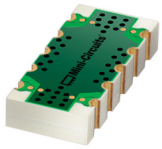
DC Pass, High Power

Bi-Directional Coupler SCBD-28-82HP+

50Ω Up to 100W 600 to 820 MHz



CASE STYLE: JB1233-1

The Big Deal

- High power handling, 100W
- Very low mainline loss, 0.1 dB
- High directivity, 23 dB
- Excellent return loss, 30 dB (input/output/coupling)

Product Overview

Mini-Circuits' SCBD-16-562HP+ surface-mount bi-directional coupler provides high-power handling up to 75W, low mainline loss and good input and output return loss over wide-band. Covering frequencies from 2700 to 5600 MHz, this model supports a wide variety of applications from cellular and ISM to defense communications and more. The coupler is designed into an open printed laminate (0.70 x 0.32 x 0.20") with wrap-around terminations for good solderability and easy visual inspection.

Key Features

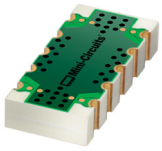
Feature	Advantages
Low mainline loss, 0.1 dB	Provides excellent through-path signal power transmission.
Good coupling flatness, 28 ±1.3 dB	SCBD-28-82HP+ provides consistent coupling performance across its full specified operating frequency range.
High directivity, 23 dB	High directivity allows accurate signal sampling through the coupled port with minimal measurement error.
Excellent return loss, 30 dB (input/output/coupling)	Provides excellent matching for 50Ω systems and minimal signal reflection.
High power handling, 100W	Usable in systems with a wide range of high-power requirements.
DC current passing up to 2A	Suitable for use in systems where DC power is needed through the RF line.

DC Pass, High Power

Bi-Directional Coupler

SCBD-28-82HP+

50Ω Up to 100W 600 to 820 MHz



CASE STYLE: JB1233-1

+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"	500

Maximum Ratings

Operating Temperature, case	-55°C to 85°C
Storage Temperature	-55°C to 100°C
DC Current	2A

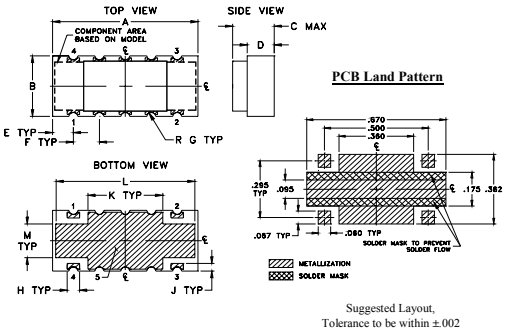
*Case temperature is defined as temperature on ground leads. Permanent damage may occur if any of these limits are exceeded.

Pad Connections

INPUT	1,2,3,4
OUTPUT	2,1,4,3
COUPLED IN	4,3,2,1
COUPLED OUT	3,4,1,2
GROUND	5

Product Marking: SCBD-01+

Outline Drawing



Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch / mm)

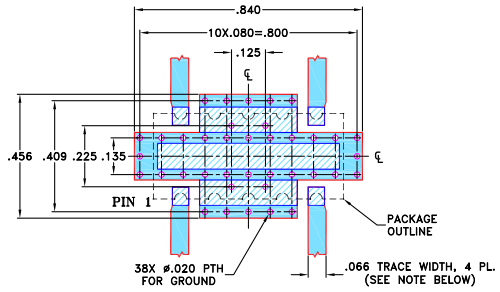
A	B	C	D	E	F	G
.70	.32	.20	.14	.100	.125	.022
17.78	8.13	5.08	3.56	2.54	3.18	0.56

H	J	K	L	M	wt
.060	.040	.360	.670	.175	grams
1.52	1.02	9.14	17.02	4.45	0.80

Demo Board MCL P/N: TB-774+

Suggested PCB Layout (PL-423)**

*** Wraparound solder on ground pins may not be shown*



NOTE: 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

Features

- wide frequency range, 600 to 820 MHz
- high directivity, 23 dB typ.
- good return loss
- high power, up to 100W
- DC current pass through input to output

