SURFACE MOUNT

Directional Coupler RDC16-182-75R+

75Ω 5 to 1800 MHz 16 dB Coupling Great Flatness

KEY FEATURES

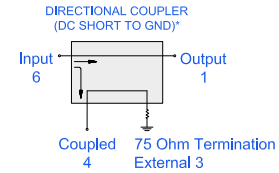
- Low Mainline Loss 0.8 dB Typ.
- Good Return Loss 20 dB Typ. up to 1800 MHz
- Great Coupling Flatness, ±0.3 dB Typ.

APPLICATIONS

- CATV / Broadband
- DOCSIS 4.0

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



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

PRODUCT OVERVIEW

Mini-Circuits' RDC16-182-75R+ surface mount directional coupler provides 17 dB coupling with low mainline loss and excellent coupling flatness for 75Ω applications from 5 to 1800 MHz. This model features a core and wire design with an all welded construction.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		5		1800	MHz
Mainline Loss[1] (In-Out)	5 - 1225	—	0.8	1.5	dB
	1225 - 1800	—	1.0	1.6	
Coupling, Nominal	5 - 1225	—	16.5±0.8	—	dB
	1225 - 1800	—	16.3±0.5	—	
Coupling Flatness	5 - 1225	—	±0.5	±0.9	dB
	1225 - 1800	—	±0.3	±0.8	
Isolation (Out-CPL)	5 - 684	32	37	—	dB
	684 - 1225	26	30	—	
	1225 - 1800	23	27	—	
Return Loss (Input)	5 - 1225	—	18	—	dB
	1225 - 1800	—	20	—	
Return Loss (Output)	5 - 1225	—	19	—	dB
	1225 - 1800	—	20	—	
Return Loss (Coupled)	5 - 1225	—	18	—	dB
	1225 - 1800	—	20	—	

1. Mainline Loss includes coupling loss.

ABSOLUTE MAXIMUM RATINGS[2]

Operating Case Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power[3]	2 W Max. at +25°C

2. Permanent damage may occur if any of these limits are exceeded.
3. Derate linearly to 0.1 W at 85°C ambient.

REV.OR
ECO-030128
RDC16-182-75R+
EDU5334
MCINU
260612

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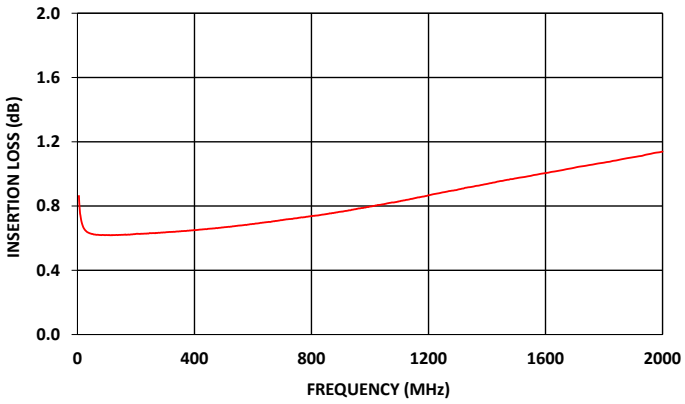
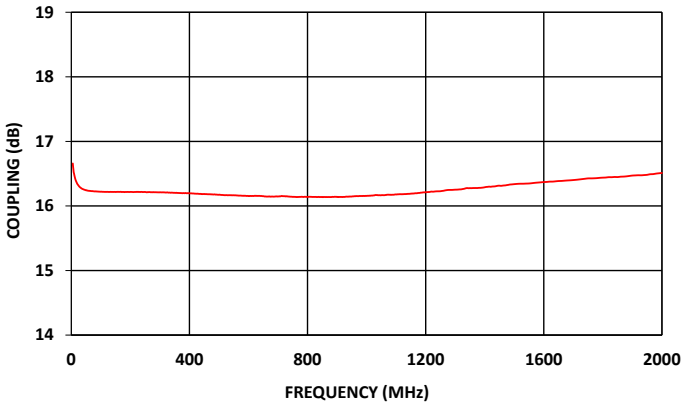
TYPICAL PERFORMANCE GRAPHS AT +25°C

