

# Surface Mount Directional Coupler

50Ω 300 to 1100 MHz

## LRDC-20-2+ LRDC-20-2



CASE STYLE: QQQ130  
PRICE: \$15.95 ea. QTY (1-9)

**+RoHS Compliant**

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

### Maximum Ratings

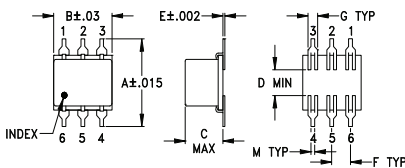
Operating Temperature	-40°C to 85 °C
Storage Temperature	-55°C to 100°C

Permanent damage may occur if any of these limits are exceeded.

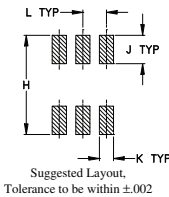
### Pin Connections

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

### Outline Drawing



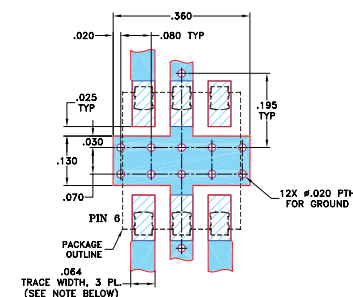
### PCB Land Pattern



### Outline Dimensions (inch)

A	B	C	D	E	F	G
.400	.31	.200	.10	.010	.100	.050
10.16	7.87	5.08	2.54	0.25	2.54	1.27
H	J	K	L	M	wt	
.420	.120	.060	.100	.020	grams	
10.67	3.05	1.52	2.54	0.51	0.55	

### Demo Board MCL P/N: TB-31 Suggested PCB Layout (PL-087)



- NOTES:
- 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.
  - 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, 0.25 dB typ.
- high directivity, 17 dB typ.

### Applications

- VHF/UHF
- cellular
- communications
- signal sampling

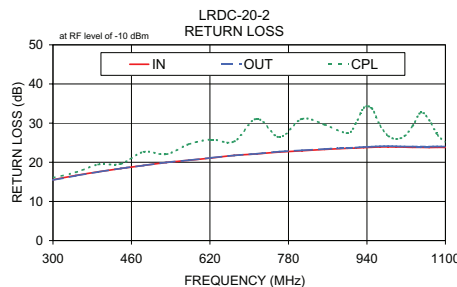
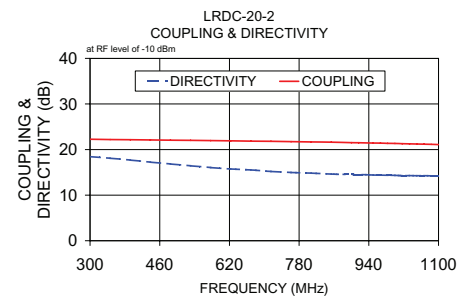
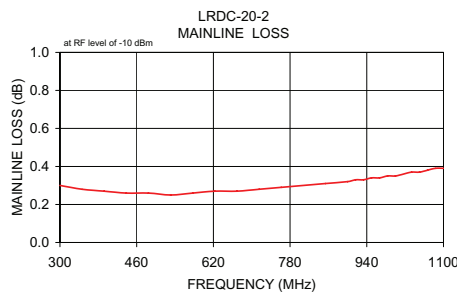
### Directional Coupler Electrical Specifications

FREQ. (MHz)	COUPLING (dB)		MAINLINE LOSS <sup>1</sup> (dB)		DIRECTIVITY (dB)		VSWR (:1)	POWER INPUT, W		
	Nom.	Flatness	Typ.	Max.	Typ.	Min.		Typ.	L Max.	MU Max.
f <sub>L</sub> -f <sub>U</sub>										
300-1100	20.5±1.0	±1.3	0.25	0.6	17	10	1.2	2.0	2.0	

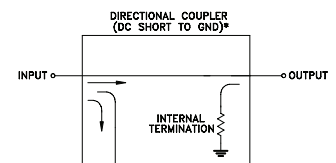
1. Mainline loss includes theoretical power loss at coupled port.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
300.00	0.30	22.27	18.46	15.52	15.46	16.06
438.46	0.26	22.11	17.25	18.41	18.43	19.61
576.92	0.26	21.96	16.06	20.51	20.53	24.62
715.38	0.28	21.80	15.20	22.14	22.18	31.13
807.69	0.30	21.67	14.83	22.93	23.08	31.10
900.00	0.32	21.51	14.54	23.56	23.66	27.46
950.00	0.34	21.43	14.42	23.84	24.00	33.75
1000.00	0.35	21.33	14.34	23.91	24.09	25.94
1050.00	0.37	21.21	14.26	23.80	24.04	32.75
1100.00	0.39	21.10	14.24	23.78	24.01	25.15



### Electrical Schematic



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

### Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
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