

# Surface Mount Directional Coupler

75Ω 10 to 1000 MHz

## JDC-10-4-75+ JDC-10-4-75



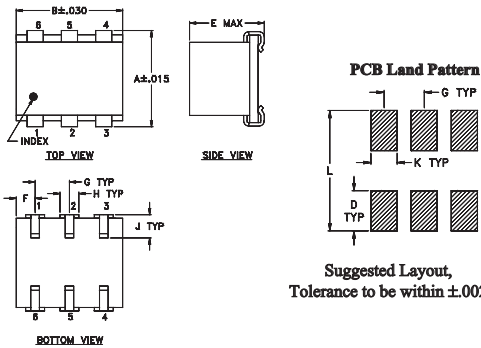
### Maximum Ratings

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

### Pin Connections

INPUT	1
OUTPUT	6
COUPLED	3
GROUND	2,5
ISOLATE (DO NOT USE)	4

### Outline Drawing



Suggested Layout,  
Tolerance to be within ±.002

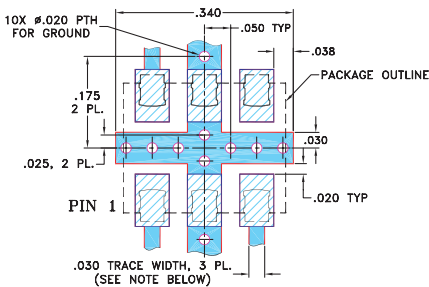
### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.280	.310	--	.100	.225	.055	.100
7.11	7.87	--	2.54	5.72	1.40	2.54

H	J	K	L	wt
.047	.065	.065	.300	grams
1.19	1.65	1.65	7.62	0.45

### Demo Board MCL P/N: TB-33 Suggested PCB Layout (PL-044)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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

- low mainline loss, 1.4 dB typ.
- high directivity, 25 dB typ.
- excellent solderability

### Applications

- catv
- VHF/UHF

### Directional Coupler Electrical Specifications

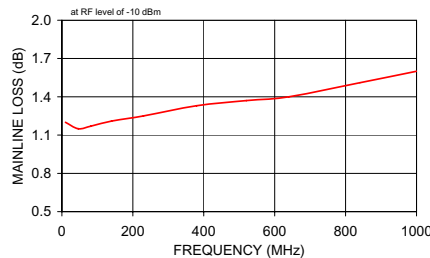
FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)						DIRECTIVITY (dB)						VSWR (:1)	POWER INPUT, W	
	Nom.	Flatness	L		M		U		L		M		U			Typ.	Max.
f <sub>L</sub> -f <sub>U</sub>			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Max.
10-1000	10.5±0.5	±0.5	1.2	1.6	1.4	1.7	1.6	2.0	27	18	25	18	28	18	1.3	1.0	1.0

L = 10-100 MHz M = 100-500 MHz U = 500-1000 MHz  
1. Mainline loss includes theoretical power loss at coupled port.

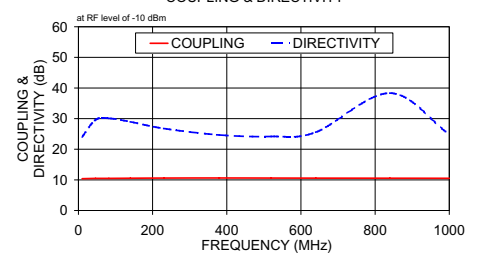
### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)			Return Loss (dB) Cpl
			In	Out	Cpl	
10.00	1.20	10.39	24.04	20.65	15.96	
46.00	1.15	10.50	29.61	22.15	18.91	
82.00	1.17	10.50	30.11	21.77	18.86	
140.00	1.21	10.54	28.97	21.13	18.92	
230.00	1.25	10.59	26.78	20.02	20.07	
380.00	1.33	10.62	24.67	18.47	23.45	
520.00	1.37	10.60	24.18	18.48	29.75	
640.00	1.40	10.57	25.57	20.57	37.16	
840.00	1.51	10.54	38.35	23.88	28.50	
1000.00	1.60	10.52	24.89	29.38	23.68	

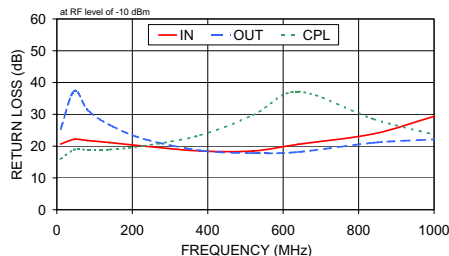
JDC-10-4-75  
MAINLINE LOSS



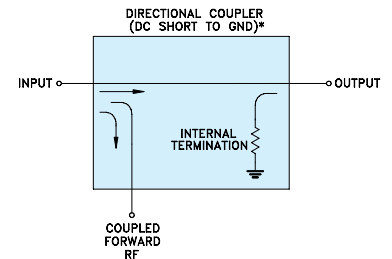
JDC-10-4-75  
COUPLING & DIRECTIVITY



JDC-10-4-75  
RETURN LOSS



### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

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