



SURFACE MOUNT DC PASS

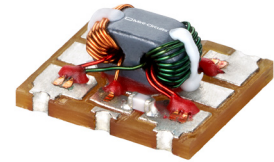
Directional Coupler

RDC20-92DC-5W+

50Ω 150 to 900 MHz 20 dB 5 Watts

KEY FEATURES

- DC Passthrough Input to Output 750 mA
- Wideband 150 to 900 MHz
- Low Mainline loss 0.5 typ at 900 MHz
- Coupling Flatness ± 0.4 dB typ.
- Good Return Loss 20 dB typ.

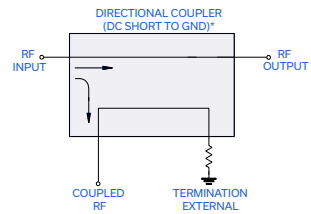


Generic photo used for illustration purposes only

APPLICATIONS

- VHF/UHF
- Cable TV
- Defense /Military
- Radio Application

ELECTRICAL SCHEMATIC



*Electrical schematic is for Directional coupler with internal transformer(s) and external termination

PRODUCT OVERVIEW

Mini-Circuits' RDC20-92DC-5W+ surface mount directional coupler provides 20 dB coupling with DC current pass from input to output. Low mainline loss and good return loss for 50 ohms applications from 150 to 900 MHz, supporting a variety of broadband applications including VHF/UHF, cellular and more. This model features core and wire construction for good solderability and easy visual inspection.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		150		900	MHz
Mainline Loss ¹	150 - 400	-	0.25	0.40	dB
	400 - 700	-	0.30	0.50	
	700 - 900	-	0.45	0.80	
Coupling Nominal	150 - 900	-	20 \pm 1	-	dB
Coupling Flatness (\pm)	150 - 400	-	-	1	dB
	400 - 700	-	-	1	
	700 - 900	-	-	1	
Directivity	150 - 400	20	-	-	dB
	400 - 700	18	-	-	
	700 - 900	15	-	-	
Return Loss (Input)	150 - 900	17.7	24	-	dB
Return Loss (Output)	150 - 900	17.7	24	-	dB
Return Loss (Coupled)	150 - 900	17.7	21	-	dB
Input Power	150 - 900	-	-	5	W
DC Voltage	150 - 900	-	28	36	V
DC Current	150 - 900	-	-	750	mA

1. Mainline Loss includes coupling loss.

ABSOLUTE MAXIMUM RATINGS²

Operating Case Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C
Input Power	5 W
DC Current	750 mA

2. Permanent damage may occur if any of these limits are exceeded.





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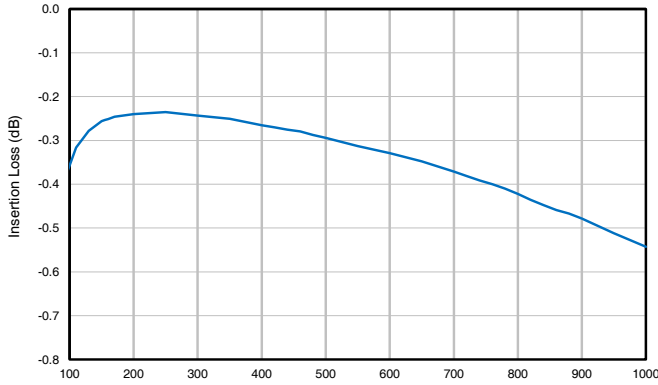
RDC20-92DC-5W+

Mini-Circuits

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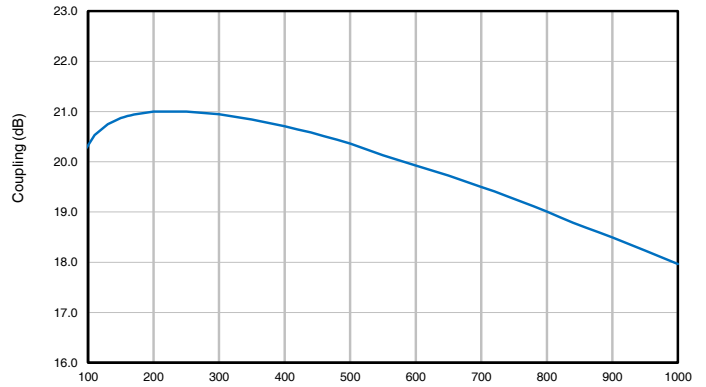
TYPICAL PERFORMANCE GRAPHS

INSERTION LOSS



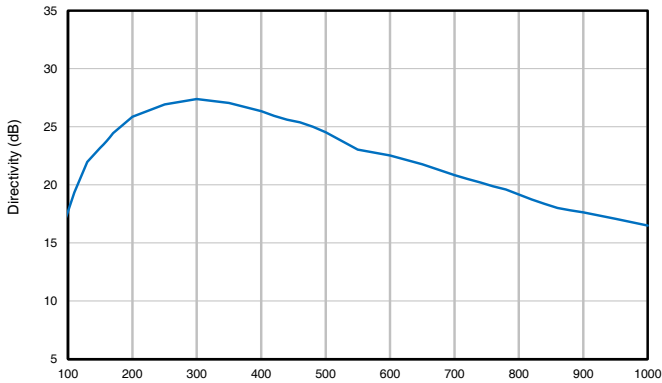
Frequency (GHz)

