

# Directional Couplers

DBTC-17-5+

DBTC-17-5L+

50Ω, 17dB coupling, 50 to 2000 MHz

### Maximum Ratings

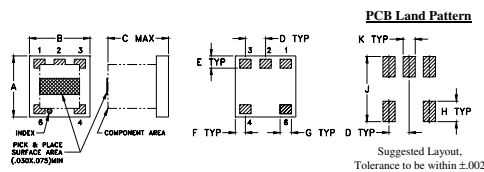
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

### Pin Connections

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

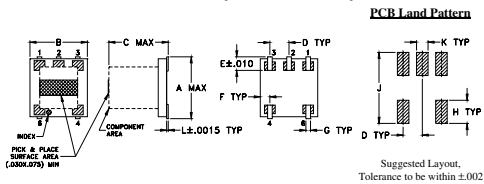
### Outline Drawing / Dimensions (inch/mm)

AT790-1 (DBTC-17-5)



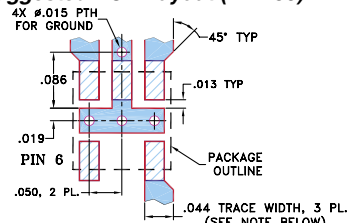
A	B	C	D	E	F	G	H	J	K	wt
.150	.150	.150	.050	.030	.025	.028	.050	.160	.030	grams
3.81	3.81	3.81	1.27	0.76	0.64	0.71	1.27	4.06	0.76	0.10

### AT1030 (DBTC-17-5L)



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-278 Suggested PCB Layout (PL-150)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 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

- cellular
- PCS
- DECT/PHS
- GSM

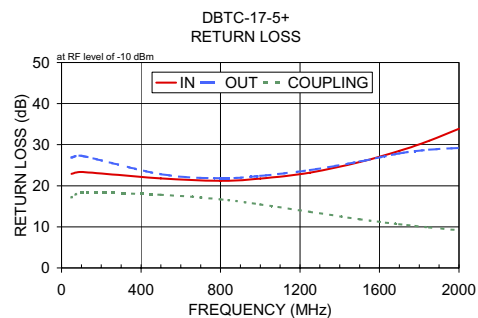
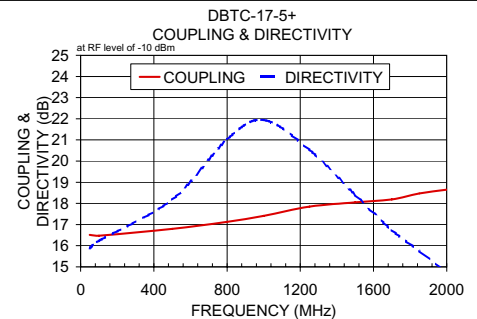
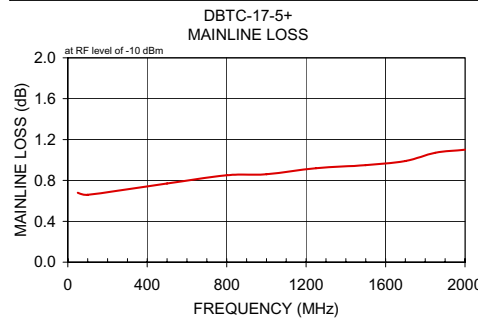
### Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS* (dB)		DIRECTIVITY (dB)		VSWR** (:1)	POWER INPUT (W)
	Nom.	Max. Flatness	Typ.	Max.	Typ.	Min.		
$f_c - f_u$								
50-1000	17.0±0.7	±0.9	0.9	1.4	20	13	1.2	2.0
1000-1500	17.7±0.9	±1.0	1.0	1.5	20	10	1.2	2.0
1500-2000	18.0±1.0	±0.8	1.1	1.6	14	—	1.2	2.0

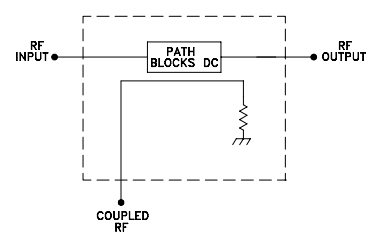
\* Includes theoretical coupled power loss of 0.07 dB at 17 dB coupling  
 \*\* For coupled port VSWR above 500 MHz, 1.6:1 typ.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
50.00	0.64	16.41	15.92	23.43	27.62	18.46
100.00	0.66	16.42	16.17	23.56	27.75	18.62
500.00	0.76	16.74	18.53	22.36	23.13	18.78
800.00	0.85	17.06	22.42	21.45	21.80	18.22
1000.00	0.91	17.30	22.32	21.67	21.94	17.08
1300.00	0.99	17.63	17.74	22.81	22.71	14.85
1500.00	1.05	17.81	15.41	24.84	24.12	13.40
1600.00	1.08	17.88	14.43	25.91	24.48	12.71
1900.00	1.18	18.07	12.20	28.04	25.71	10.95
2000.00	1.21	18.11	11.55	28.07	25.97	10.50



### electrical schematic



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RF/IF MICROWAVE COMPONENTS

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 WZ/DCP  
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