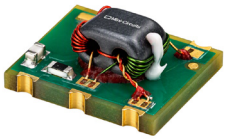
SURFACE MOUNT

Bi-Directional Coupler RBDC9-182-75LR+

75Ω 5 to 1800 MHz 9 dB Coupling

KEY FEATURES

- Low Mainline Loss, 1.6 dB Typ. at 1800 MHz
- Good Return Loss, 24 dB Typ. at Input
- Excellent Isolation between In-CPLR 40 dB Typ. in the Range 100 - 684 MHz
- Supports DOCSIS® 4.0 Systems



Generic photo used for illustration purposes only

APPLICATIONS

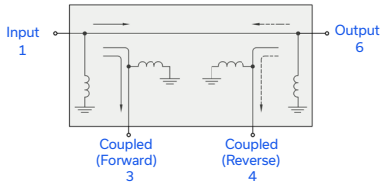
- DOCSIS® 4.0
- Cable TV

PRODUCT OVERVIEW

Mini-Circuits' RBDC9-182-75LR+ surface-mount bi-directional coupler provides 9 dB coupling with low mainline loss, high isolation between In-CPLR ports, and good return loss for 75 ohms applications from 5 to 1800 MHz, supporting a variety of broadband applications including DOCSIS® 4.0 systems and equipment. This model features core and wire construction is good for solderability and easy visual inspection.

FUNCTIONAL DIAGRAM

BI-DIRECTIONAL COUPLER*



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

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		5		1800	MHz
Insertion Loss (Input-Output)	5 - 684 684 - 1218 1218 - 1800	— — —	1.4 1.5 1.6	1.8 1.9 2.1	dB
Insertion Loss (CPLF-CPLR)	5 - 684 684 - 1218 1218 - 1800	— — —	2.0 2.9 4.5	2.7 — —	dB
Coupling, Nominal	5 - 684 684 - 1800	— —	9.5±0.8 9.5±1.0	— —	dB
Coupling Flatness (±)	5 - 684 684 - 1800	— —	0.15 0.8	0.8 1.5	dB
Isolation (Input-CPLR)	5 - 100 100 - 684 684 - 1218 1218 - 1800	32 35 25 18	35 40 30 24	— — — —	dB
Isolation (Output-CPLF)	5 - 684	18	23	—	dB
Return Loss (Input)	5 - 684 684 - 1218 1218 - 1800	18 17 16.5	24 23 22	— — —	dB
Return Loss (Output)	5 - 684 684 - 1218 1218 - 1800	14.5 16.5 14	18 22 21	— — —	dB
Return Loss (Coupling)	5 - 684 684 - 1800	— —	18 10	— —	dB

ABSOLUTE MAXIMUM RATINGS[1]

Operating Case Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power	1 W

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

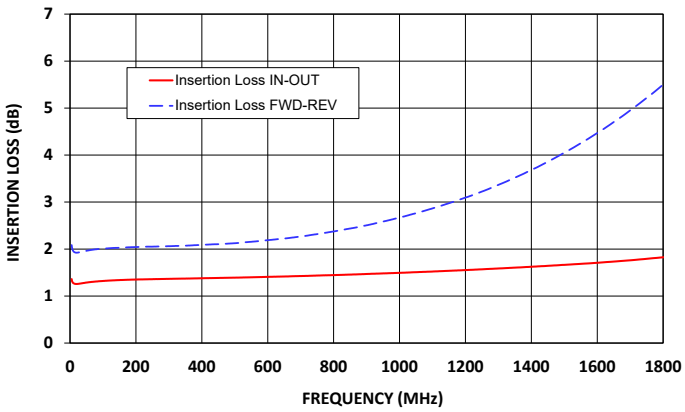
REV.OR
ECO-031318
RBDC9-182-75LR+
EDU5485
MCINU
260917

