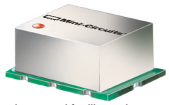
Surface Mount

Bi-Directional Coupler

SYDC-18-23+

50Ω 18 dB Coupling 10 to 2000 MHz



Generic photo used for illustration purposes only

CASE STYLE: AH202-1

+RoHS Compliant

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

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
13"	200

Maximum Ratings

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

Pad Connections

INPUT	8
OUTPUT	1
COUPLED (forward)	5
COUPLED (reverse)	4
GROUND	2,3,6,7

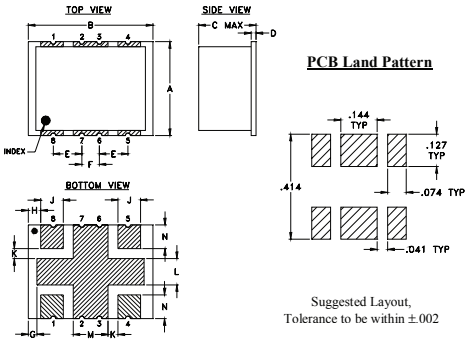
Features

- high directivity, 20 dB/typ.
- wideband frequency, 10-2000 MHz
- excellent VSWR, 1.25:1 typ.

Applications

- cellular
- instrumentation
- communications
- GPS

Outline Drawing

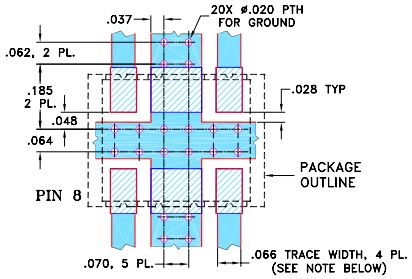


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.38	.50	.25	.020	.115	.070	.035
9.65	12.70	6.35	0.51	2.92	1.78	0.89

H	J	K	L	M	N	wt
.050	.090	.040	.105	.140	.095	grams
1.27	2.29	1.02	2.67	3.56	2.41	0.80

Demo Board MCL P/N: TB-349
Suggested PCB Layout (PL-246)



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.

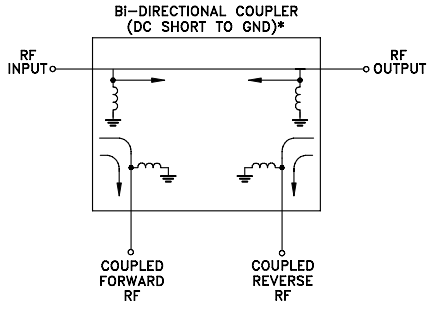
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		10		2000	MHz
Mainline Loss	10	—	0.8	1.2	dB
	30	—	0.7	1.0	
	1000	—	0.6	0.9	
	2000	—	1.0	1.5	
Nominal Coupling	10-2000	—	17.8±0.8		dB
Coupling Flatness (±)	10-300	—	0.2	0.4	dB
	300-1000	—	0.3	0.5	
	1000-2000	—	0.4	0.9	
Directivity	10	14	17	—	dB
	30	18	21	—	
	1000	15	20	—	
	2000	14	20	—	
Return Loss (Input)	10	—	18	—	dB
	30	—	21	—	
	1000	—	20	—	
	2000	—	14	—	
Return Loss (Output)	10	—	18	—	dB
	30	—	22	—	
	1000	—	20	—	
	2000	—	16	—	
Return Loss (Coupling)	10	—	18	—	dB
	30	—	21	—	
	1000	—	20	—	
	2000	—	16	—	
Input Power[1]	10	—	—	1	W
	30-1000	—	—	2	
	1000-2000	—	—	2	

Electrical Schematic



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

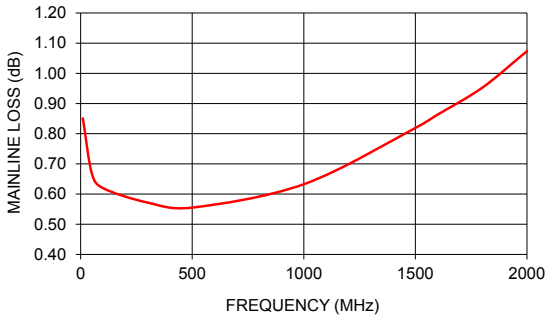
Notes

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.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

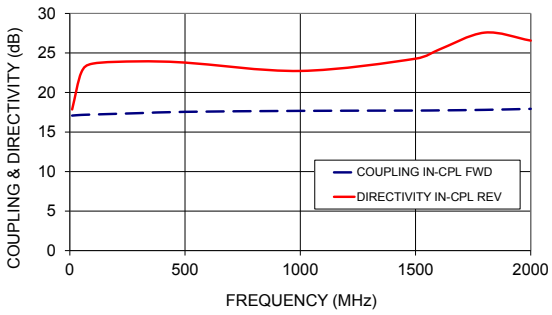
Typical Performance Data

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
10.0	0.85	17.08	18.41	19.19	17.85	18.66	19.15	18.68	19.40
50.0	0.67	17.17	18.09	23.85	22.55	23.83	25.90	24.36	26.73
100.0	0.62	17.21	18.02	24.93	23.66	25.64	28.61	26.35	29.82
300.0	0.57	17.39	18.04	25.38	23.94	28.71	31.10	29.67	32.94
500.0	0.56	17.55	18.17	24.50	23.78	30.54	28.75	31.76	31.61
1000.0	0.63	17.68	18.34	21.40	22.73	22.31	21.17	23.81	24.29
1500.0	0.82	17.71	18.25	23.73	24.28	17.65	18.33	18.83	21.22
1600.0	0.86	17.74	18.22	24.84	25.40	17.08	18.12	18.09	20.89
1800.0	0.95	17.80	18.19	28.37	27.57	16.00	17.86	17.06	20.63
2000.0	1.07	17.93	18.16	39.90	26.56	14.85	17.79	16.22	20.51

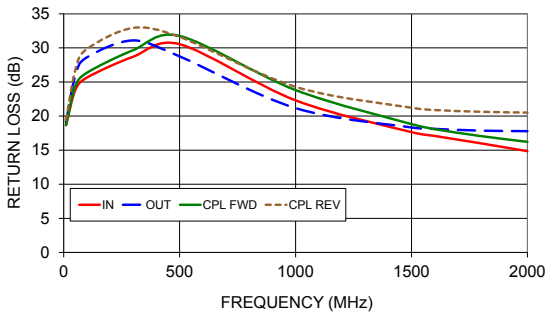
SYDC-18-23+
MAINLINE LOSS



SYDC-18-23+
COUPLING & DIRECTIVITY



SYDC-18-23+
RETURN LOSS



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