

Directional Couplers

50Ω, 20dB coupling, 20 to 1000 MHz

Maximum Ratings

Operating Temperature -40°C to 85°C

Storage Temperature -55°C to 100°C

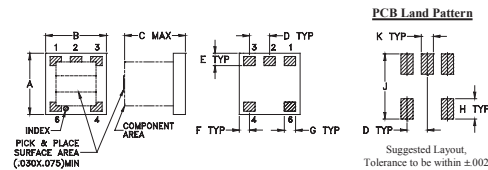
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

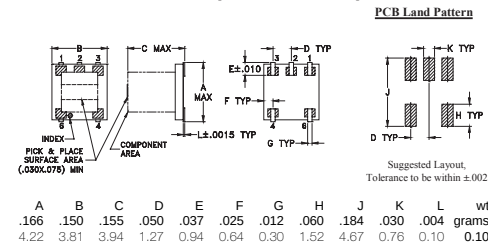
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
ISOLATE (DO NOT USE)	6

Outline Drawing / Dimensions (inch mm)

AT790-1 (DBTC-20-4+)

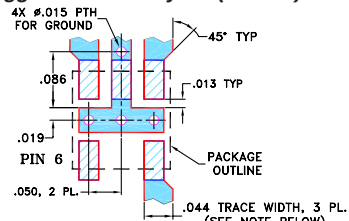


AT1030 (DBTC-20-4L+)



Demo Board MCL P/N: TB-278

Suggested PCB Layout (PL-150)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± 0.0015"; 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

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

Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)	MAINLINE LOSS* (dB)						DIRECTIVITY (dB)						VSWR** (:1)	POWER INPUT (W)	
		L		M		U		L		M		U			L	MU
		Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.		Max.	Max.
$f_{\text{L}}\text{--}f_{\text{U}}$	Nom. Max. Flatness															
20-1000	20.4±0.5 ±0.8	0.3	1.0	0.4	1.0	0.7	1.3	21	13	21	14	16	—	1.2	1.0	1.0

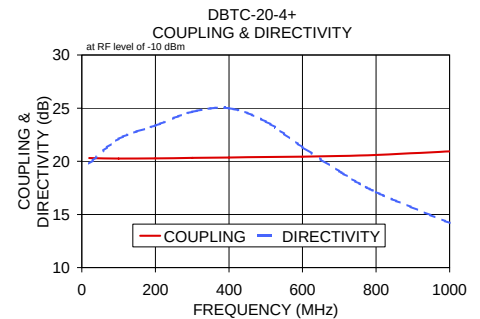
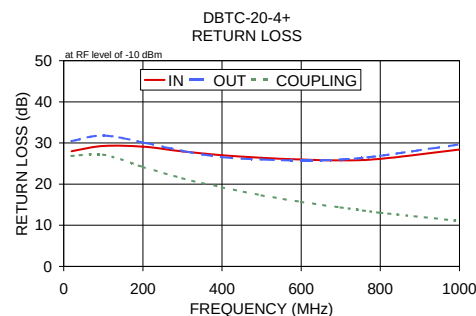
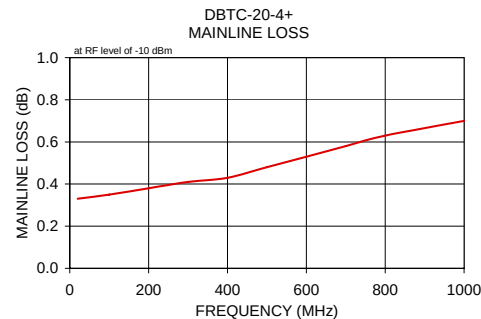
L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]

* Includes theoretical coupled power loss of 0.04 dB at 20 dB coupling

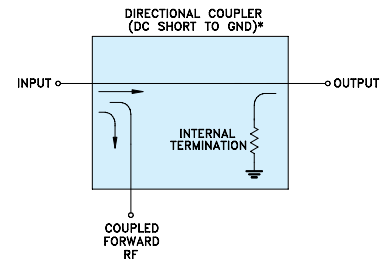
** For coupled port VSWR above 500 MHz, 1.6:1 typ.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
20.00	0.33	20.30	19.79	28.00	30.48	26.85
100.00	0.35	20.25	22.11	29.28	31.80	27.18
200.00	0.38	20.28	23.36	29.12	30.13	24.16
300.00	0.41	20.32	24.66	27.95	28.09	21.44
400.00	0.43	20.36	25.00	27.01	26.54	19.23
500.00	0.48	20.40	23.74	26.41	25.97	17.30
600.00	0.53	20.43	21.33	25.99	25.74	15.69
700.00	0.58	20.50	19.06	25.78	26.00	14.31
800.00	0.63	20.59	17.10	26.16	26.88	13.07
1000.00	0.70	20.94	14.20	28.41	29.64	11.03



Electrical Schematic



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

For detailed performance specs & shopping online see web site

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DBTC-20-4L+

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