



Mini-Circuits

SURFACE MOUNT

Bi-Directional Coupler

SYDC-20-22HP+

50Ω 20 dB Coupling 3 to 200 MHz 30 Watt

FEATURES

- High power, 30W max.
- Wideband multi-octave
- Excellent VSWR, 1.10:1 typ.

APPLICATIONS

- VHF/UHF reverse
- 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 website for methodologies and qualifications

ELECTRICAL SPECIFICATIONS¹ 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 ²	3-30	—	—	25	W
	30-100	—	—	30	
	100-200	—	—	25	

1. Tested on Evaluation Board TB-SYDC20-22HP+

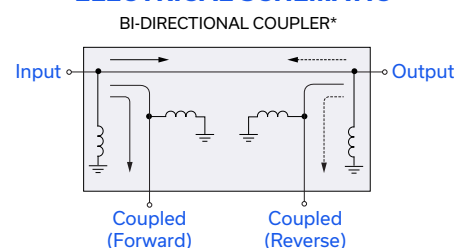
2. The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7 to 85°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 8°C/W or less when the unit is driven at maximum specified RF input power, # W. At higher ambient temperature, with the same heat sink. Input power in watts must not exceed # W x (85°C - T_{ambient})/60°C. *Where # = 25 W over 3-30 MHz & 100-200 MHz, 30 W over 30 to 100 MHz.

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°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.

ELECTRICAL SCHEMATIC



*Electrical schematic is for Bi-Directional coupler with internal transformer(s) that routes DC from all ports to ground

REV. D
ECO-015468
ED-12278/4
SYDC-20-22HP+
WP/CP/AM
240726

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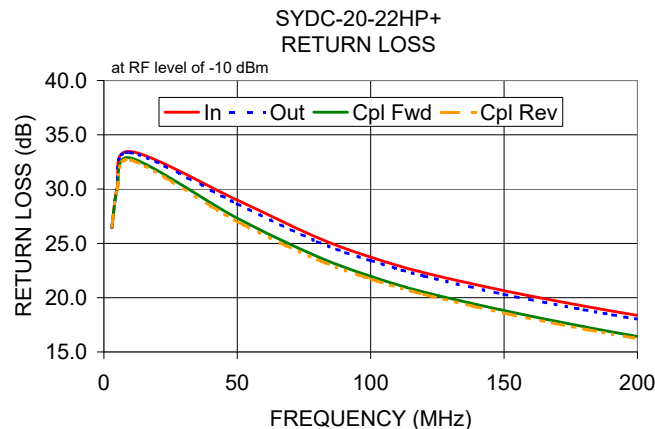
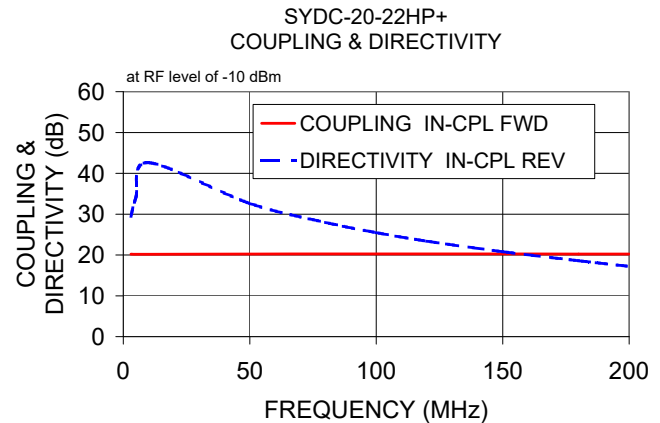
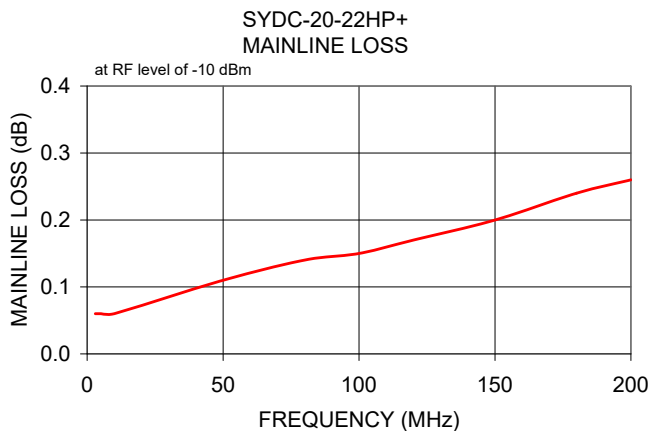
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TYPICAL PERFORMANCE DATA

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



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/terms/viewterm.html



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