Surface Mount

Directional Coupler

TCD-20-4-75+

75Ω 40 to 1200 MHz

CASE STYLE: DB714

Maximum Ratings

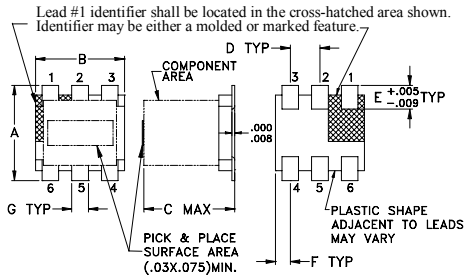
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

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

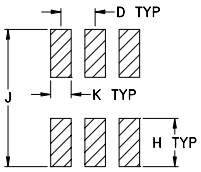
Pin Connections

INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM EXTERNAL	6
NOT USED	5

Outline Drawing



PCB Land Pattern



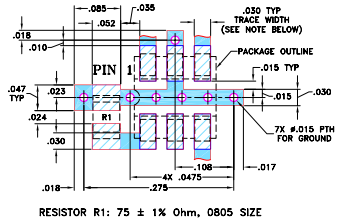
Suggested Layout,
Tolerance to be within ±.002

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-72
Suggested PCB Layout (PL-010)



RESISTOR R1: 75 ± 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

Features

- wideband, 40-1200 MHz
- excellent flatness, ±0.5 dB typ. each band
- better performance than MA-COM EMDC-20-2-75
- footprint compatible to EMDC-10-1-75
- aqueous washable

+RoHS Compliant

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

Applications

- CATV

Directional Coupler Electrical Specifications

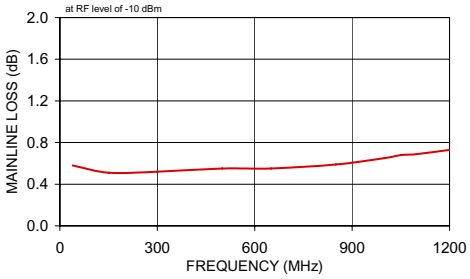
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS[1] (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT, W
f_L-f_U	Nom.	Flatness	Typ.	Max.	Typ.	Min.	Typ.	Max.
40-500	21±0.5	±0.8	0.5	0.9	20	15	1.15	1.0
500-870	20±0.6	±0.8	0.6	1.0	23	16	1.15	1.0
870-1200	19.5±0.7	±0.8	0.6	1.1	20	14	1.15	1.0

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

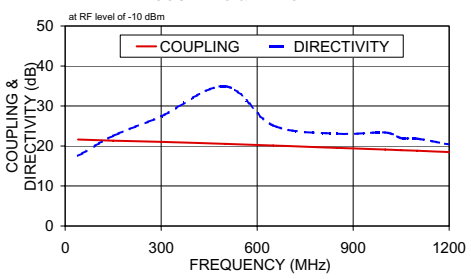
Typical Performance Data

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
40.00	0.58	21.64	17.52	23.40	24.77	23.38
150.00	0.51	21.32	22.55	26.56	29.03	26.72
300.00	0.52	21.04	27.40	25.81	26.94	27.36
500.00	0.55	20.52	34.93	23.79	23.55	25.86
650.00	0.55	20.11	25.14	24.15	23.07	25.34
850.00	0.59	19.53	23.06	26.52	24.05	24.00
1000.00	0.65	19.12	23.38	29.12	26.11	23.57
1050.00	0.68	18.96	21.95	30.51	26.75	22.99
1100.00	0.69	18.81	21.82	31.20	26.49	23.19
1200.00	0.73	18.51	20.42	32.12	27.62	23.06

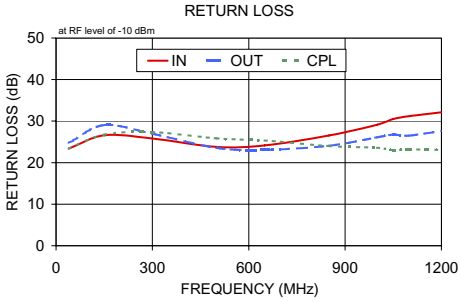
TCD-20-4-75+
MAINLINE LOSS



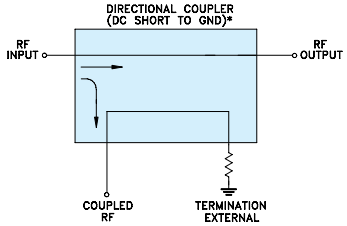
TCD-20-4-75+
COUPLING & DIRECTIVITY



TCD-20-4-75+
RETURN LOSS



Electrical Schematic



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

Notes

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