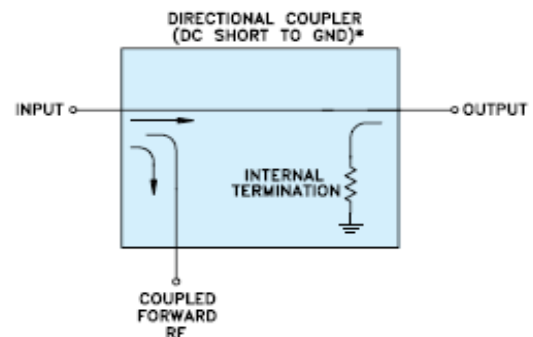
Note: ** Mainline loss includes theoretical coupled power loss of 0.967 dB at 7 dB coupling.

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

DBTC-ED10488/1

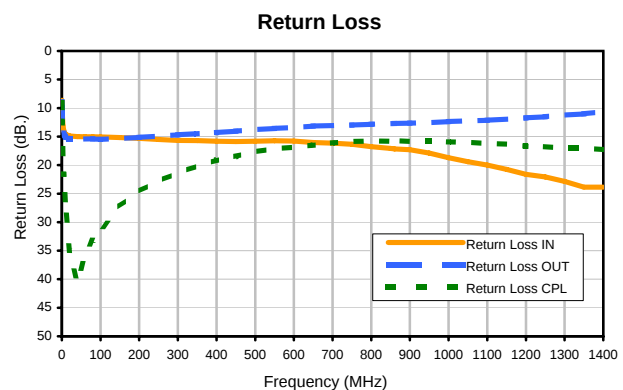
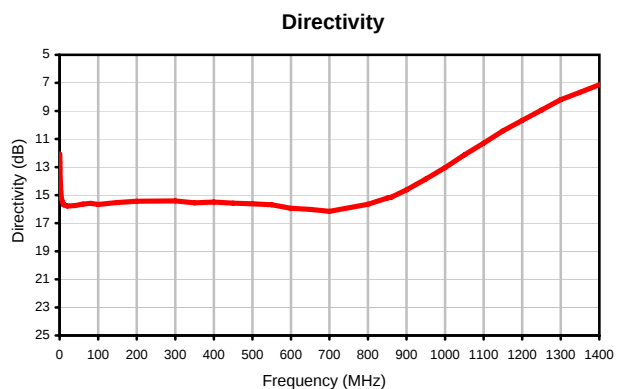
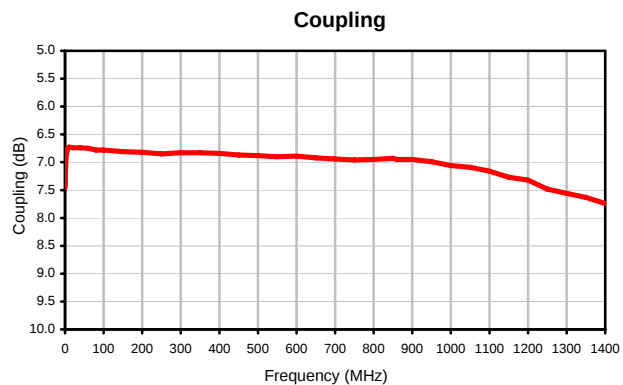
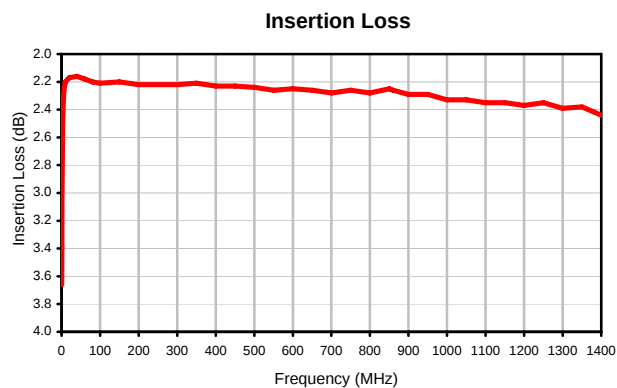
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
0.5	3.66	7.45	12.06	8.65	8.88	9.03
0.7	3.39	7.34	12.69	9.62	9.90	10.69
0.9	3.22	7.26	13.08	10.25	10.56	11.83
1.0	3.13	7.22	13.24	10.52	10.85	12.32
3.0	2.49	6.87	14.73	13.05	13.48	18.17
5.0	2.32	6.80	15.26	13.93	14.39	21.63
7.0	2.24	6.75	15.45	14.32	14.80	24.21
9.0	2.21	6.74	15.58	14.53	15.03	26.24
10.0	2.20	6.73	15.68	14.60	15.09	27.33
20.0	2.17	6.74	15.78	14.89	15.39	34.98
40.0	2.16	6.74	15.74	15.00	15.42	40.53
60.0	2.18	6.75	15.64	15.02	15.43	35.86
80.0	2.20	6.78	15.58	15.04	15.39	33.17
100.0	2.21	6.78	15.66	15.07	15.51	31.20
150.0	2.20	6.81	15.53	15.16	15.34	27.25
200.0	2.22	6.82	15.43	15.30	15.15	24.62
