

Surface Mount Directional Coupler

50Ω

5 to 2000 MHz

TCD-9-1W+
TCD-9-1W



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.

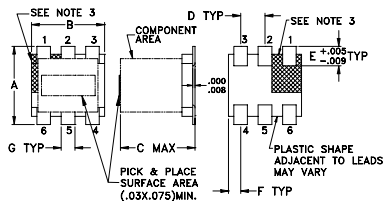
Maximum Ratings

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

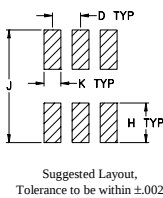
Pin Connections

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

Outline Drawing



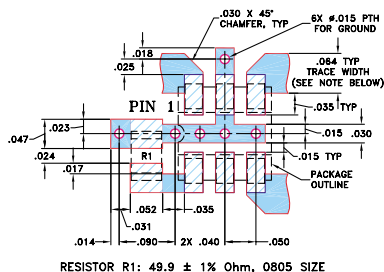
PCB Land Pattern



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 0.030" ± 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

Features

- wideband, 5 to 2000 MHz
- low mainline loss, 1.2 dB typ. (5-1000 MHz)
- aqueous washable
- protected for excellent solderability
- protected by US Patent 6,140,887

Applications

- GPS
- cellular
- satellite distribution
- cable tv

Directional Coupler Electrical Specifications

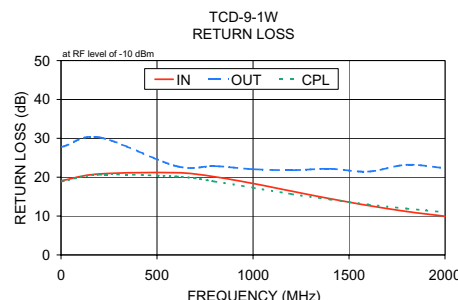
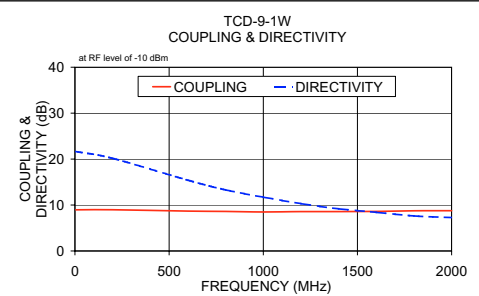
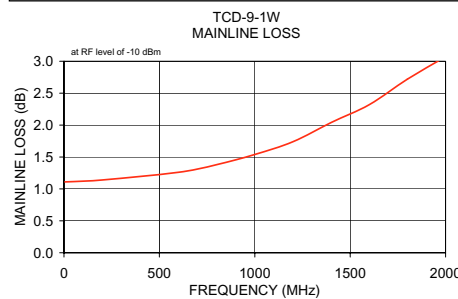
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W	
			L		M		U		L		M		U				
	f _L -f _U	Nom.	Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.		Min.	Typ.
5-1000	8.9±0.5	±0.6	1.2	2.1	1.2	1.8	1.5	2.1	21	17	17	10	13	—	1.30	0.5	1.0
1000-2000	8.9±0.5	±0.6	—	—	2.5	—	—	—	—	—	10	—	—	—	1.60	—	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]

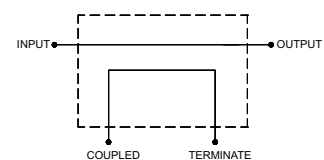
1. Mainline loss includes theoretical power loss at coupled port.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5.00	1.11	8.96	21.65	19.14	27.81	18.92
200.00	1.14	8.97	20.18	20.84	30.26	20.66
600.00	1.26	8.67	15.41	21.16	22.87	20.18
800.00	1.38	8.61	13.30	20.11	22.87	18.90
1000.00	1.54	8.48	11.72	18.37	22.07	17.30
1200.00	1.74	8.57	10.31	16.42	21.82	15.67
1400.00	2.04	8.57	9.19	14.49	22.16	14.29
1600.00	2.32	8.61	8.42	12.72	21.46	12.97
1800.00	2.72	8.75	7.63	11.17	23.19	11.93
2000.00	3.07	8.76	7.28	9.96	22.33	10.99



electrical schematic



Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

ALL NEW
minicircuits.com

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

RF/IF MICROWAVE COMPONENTS

REV. E
M114760
ED-8571/1
TCD-9-1W
WZ/TD/CP
071129