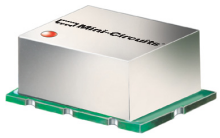
Surface Mount

Bi-Directional Coupler

SYDC-20-22HP+

50Ω 20 dB Coupling 3 to 200 MHz



CASE STYLE: AH202-1
PRICE: $34.95 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, Case	-40°C to 65°C
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 (forward)	5
COUPLED (reverse)	4
GROUND	2,3,6,7

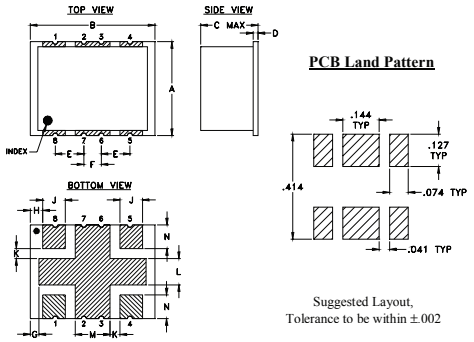
Features

- high power, 30W max.
- wideband multi-octave
- excellent VSWR, 1.10:1 typ.

Applications

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

Outline Drawing

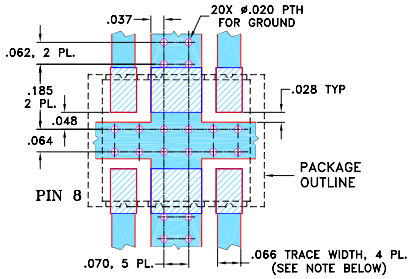


Outline Dimensions (inch / mm)

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)

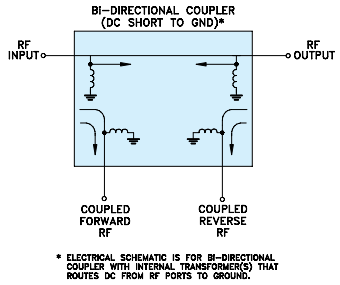
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3		200	MHz
Mainline Loss (above theoretical loss, 0.04 dB)	3	—	0.1	0.2	dB
	30	—	0.1	0.2	
	100	—	0.15	0.3	
	200	—	0.30	0.5	
Nominal Coupling	3-200	—	20.3	—	dB
Coupling Flatness (±)	3-30	—	0.2	0.4	dB
	30-100	—	0.3	0.5	
	100-200	—	0.3	0.5	
Directivity	3	16	27	—	dB
	30	20	30	—	
	100	19	24	—	
	200	11	15	—	
Return Loss (Input)	3	20	26	—	dB
	30	23	31	—	
	100	18	22	—	
	200	13	17	—	
Return Loss (Output)	3	20	27	—	dB
	30	23	31	—	
	100	15	22	—	
	200	12	16	—	
Return Loss (Coupling)	3	20	27	—	dB
	30	23	30	—	
	100	18	22	—	
	200	12	16	—	
Input Power[1]	3-30	—	—	25	W
	30-100	—	—	30	
	100-200	—	—	25	

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 8°C/W.

Electrical Schematic

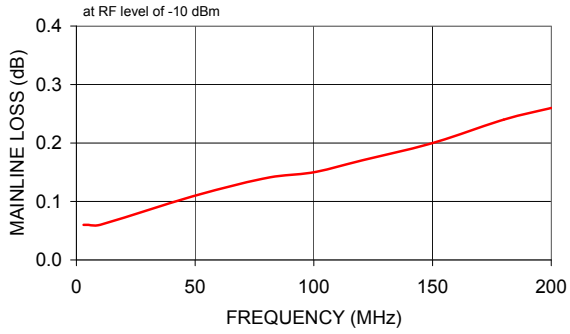


REV. A
M139158
ED-12278/4
SYDC-20-22HP+
WP/CP/AM
121016

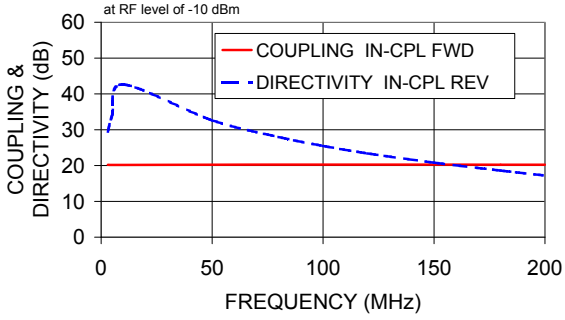
Typical Performance Data

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
3.00	0.06	20.21	20.15	29.46	29.32	26.44	26.52	26.48	26.54
5.00	0.06	20.18	20.16	34.16	33.65	30.10	30.12	29.98	30.02
10.00	0.06	20.18	20.16	42.60	38.34	33.46	33.36	32.87	32.68
50.00	0.11	20.22	20.18	32.63	34.35	28.99	28.64	27.32	27.00
80.00	0.14	20.25	20.26	27.99	28.98	25.53	25.15	23.79	23.50
100.00	0.15	20.25	20.31	25.49	26.11	23.73	23.42	21.97	21.72
120.00	0.17	20.26	20.36	23.39	23.61	22.30	21.99	20.51	20.29
150.00	0.20	20.25	20.44	20.80	20.50	20.64	20.31	18.81	18.57
180.00	0.24	20.24	20.53	18.58	17.78	19.22	18.88	17.32	17.10
200.00	0.26	20.24	20.60	17.21	16.08	18.37	18.03	16.42	16.23

SYDC-20-22HP+
MAINLINE LOSS



SYDC-20-22HP+
COUPLING & DIRECTIVITY



SYDC-20-22HP+
RETURN LOSS