250.0	2.22	6.85	15.42	15.52	14.92	22.82
300.0	2.22	6.83	15.41	15.67	14.70	21.35
350.0	2.21	6.83	15.55	15.71	14.46	20.14
400.0	2.23	6.84	15.49	15.82	14.29	19.11
450.0	2.23	6.87	15.57	15.87	14.05	18.49
500.0	2.24	6.88	15.62	15.81	13.79	17.67
550.0	2.26	6.90	15.68	15.72	13.56	17.13
600.0	2.25	6.89	15.94	15.78	13.41	16.86
650.0	2.26	6.92	16.02	16.05	13.15	16.50
700.0	2.28	6.94	16.15	16.14	13.08	16.13
750.0	2.26	6.96	15.90	16.36	12.97	15.87
800.0	2.28	6.95	15.65	16.78	12.85	15.80
850.0	2.25	6.93	15.21	17.07	12.73	15.81
860.0	2.26	6.95	15.15	17.16	12.69	15.69
900.0	2.29	6.95	14.62	17.31	12.64	15.87
950.0	2.29	6.99	13.85	17.89	12.57	15.85
1000.0	2.33	7.06	13.04	18.70	12.38	15.93
1050.0	2.33	7.09	12.13	19.40	12.26	15.99
1100.0	2.35	7.16	11.29	19.99	12.13	16.25
1150.0	2.35	7.27	10.42	20.75	11.95	16.31
1200.0	2.37	7.32	9.67	21.62	11.73	16.72
1250.0	2.35	7.48	8.93	22.07	11.53	16.76
1300.0	2.39	7.56	8.19	22.86	11.25	17.02
1350.0	2.38	7.63	7.67	23.86	11.01	17.01
1400.0	2.44	7.74	7.13	23.86	10.64	17.30

