

Surface Mount Directional Couplers

50Ω

50 to 2000 MHz

Maximum Ratings

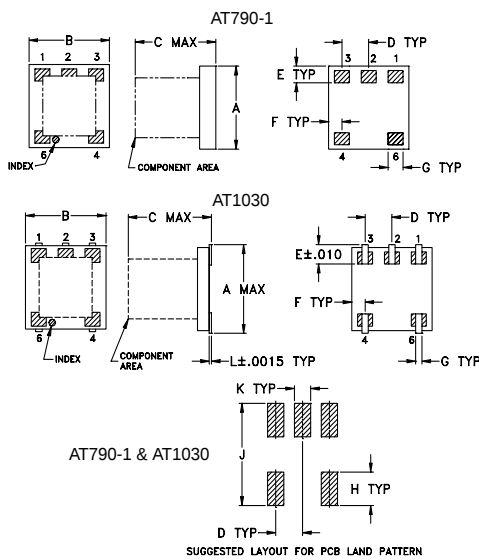
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

Pin Connections

INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
NOT USED*	5,6

*pins 5&6 must be isolated

Outline Drawing



Outline Dimensions (inch/mm)

AT790-1	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	.10

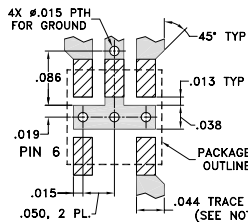
AT1030	A	B	C	D	E	F	G	H	J	K	L	wt.
	.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
	4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	.10

Reflow Solder Assembly

Silver-bearing solder (Sn/Pb/Ag 62/36/2%) is recommended; however, tin-lead eutectic (Sn/Pb 63/37%) may be used. For temperature profiles, see Application Note AN-40-004

Demo Board MCL P/N: TB-278

Suggested PCB Layout (PL-150)



NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 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

▨ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- very flat coupling
- very broadband, multi octave
- temperature stable, BLUE CELL™ base
- all welded construction
- leads attached for better solderability
- micro-miniature coupler
- protected by U.S. Patent 6,140,887 & 6,784,521

Applications

- cellular
- PCS
- DECT/PHS
- GSM

DBTC-17-5 DBTC-17-5L



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)

Directional Coupler Electrical Specifications

FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS* (dB)			DIRECTIVITY (dB)			VSWR** (:1)	POWER INPUT, W	
	Nom.	Max. Flatness	L Typ.	M Typ.	U Typ.	L Typ.	M Typ.	U Typ.		L Max.	MU Max.
$f_L - f_U$											
50-1000	17.0±0.7	±0.9		0.9	1.4	20	13		1.20	—	2.0
1000-1500	17.7±0.9	±1.0		1.0	1.5	20	10		1.20	—	2.0
1500-2000	18.0±1.0	±0.8		1.1	1.6	14	—		1.20	—	2.0

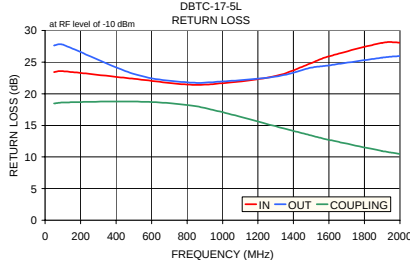
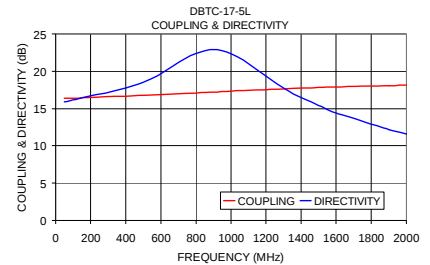
* Includes theoretical coupled power loss of 0.07 dB at 17 dB coupling. L = low range [f_L to 10 f_L] M = mid range [10 f_L to $f_U/2$] U = upper range [$f_U/2$ to f_U]

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

Typical Performance Data

Frequency (MHz)	Insertion 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

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