

# Surface Mount Directional Coupler

50Ω 10 to 750 MHz

## TCD-10-1W+ TCD-10-1W



CASE STYLE: DB714  
PRICE: \$1.49 ea. QTY (25)

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

The +Suffix identifies RoHS Compliance. See our web site  
for RoHS Compliance methodologies and qualifications.

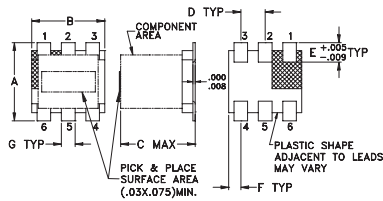
### Maximum Ratings

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

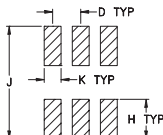
### Pin Connections

INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
50Ω TERM EXTERNAL	6
NOT USED	5

### Outline Drawing



### PCB Land Pattern

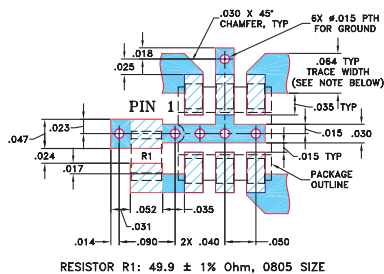


Suggested Layout,  
Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	

### Demo Board MCL P/N: TB-71 Suggested PCB Layout (PL-009)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.050" ± 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

### Features

- wideband, 10 to 750 MHz
- low mainline loss, 1.2 dB typ.
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

### Applications

- VHF/UHF
- signal sampling
- communications

### Directional Coupler Electrical Specifications

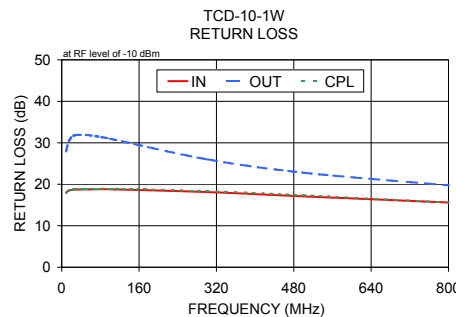
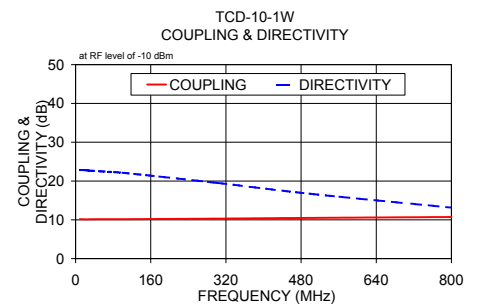
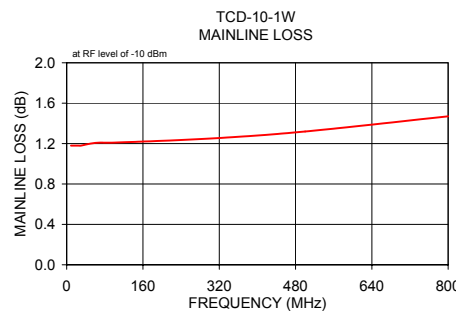
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)						DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W				
	Nom.	Flatness	L		M		U		L	M	U		Typ.	L	MU		
10-750	10.3±0.5	±0.8	1.3	2.1	1.2	1.6	1.4	2.0	22	17	18	14	15	—	1.30	0.5	1.0

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  $f_U$ ]

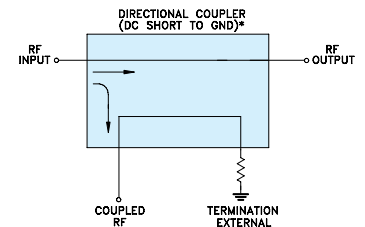
1. Mainline loss includes theoretical power loss at coupled port.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
9.00	1.18	10.17	22.87	17.95	27.94	17.96
15.00	1.18	10.14	22.85	18.48	30.46	18.53
24.00	1.18	10.13	22.75	18.67	31.68	18.74
30.00	1.18	10.14	22.68	18.71	31.90	18.79
50.00	1.20	10.16	22.53	18.77	31.89	18.87
70.00	1.21	10.16	22.38	18.78	31.59	18.90
100.00	1.21	10.17	22.13	18.78	30.97	18.93
300.00	1.25	10.31	19.54	18.13	26.04	18.34
500.00	1.32	10.49	16.70	17.08	22.79	17.34
800.00	1.47	10.73	13.13	15.61	19.73	15.58



### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

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IF/RF MICROWAVE COMPONENTS

REV. G  
M119986  
ED-8551  
TCD-10-1W  
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081113