Bi-Directional Coupler RBDC9-182-75LR+

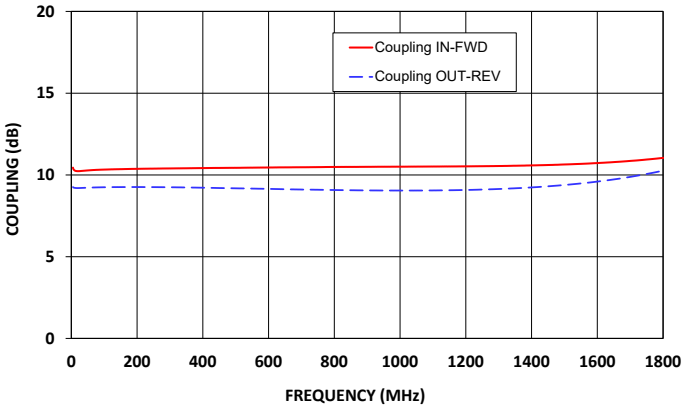
75Ω 5 to 1800 MHz 9 dB Coupling

TYPICAL PERFORMANCE GRAPHS AT +25°C

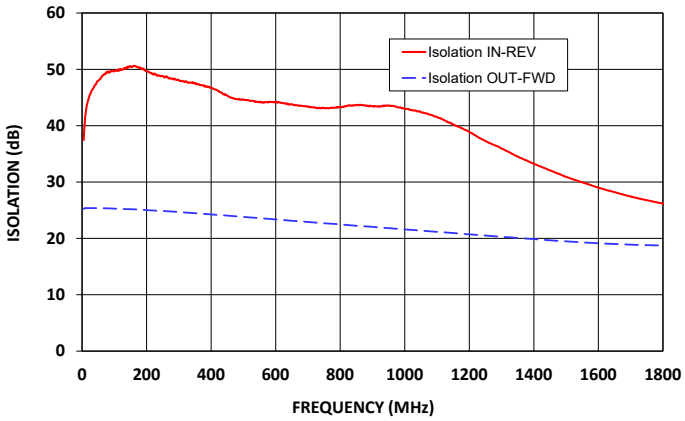
INSERTION LOSS



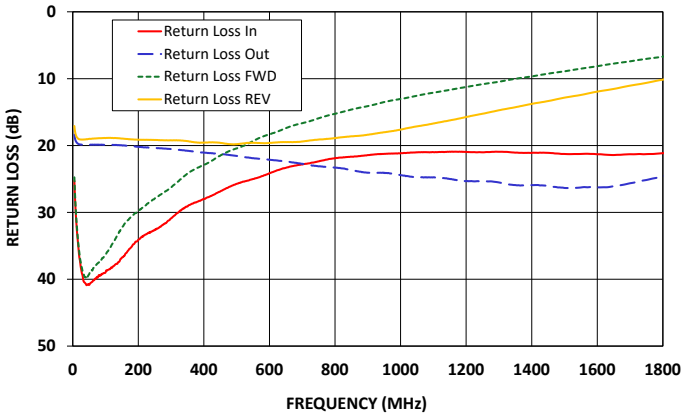
COUPLING



ISOLATION



RETURN LOSS



SURFACE MOUNT

Bi-Directional Coupler RBDC9-182-75LR+

75Ω 5 to 1800 MHz 9 dB Coupling

FUNCTIONAL DIAGRAM

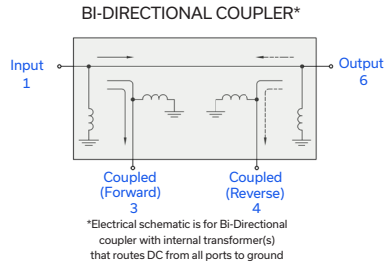
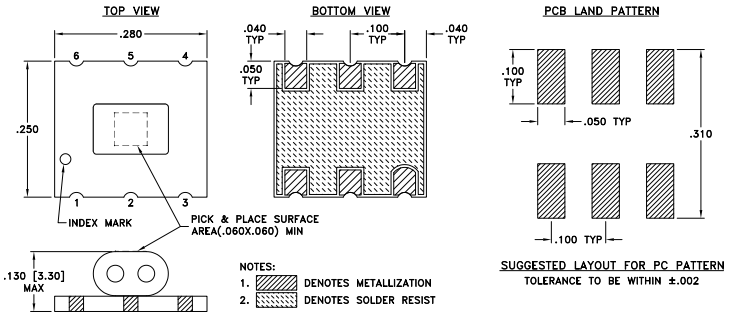


Figure 1. RBDC9-182-75LR+ Functional Diagram

CASE STYLE DRAWING



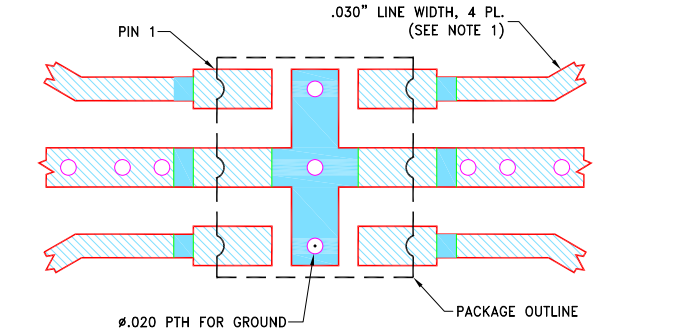
WEIGHT: .361 grams

DIMENSIONS ARE IN INCHES [MM]. TOLERANCES: 2PL.±.01; 3PL.±.005 INCH

PAD DESCRIPTION/CONFIGURATION

Function	Pad Number	Description
Input	1	Connects to RF Input Port
Output	6	Connects to RF Output Port
CPL F	3	Connects to Coupled Port
CPL R	4	
Ground	2,5	Connects to Ground

SUGGESTED PCB LAYOUT (PL-795)



NOTES:
1. LINE WIDTH IS SHOWN FOR ROGERS RO4350B, DIELECTRIC THICKNESS: .030±.002";
   COPPER: 1/2 Oz EACH SIDE. FOR OTHER MATERIALS LINE 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.

Figure 2. Suggested PCB Layout PL-795

PRODUCT MARKING*: N/A

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

SURFACE MOUNT

Bi-Directional Coupler RBDC9-182-75LR+

75Ω 5 to 1800 MHz 9 dB Coupling

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	TT1491-8 Lead Finish: Gold over Nickel Plate
RoHS Status	Compliant
Tape and Reel	F34
Suggested Layout for PCB Design	PL-795
Evaluation Board	TB-RBDC918275LR
	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-Circuits' 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