Applications

- VHF / UHF
- SMR

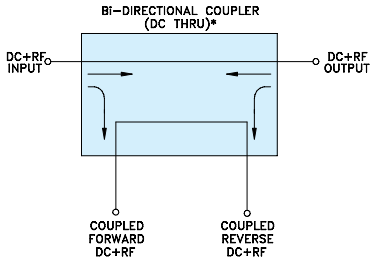
Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		600		820	MHz
Mainline Loss[1]	600-820	—	0.1	0.2	dB
Coupling	600-820	—	28.0±1.3	—	dB
Coupling Flatness (±)	600-820	—	1.3	1.6	dB
Directivity	600-820	20	23	—	dB
Return Loss (Input)	600-820	20	30	—	dB
Return Loss (Output)	600-820	20	30	—	dB
Return Loss (Coupling)	600-820	20	30	—	dB
Input Power[2] (up to +65°C case temp.)	600-820	—	—	100	W
Input Power (up to +85°C case temp.)	600-820	—	—	64	W

1. Include coupling loss.

2. At 25°C with no DC. Derate linearly to 50W at 65°C with 2A DC current.

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITHOUT INTERNAL TRANSFORMERS AND RESISTORS.

Notes

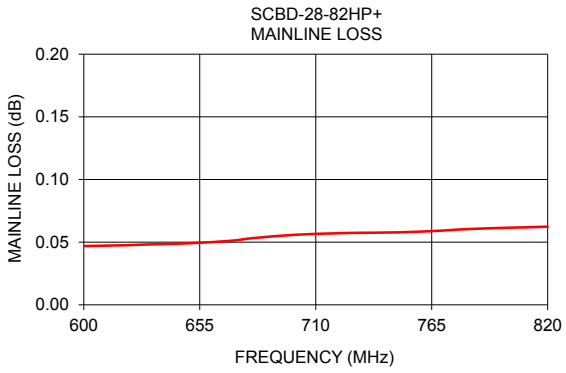
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

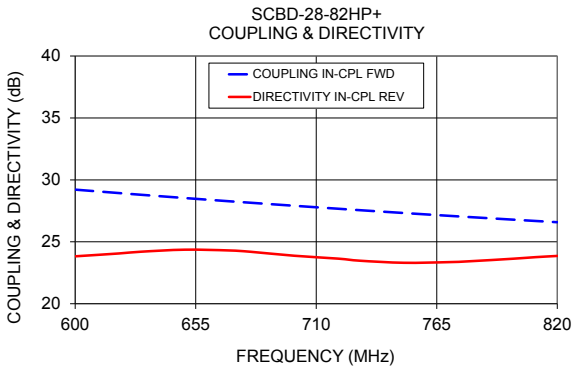
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

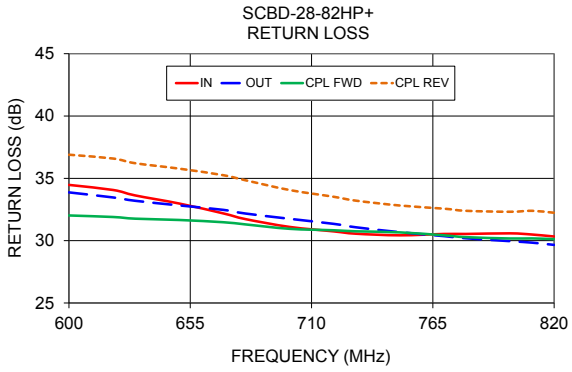
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive 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
600	0.05	29.21	29.19	23.68	23.83	34.47	33.87	32.02	36.89
620	0.05	28.93	28.91	23.78	24.06	34.07	33.47	31.90	36.59
630	0.05	28.80	28.77	23.78	24.20	33.63	33.20	31.76	36.21
650	0.05	28.53	28.51	23.82	24.37	32.98	32.83	31.66	35.78
670	0.05	28.28	28.25	23.84	24.31	32.19	32.47	31.48	35.25
680	0.05	28.15	28.13	23.80	24.20	31.73	32.18	31.31	34.85
700	0.06	27.91	27.88	23.70	23.88	31.10	31.76	30.95	34.06
720	0.06	27.67	27.64	23.61	23.64	30.75	31.35	30.84	33.52
730	0.06	27.55	27.53	23.59	23.47	30.56	31.08	30.75	33.21
750	0.06	27.32	27.30	23.52	23.31	30.43	30.68	30.67	32.82
770	0.06	27.11	27.08	23.53	23.36	30.54	30.37	30.43	32.57
780	0.06	27.00	26.97	23.56	23.43	30.54	30.19	30.28	32.40
800	0.06	26.79	26.76	23.60	23.64	30.59	29.96	30.18	32.32
810	0.06	26.68	26.66	23.66	23.76	30.49	29.84	30.18	32.40
820	0.06	26.58	26.56	23.66	23.86	30.34	29.66	30.12	32.24







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