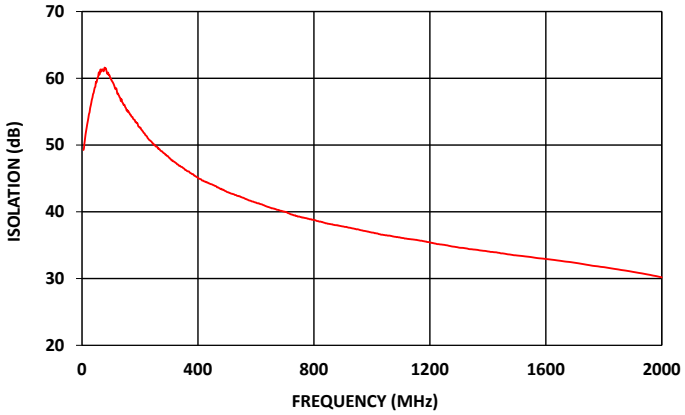
INSERTION LOSS



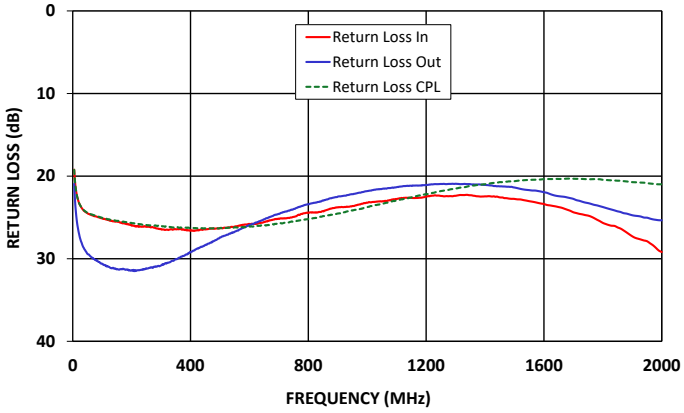
COUPLING



ISOLATION



RETURN LOSS



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FUNCTIONAL DIAGRAM

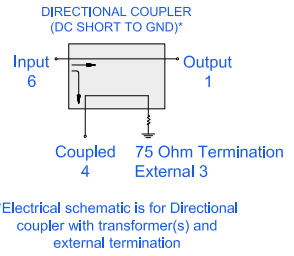
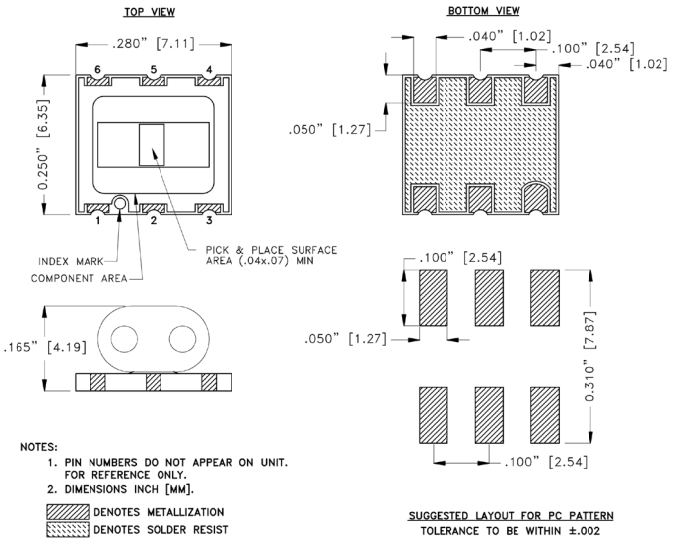


Figure 1. RDC16-182-75R+ Functional Diagram

PAD DESCRIPTION/CONFIGURATION

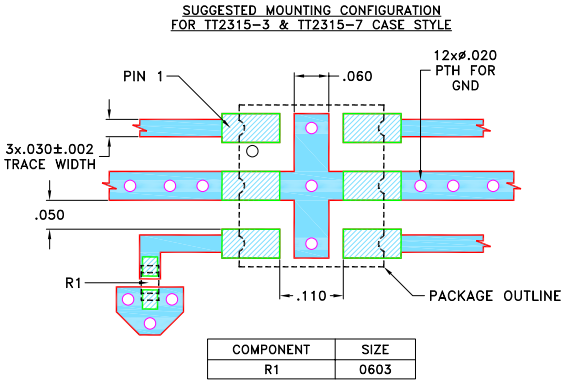
Function	Pad Number	Description
Input	6	Connects to RF Input Port
Output	1	Connects to RF Output Port
Coupled	4	Connects to Coupled Port
Ground	2,5	Connects to Ground
75 Ohm Termination External	3	Connects to External 75 Ohm

CASE STYLE DRAWING



Weight: 0.2 gram
Dimensions are in inches (mm). Tolerances: 2Pl. ± .01[.25]; 3Pl. ± .005[.127]

SUGGESTED PCB LAYOUT (PL-852)



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS ø.030±.002; COPPER: 1/2 Oz ON EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. CHIP COMPONENT FOOT PRINT SHOWN FOR REFERENCE. FOR COMPONENT VALUE REFER TO INDIVIDUAL MODEL EVALUATION BOARD.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Figure 2. Suggested PCB Layout PL-852

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 (S3P Files) Data Set (.zip file) De-embedded to device pads
Case Style	TT2315-3 Lead Finish: Gold over Nickel Plate
RoHS Status	Compliant
Tape and Reel	F34
Suggested Layout for PCB Design	PL-852
Evaluation Board	TB-RDC1618275R+
	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