Directional Coupler

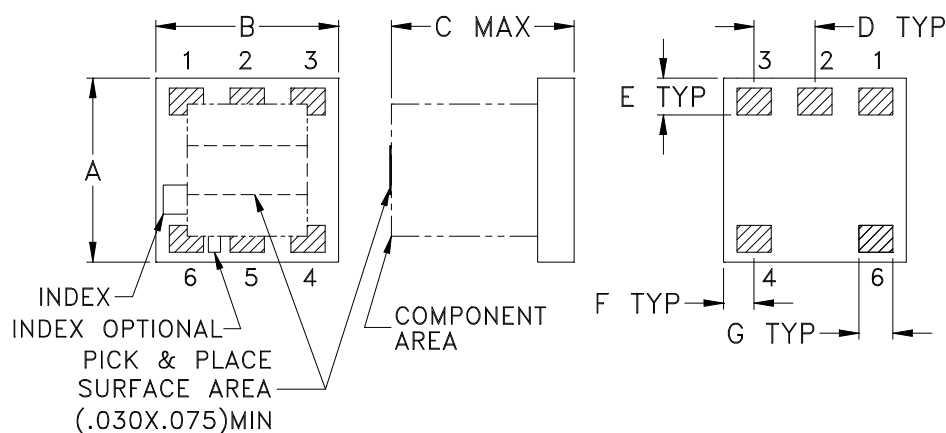
Typical Performance Curves

DBTC-ED10488/1

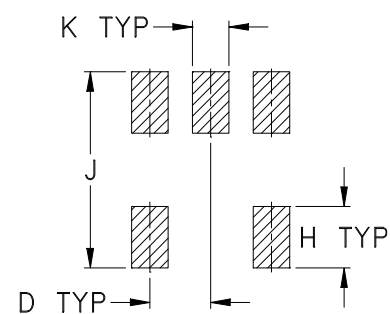


Outline Dimensions

AT790



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

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

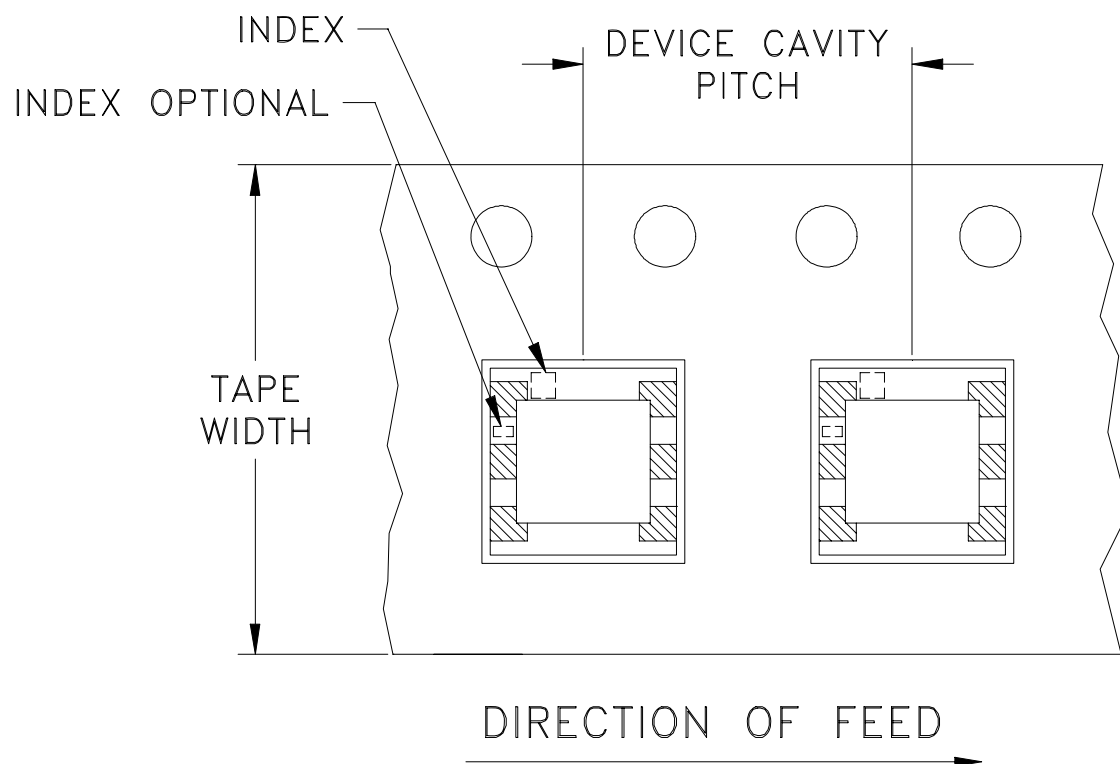


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

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.

