Surface Mount

Directional Couplers

DBTC-16-5-75+ DBTC-16-5-75L+

75Ω, 16dB coupling, 5 to 1500 MHz

No Leads

CASE STYLE:AT790-1
PRICE:$1.99 ea. QTY (25)
$1.69 ea. QTY (1000)

Leads

CASE STYLE:AT1030
PRICE: $2.14 ea. QTY (25)
$1.84 ea. QTY (1000)

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

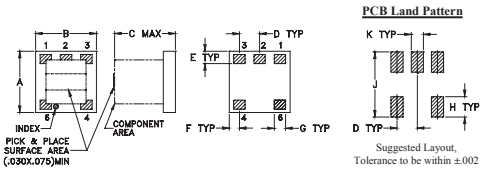
- VHF/UHF receivers/transmitters
- cellular

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

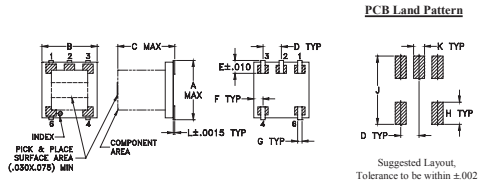
Outline Drawing / Dimensions (inch / mm)

AT790-1 (DBTC-16-5-75)



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-16-5-75L)



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

Electrical Specifications

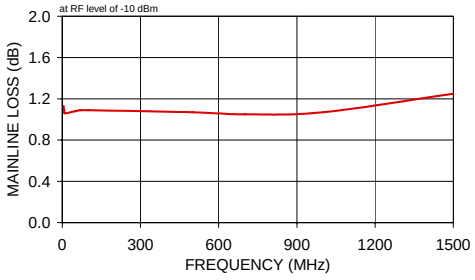
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS* (dB)						DIRECTIVITY (dB)						VSWR** (:1)	POWER INPUT (W)	
			L		M		U		L		M		U			L	MU
f_L-f_U	Nom.	Max. Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Max.
5-1000	16.3±0.5	±0.7	1.2	2.0	1.0	1.5	1.1	1.6	22	16	21	13	20	—	1.3	0.5	1.0
1000-1500	16.8±0.7	±0.7			1.3	1.9					19	—			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 0.10 dB at 16 dB coupling
** For coupled port VSWR above 500 MHz, 1.6:1 typ.

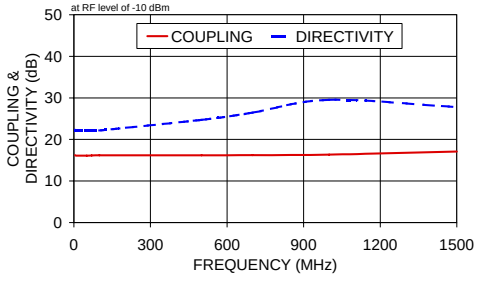
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Out	Cpl
5.00	1.13	16.21	22.27	17.92	19.97	14.75
7.00	1.09	16.14	22.16	18.62	20.98	15.55
10.00	1.06	16.10	22.16	19.10	21.68	16.12
50.00	1.08	16.12	22.16	19.44	22.23	16.59
70.00	1.09	16.13	22.05	19.51	22.33	16.58
100.00	1.09	16.17	22.15	19.65	22.50	16.57
500.00	1.07	16.20	24.73	19.74	21.23	15.29
700.00	1.05	16.23	26.44	19.65	20.23	14.25
1000.00	1.07	16.37	29.51	20.35	19.74	12.42
1500.00	1.25	17.08	27.80	25.02	21.54	9.91

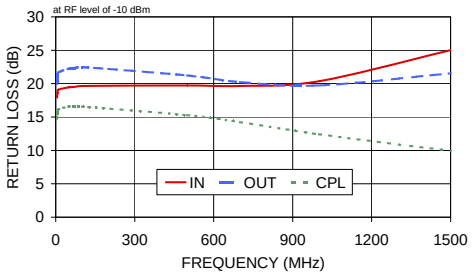
DBTC-16-5-75+
MAINLINE LOSS



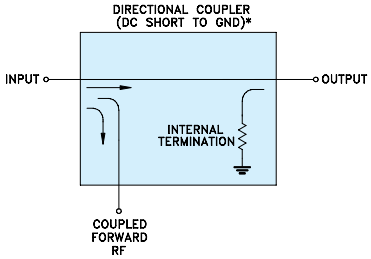
DBTC-16-5-75+
COUPLING & DIRECTIVITY



DBTC-16-5-75+
RETURN LOSS



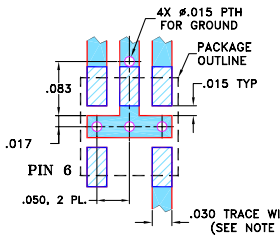
Electrical Schematic



* 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

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.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

REV.K
M111888
DBTC-16-5+ ED-8978/1
DBTC-16-5L+ ED-8978A/1
WZ/TD/CP/AM
090903