

Bi-Directional Coupler

SCBD-10-63HP+

50Ω Up to 100W 50 to 6000 MHz

Maximum Ratings

Operating Temperature, case -55°C to 65°C

Storage Temperature -55°C to 100°C

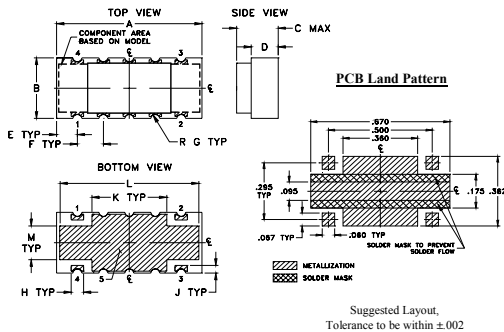
DC Current 2A

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

Pad Connections

INPUT	1,2,3,4
OUTPUT	2,1,4,3
COUPLED IN	4,3,2,1
COUPLED OUT	3,4,1,2
GROUND	5

Outline Drawing



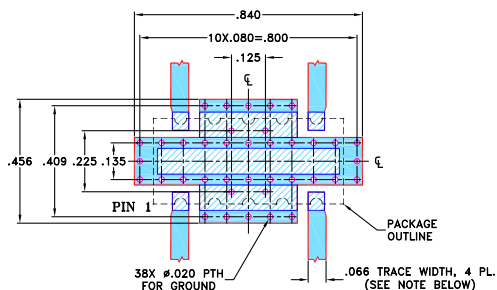
Outline Dimensions (inch mm)

A	B	C	D	E	F	G
.70	.32	.20	.14	.100	.125	.022
17.78	8.13	5.08	3.56	2.54	3.18	0.56
H	J	K	L	M	wt	
.060	.040	.360	.670	.175	grams	
1.52	1.02	9.14	17.02	4.45	0.80	

Demo Board MCL P/N: TB-774+

Suggested PCB Layout (PL-423)**

** Wraparound solder on ground pins may not be shown



NOTE: 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

Notes

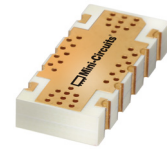
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

- wide frequency range, 50 to 6000 MHz
- low insertion loss 0.4dB typ. exclude the coupling loss
- good return loss
- high power, up to 100W
- DC current pass through input to output

Applications

- cellular
- lab use
- WiMax
- PCN
- GSM
- ISM



CASE STYLE: JB1233-1

PRICE: \$19.95 ea. QTY (1-9)

+RoHS Compliant

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

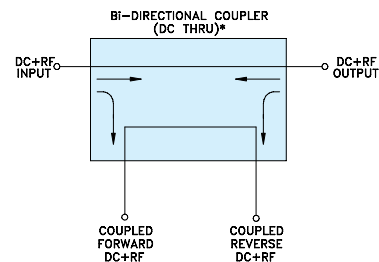
Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		50		6000	MHz
Mainline Loss ¹	50 - 3500	—	0.5	0.7	dB
	3500 - 6000	—	0.9	1.2	
Coupling	50 - 400	—	36±12	—	dB
	400 - 800	—	24.0±4	—	
	800 - 1000	—	19.6±1.5	—	
	1000 - 1700	—	17±2.8	—	
	1700 - 2000	—	14±1.3	—	
	2000 - 2700	—	13±1.5	—	
	2700 - 3500	—	11.2±1.3	—	
Coupling Flatness (±)	3500 - 6000	—	10±1	—	dB
	1700 - 2000	—	0.4	0.9	
	2700 - 3500	—	0.7	1.0	
	3500 - 6000	—	0.5	0.9	
Directivity	50 - 2000	16	18	—	dB
	2000 - 3500	15	17	—	
	3500 - 4200	12	15	—	
	4200 - 6000	9	12	—	
Return Loss (Input)	50 - 3500	20	30	—	dB
	3500 - 6000	14	20	—	
Return Loss (Output)	50 - 3500	20	30	—	dB
	3500 - 6000	14	20	—	
Return Loss (Coupling)	50 - 3500	20	30	—	dB
	3500 - 6000	14	20	—	
Input Power ²	50 - 1000	—	—	100	W
	1000 - 2700	—	—	75	
	2700 - 6000	—	—	50	

