

Directional Couplers

75Ω, 13dB coupling, 5 to 1500 MHz

Maximum Ratings

Operating Temperature -40°C to 85°C

Storage Temperature -55°C to 100°C

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

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

Features

- very flat coupling
- very broadband, multi octave
- temperature stable, LTCC base
- all welded construction
- leads attached for better solderability
- micro miniature coupler
- aqueous washable
- protected by US Patents 6,140,887 & 6,784,521

Applications

- VHF/UHF receivers/transmitters
- cellular
- catv

Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS* (dB)						DIRECTIVITY (dB)						VSWR** (:1)	POWER INPUT (W)	
			L		M		U		L		M		U				
	f _i -f _u	Nom.	Max. Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.		Min.	Typ.
5-1000	13.2±0.5	±0.6	0.9	1.4	1.0	1.5	1.1	1.6	21	17	19	14	18	—	1.3	0.5	1.0
1000-1500	13.6±0.5	±0.8			1.4	2.2					17	—			1.3		1.0

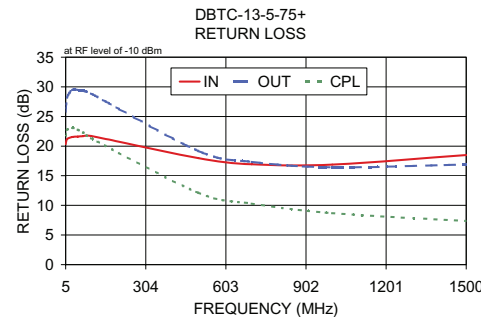
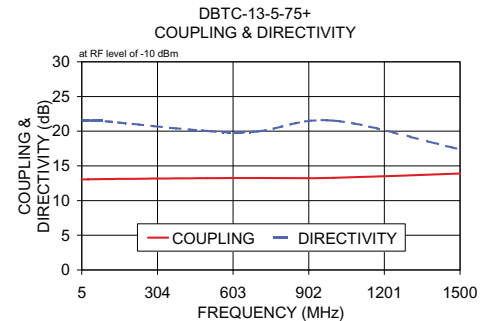
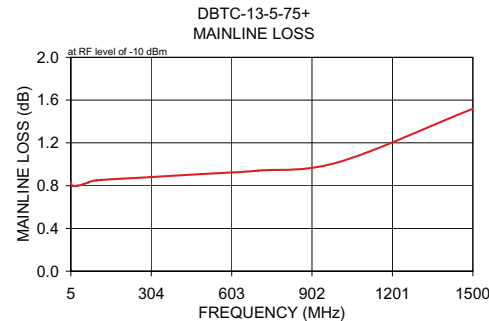
L = 5-50 MHz, M=50-500 MHz, U=500-1000 MHz apply to upper row of specs. 2nd row is for 1000-1500 MHz.

* Includes theoretical coupled power loss of 0.21 dB at 13 dB coupling

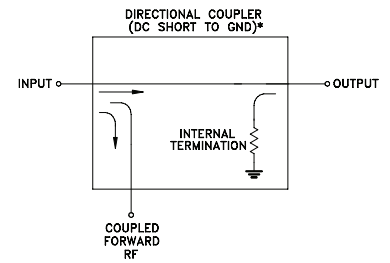
** For coupled port VSWR above 500 MHz, 1.6:1 typ.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5.00	0.83	13.09	21.69	20.33	25.83	21.73
10.00	0.80	13.06	21.61	21.17	28.18	22.73
30.00	0.80	13.06	21.61	21.55	29.45	23.06
50.00	0.81	13.07	21.48	21.61	29.48	22.74
70.00	0.83	13.09	21.51	21.69	29.33	22.26
100.00	0.85	13.11	21.42	21.72	28.86	21.33
500.00	0.91	13.23	20.04	17.98	19.17	12.15
700.00	0.94	13.26	19.95	16.94	17.35	10.31
1000.00	1.02	13.29	21.53	16.89	16.41	8.68
1500.00	1.52	13.90	17.38	18.50	16.87	7.37



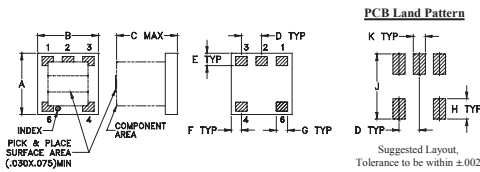
Electrical Schematic



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

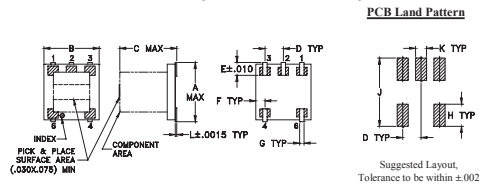
Outline Drawing / Dimensions (inch mm)

AT790-1 (DBTC-13-5-75)



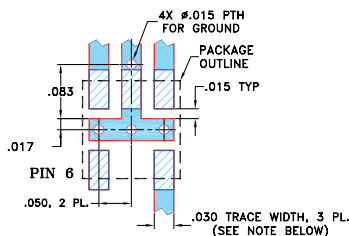
A	B	C	D	E	F	G	H	J	K	wt
.150	.150	.150	.050	.030	.025	.028	.050	.160	.030	grams
3.81	3.81	3.81	1.27	0.76	0.64	0.71	1.27	4.06	0.76	0.10

AT1030 (DBTC-13-5-75L)



A	B	C	D	E	F	G	H	J	K	L	wt
.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	0.10

Demo Board MCL P/N: TB-279 Suggested PCB Layout (PL-151)



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

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-Circuits' applicable established test performance criteria and measurement instructions.
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