

Directional Couplers

50Ω, 9dB coupling, 5 to 1000 MHz

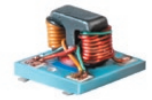
DBTC-9-4+

DBTC-9-4L+



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)

+ 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.

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

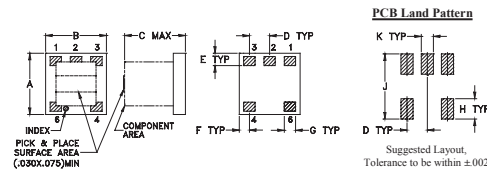
Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS* (dB)				DIRECTIVITY (dB)			VSWR** (:1)	POWER INPUT (W)						
	Nom.	Flatness	L	M	U	L	M	U	L		MU						
$f_c - f_u$		Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Max.				
5-1000	9.0±0.5	±0.5	1.2	2.0	1.2	1.8	1.5	2.0	21	17	18	13	15	—	1.2	0.5	1.0

L = low range [f_c to $10 f_c$] M = mid range [$10 f_c$ to $f_u/2$] U = upper range [$f_u/2$ to f_u]
* Includes theoretical coupled power loss of 0.58 dB at 9 dB coupling
** For coupled port VSWR above 500 MHz, 1.6:1 typ.

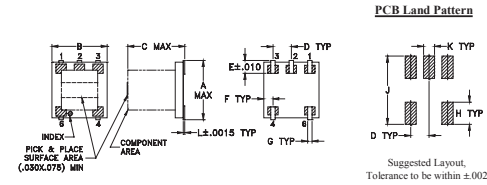
Outline Drawing / Dimensions (inch/mm)

AT790-1 (DBTC-9-4)



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

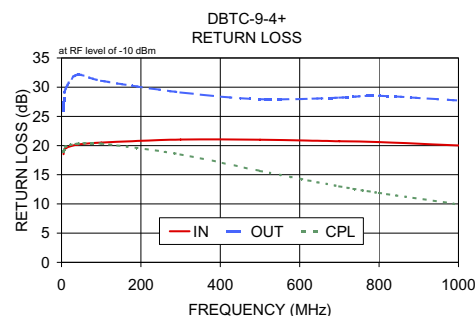
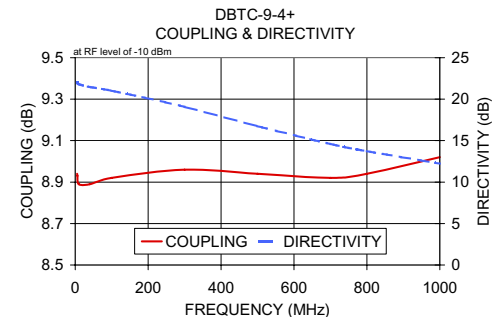
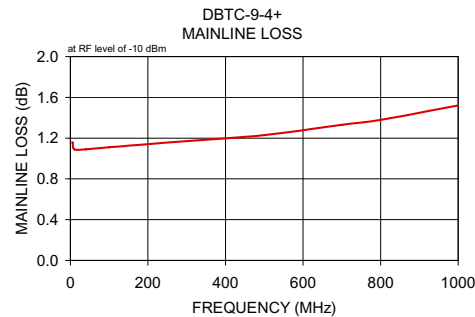
AT1030 (DBTC-9-4L)



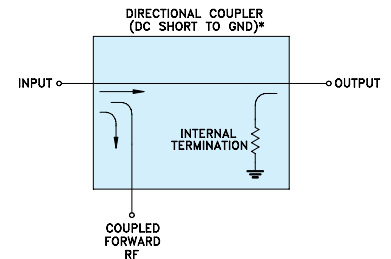
A	B	C	D	E	F	G	H	J	K	L	wt
.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	0.10

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5.00	1.18	8.93	21.62	17.90	24.67	18.40
10.00	1.10	8.89	21.70	19.15	29.04	19.50
50.00	1.07	8.87	21.50	20.07	32.70	20.22
100.00	1.09	8.90	20.99	20.12	31.81	20.27
300.00	1.16	8.93	19.47	20.49	30.43	18.93
500.00	1.20	8.90	17.60	21.02	30.62	16.66
600.00	1.23	8.88	16.50	20.89	30.39	15.36
800.00	1.31	8.86	14.74	20.45	30.31	12.91
900.00	1.37	8.85	14.07	20.06	29.26	11.86
1000.00	1.43	8.86	13.44	19.34	27.16	10.86

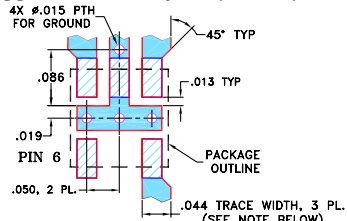


Electrical Schematic



* 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



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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

IF/RF MICROWAVE COMPONENTS



REV. J
M119986
DBTC-9-4+
DBTC-9-4L+
WZ/TD/CP/AM
ED-8958/1
ED-8958A/1
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