1. Include coupling loss.

2. At 25°C with no DC. Derate linearly to 75W (50-1000 MHz), 50W (1000-2700 MHz) and 25W (2700-6000 MHz) at 65°C

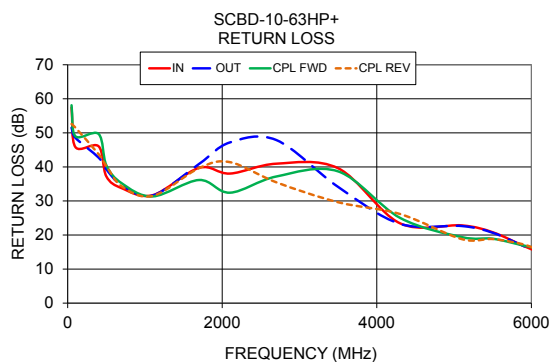
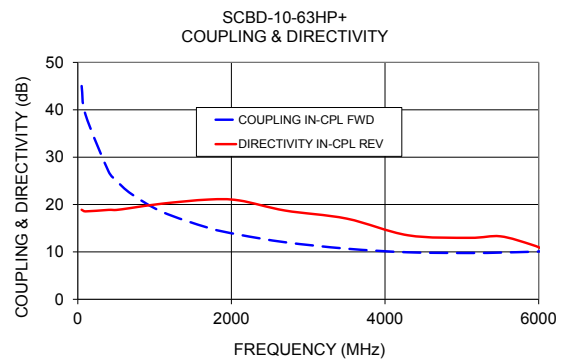
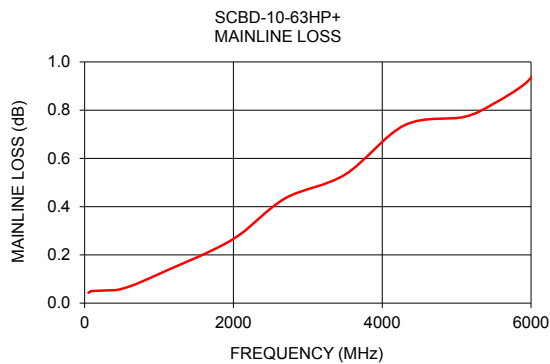
Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
	In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd	Cpl Rev
50.0	0.04	45.01	45.00	18.73	18.90	57.49	51.49	58.12	52.62
100.0	0.05	38.99	38.98	18.60	18.56	45.83	48.55	49.01	51.54
400.0	0.05	26.99	26.99	18.87	18.88	46.06	42.73	49.68	43.75
500.0	0.06	25.07	25.07	18.86	18.86	37.23	39.30	40.50	40.32
700.0	0.08	22.21	22.21	19.12	19.29	33.75	34.64	35.19	34.30
1100.0	0.13	18.44	18.45	19.67	20.19	31.70	31.61	31.33	31.47
1700.0	0.22	15.09	15.08	21.45	21.05	39.73	40.87	36.16	39.65
2100.0	0.29	13.64	13.63	21.76	20.87	38.05	47.20	32.43	41.40
2700.0	0.44	12.04	12.08	18.39	18.73	40.95	47.89	37.19	35.47
3500.0	0.53	10.69	10.72	16.14	17.03	39.60	34.12	38.68	29.62
4300.0	0.74	9.92	9.92	14.02	13.51	23.44	23.29	25.04	26.17
5100.0	0.77	9.77	9.80	12.78	12.98	22.83	22.64	19.39	18.80
5500.0	0.83	9.86	9.99	12.86	13.30	20.81	20.66	18.91	18.82
5900.0	0.90	10.03	10.20	11.13	11.57	16.78	16.75	16.91	17.23
6100.0	0.97	10.15	10.30	10.22	10.30	14.91	14.86	15.95	15.37



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