Surface Mount

Directional Coupler

TCD-18-4

50Ω 5 to 1000 MHz

CASE STYLE: DB714
PRICE: Contact Sales Dept.

Maximum Ratings

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

* Case temperature is defined as temperature on ground leads. Permanent damage may occur if any of these limits are exceeded.

Pin Connections

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

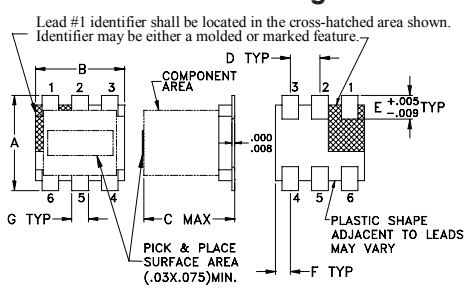
Features

- wideband, 5 to 1000 MHz
- low mainline loss, 0.7 dB typ.
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

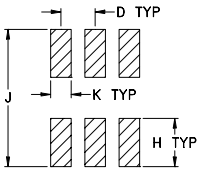
Applications

- communications
- signal sampling
- level detection

Outline Drawing



PCB Land Pattern



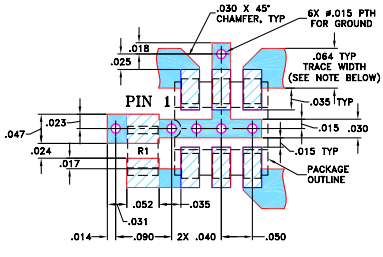
Suggested Layout,
Tolerance to be within ±.002

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)



RESISTOR R1: 49.9 ± 1% Ohm, 0805 SIZE

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

Directional Coupler Electrical Specifications

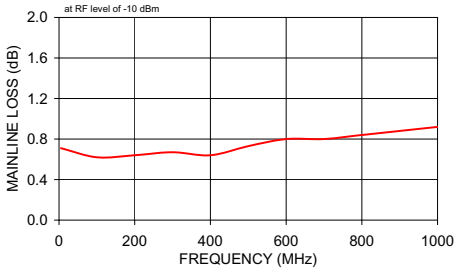
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W	
			L		M		U		L		M		U			L	MU
f_L-f_U	Nom.	Flatness	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Max.
5-1000	17.9±0.5	±0.6	0.7	1.3	0.7	1.1	1.0	1.4	22	11	20	15	18	—	1.20	1.0	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]
1. Mainline loss includes theoretical power loss at coupled port.

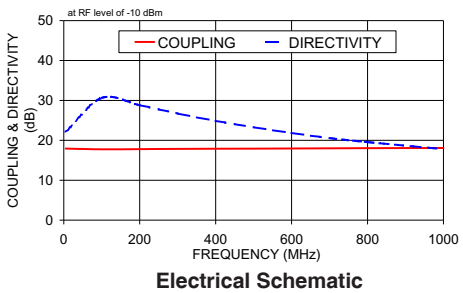
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
5.00	0.71	17.93	22.13	20.96	23.54	21.00
100.00	0.62	17.76	30.64	24.40	28.02	24.20
200.00	0.64	17.80	28.81	24.53	28.17	23.85
300.00	0.67	17.85	26.73	24.53	28.03	23.28
400.00	0.64	17.89	24.88	24.44	27.55	22.54
500.00	0.73	17.92	23.27	24.18	26.78	21.86
600.00	0.80	17.96	21.85	23.87	25.93	21.34
700.00	0.80	18.00	20.56	23.48	25.07	20.77
800.00	0.84	18.03	19.55	23.03	24.24	20.27
1000.00	0.92	18.08	17.79	22.00	22.68	19.42

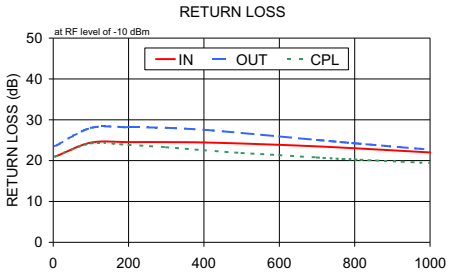
MAINLINE LOSS



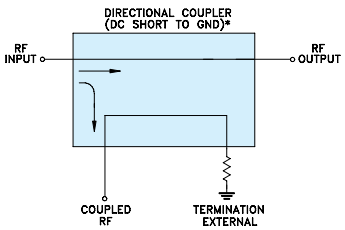
COUPLING & DIRECTIVITY



RETURN LOSS



Electrical Schematic



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

For detailed performance specs & shopping online see web site