COUPLING



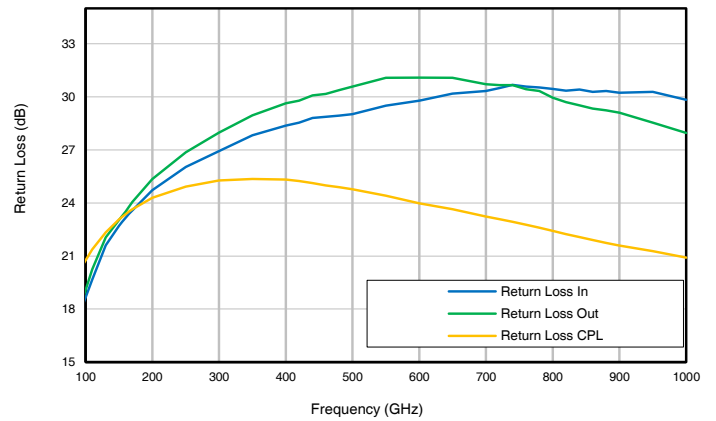
Frequency (GHz)

DIRECTIVITY



Frequency (GHz)

RETURN LOSS



Frequency (GHz)



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ELECTRICAL SCHEMATIC

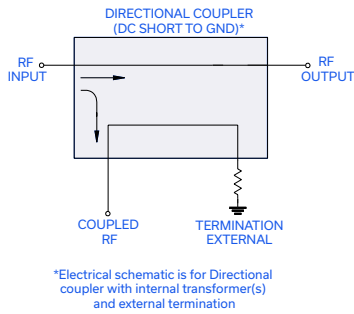
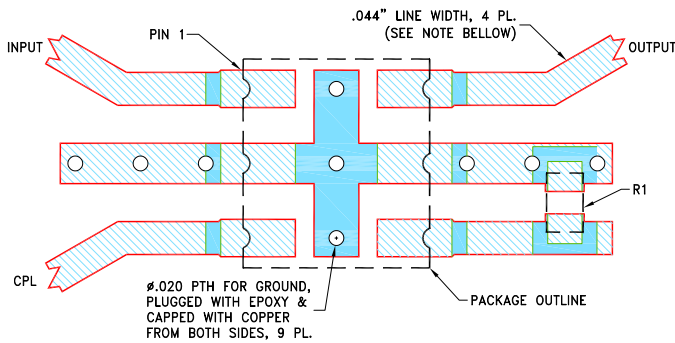


Figure 1. RDC20-92DC-5W+ Electrical Schematic

PAD DESCRIPTION/CONFIGURATION

Function	Pad Number	Description
Input RF+DC	1	Connects to RF Input Port
Output RF+DC	6	Connects to RF Output Port
Coupled RF	3	Connects to Coupled Port
Ground	2	Connects to Ground
50 Ohm Term	4	Connects to external 50 ohm
Isolate (Do not use)	5	

SUGGESTED PCB LAYOUT (PL-786)



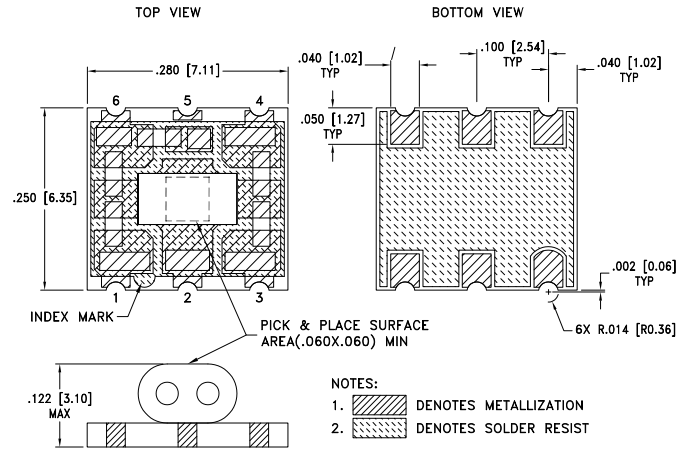
COMPONENT	SIZE
R1	0805

NOTES:

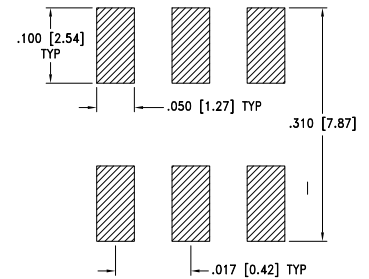
- LINE WIDTH IS SHOWN FOR ROGERS R04350B, DIELECTRIC THICKNESS: .020±.0015"; COPPER: 1/2 Oz EACH SIDE. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
 - CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-RDC2092DC5W+.
 - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout PL-786

CASE STYLE DRAWING



PCB Land Pattern



Weight: 472 grams
 Dimensions are in inches [mm].
 Tolerances: 2 Pl.±.01; 3 Pl. ±.005 Inch

SUGGESTED LAYOUT FOR PC PATTERN
 TOLERANCE TO BE WITHIN ±.002

PRODUCT MARKING*: N/A

*Marking may contain other features or characters for internal lot control.



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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD.

[CLICK HERE](#)

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	TT1491-10 Lead Finish: 3-5 μ inch (.08-.13 μm)
RoHS Status	Compliant
Tape and Reel	F2
Suggested Layout for PCB Design	PL-786
Evaluation Board	TB-RDC2092DC5W+ Gerber File
Environmental Rating	ENV02T1

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.
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