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



Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

INTERNET <http://www.minicircuits.com>

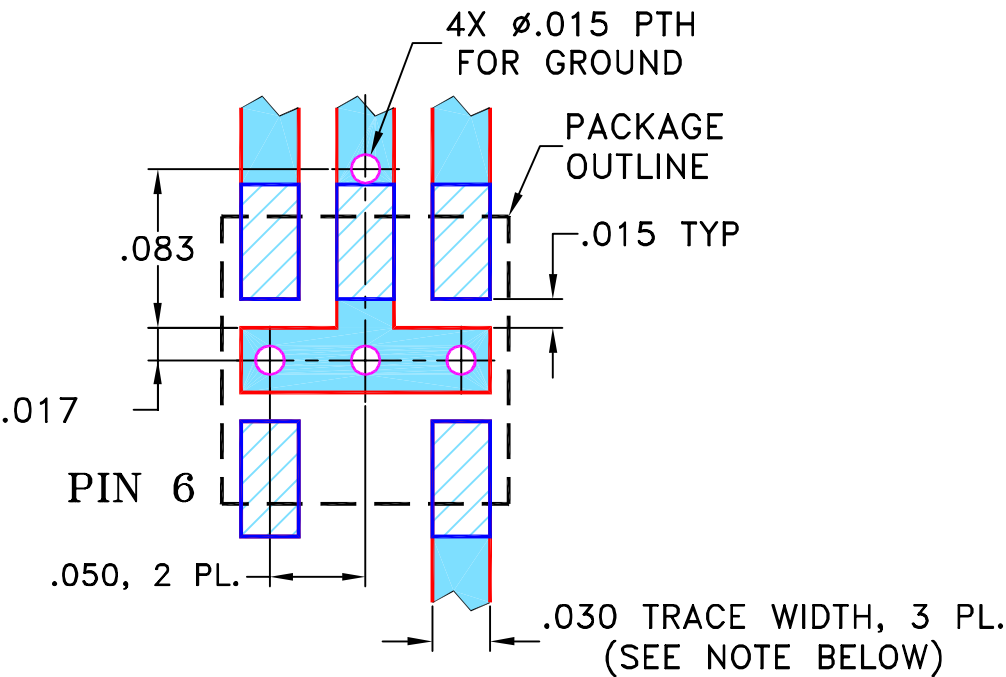
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

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.

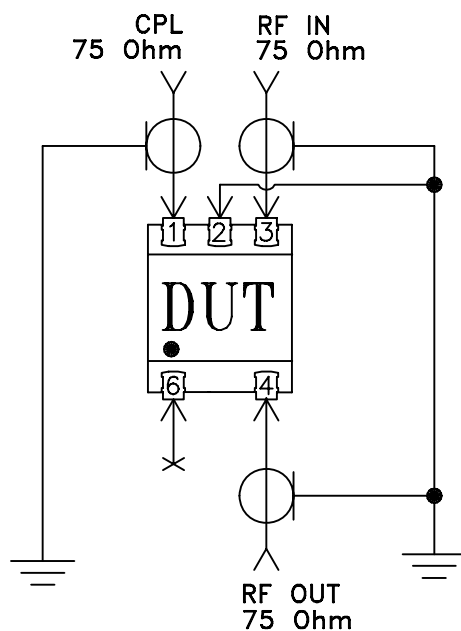
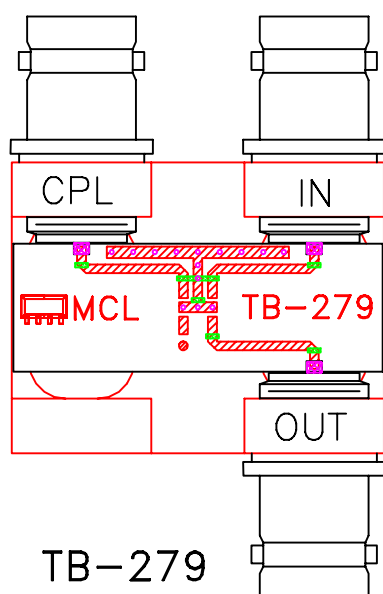
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS		DATE		Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235	
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			
Mini-Circuits® THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS. EXCEPT FOR USE EXPRESSLY GRANTED, IN WRITING, TO ITS VENDORS, VENDEE AND THE UNITED STATES GOVERNMENT, MINI-CIRCUITS RESERVES ALL PROPRIETARY DESIGN, USE, MANUFACTURING AND REPRODUCTION RIGHTS THERETO. THESE CONTENTS SHALL NOT BE USED, DUPLICATED OR DISCLOSED TO ANY OUTSIDE PARTY, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION OF MINI-CIRCUITS.						PL, na, 75, AT1029, DBTC, TB-279	
SIZE A		CODE IDENT 15542		DRAWING NO: 98-PL-151		REV: A	
FILE: 98PL151		SCALE: 10:1		SHEET: 1 OF 1			

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

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.

 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	-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