

Bi-Directional Coupler

SYDC-20-22HP+

50Ω 20 dB Coupling 3 to 200 MHz

Maximum Ratings

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

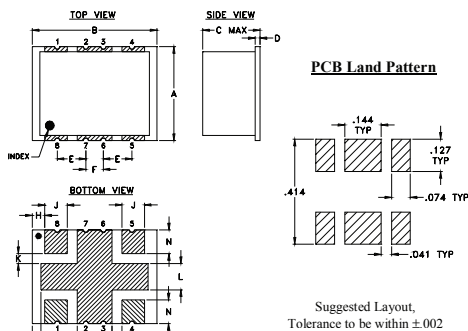
Storage Temperature -55°C to 100°C

*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

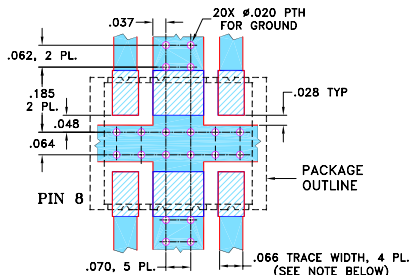
Outline Drawing



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:

- 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.
- 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

- 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-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

Features

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

Applications

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



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

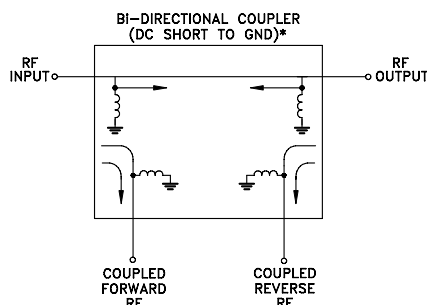
Reel Size	Devices/Reel
13"	200

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 Power¹	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 performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 8°C/W.

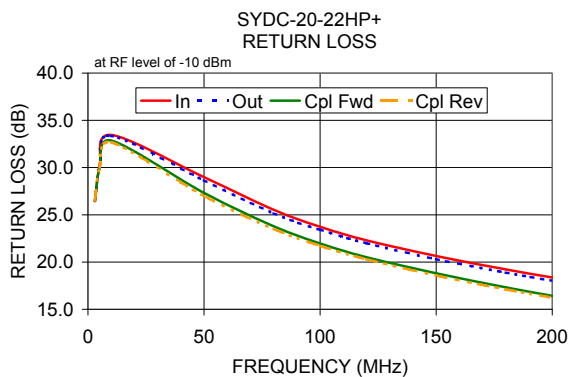
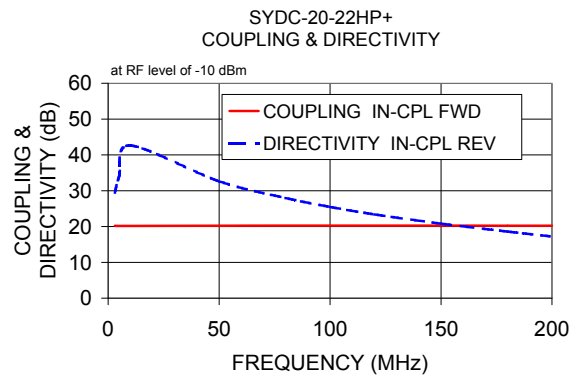
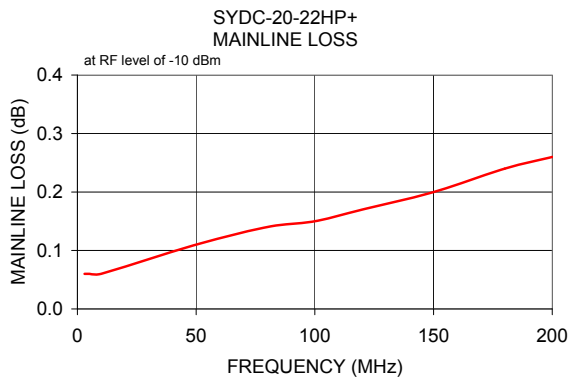
Electrical Schematic



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

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



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