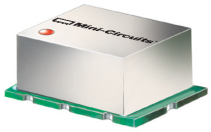
Surface Mount

Directional Coupler

SYDC-6-13HP+

50Ω 6 dB Coupling 50 to 1000 MHz 10Watt



CASE STYLE: AH202-1

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-40°C to 65°C Case*
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.

Pad Connections

INPUT	8
OUTPUT	1
COUPLED	5
EXTERNAL 50Ω	4
GROUND	2,3,6,7

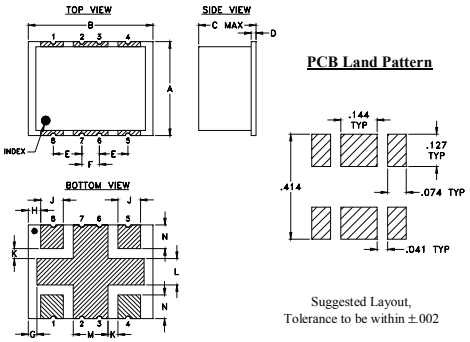
Features

- high power, 10W max.
- wideband multi-octave
- excellent coupling flatness, 0.1 dB typ.

Applications

- VHF/UHF
- signal monitoring
- communications
- military mobile

Outline Drawing

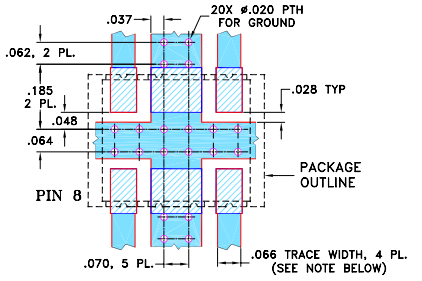


Outline Dimensions (inch / mm)

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)

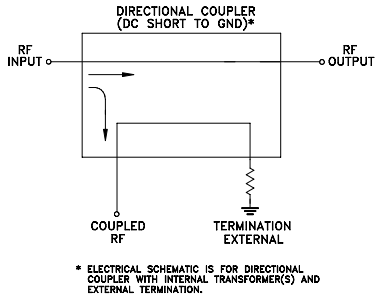
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		50		1000	MHz
Mainline Loss (above theoretical loss, 1.40 dB)	50	—	0.5	0.8	dB
	100	—	0.4	0.8	
	512	—	0.8	1.2	
	1000	—	1.5	2.0	
Coupling	50 - 1000	—	5.6	—	dB
Coupling Flatness (±)	100 - 512	—	0.1	0.4	dB
	50 - 1000	—	0.2	0.5	
Directivity	50	10	14	—	dB
	100	16	20	—	
	750	10	14	—	
	1000	8	11	—	
Return Loss (Input)	100 - 750		19	—	dB
	50 - 1000		15	—	
Return Loss (Output)	100 - 750		17	—	dB
	50 - 1000		13	—	
Return Loss (Coupling)	100 - 750		17	—	dB
	50 - 1000		13	—	
Input Power[1]	50 - 512	—	—	10	W
	512 - 1000	—	—	5	

1. The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7 to 65°C, in order to ensure proper perfomance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 6°C/W.

Electrical Schematic



Notes

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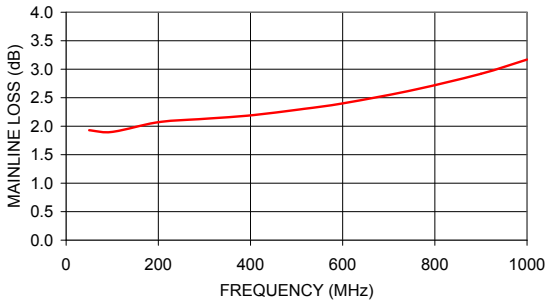
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty 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

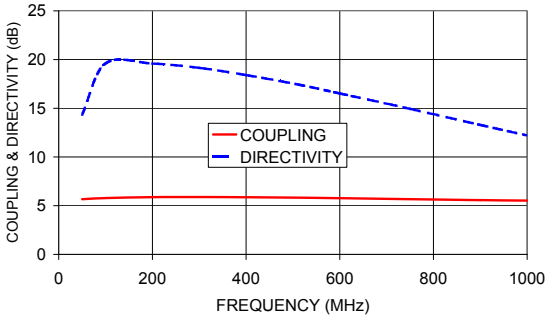
Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB) In	Return Loss (dB) Out	Return Loss (dB) Cpl
50	1.93	5.67	14.35	15.98	11.06	13.48
100	1.90	5.78	19.60	19.99	15.65	16.90
200	2.07	5.88	19.59	20.47	18.39	17.17
300	2.13	5.89	19.15	20.66	18.32	17.52
400	2.19	5.87	18.41	20.67	17.73	17.78
512	2.30	5.82	17.43	20.33	16.85	17.94
600	2.40	5.77	16.52	19.86	16.09	18.11
750	2.63	5.67	14.94	18.62	14.78	18.49
900	2.92	5.57	13.29	17.00	13.46	18.98
1000	3.17	5.52	12.21	15.81	12.56	19.22

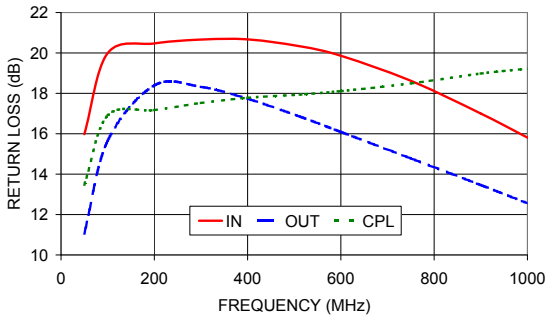
SYDC-6-13HP+
MAINLINE LOSS



SYDC-6-13HP+
COUPLING & DIRECTIVITY



SYDC-6-13HP+
RETURN LOSS



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