

Directional Couplers

50Ω, 20dB coupling, 20 to 1000 MHz

DBTC-20-4+

DBTC-20-4L+



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

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

Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)	MAINLINE LOSS* (dB)						DIRECTIVITY (dB)						VSWR** (:1)	POWER INPUT (W)		
		Max.		L	M	U	L	M	U	Typ.	Min.	Typ.	Min.		Typ.	Max.	Min.
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

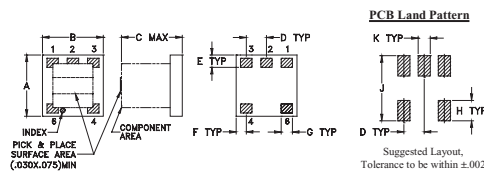
L = low range [f_l to 10 f_l] M = mid range [10 f_l to f_u/2] U = upper range [f_u/2 to f_u]
* Includes theoretical coupled power loss of 0.04 dB at 20 dB coupling
** For coupled port VSWR above 500 MHz, 1.6:1 typ.

+ 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.

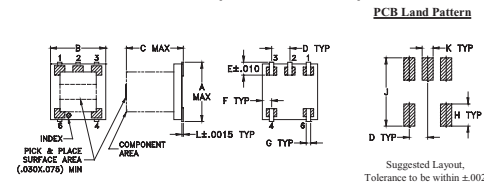
Outline Drawing / Dimensions (inch mm)

AT790-1 (DBTC-20-4+)



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-20-4L+)

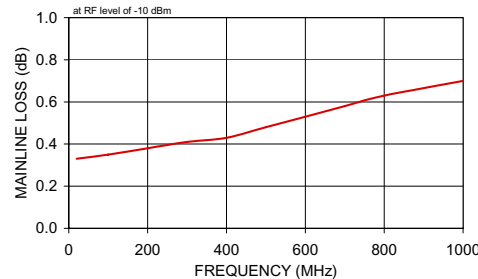


A	B	C	D	E	F	G	H	J	K	L	wt
.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	0.10

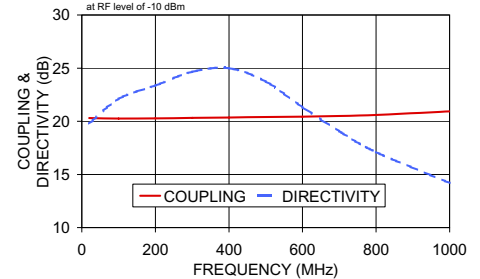
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)		Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
	In-Out	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	

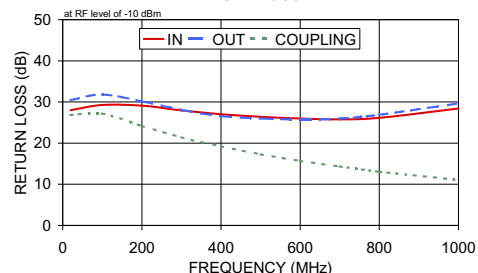
DBTC-20-4+ MAINLINE LOSS



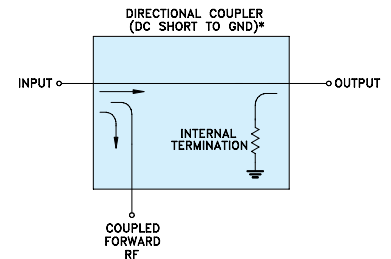
DBTC-20-4+ COUPLING & DIRECTIVITY



DBTC-20-4+ RETURN LOSS

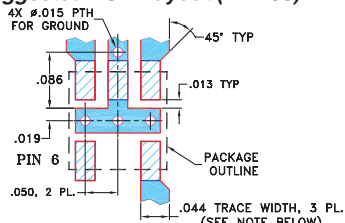


Electrical Schematic



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

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



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

IF/RF MICROWAVE COMPONENTS

REV. J
M119086
DBTC-20-4+
ED-8957/1
WZTD/CP/AM
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