



LUMPED LC SURFACE MOUNT

Diplexer

RDP-6500+

Mini-Circuits

50Ω

DC to 6500 MHz (DC-100, 1400-6500 MHz)

KEY FEATURES

- Low Insertion Loss, 1.5 dB Typ.
- Good Stopband Rejection, 40 dB Typ.
- Miniature Shielded Package

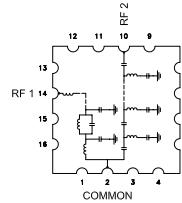


Generic photo used for illustration purposes only

APPLICATIONS

- Military Radio Communication
- Transmitter and Receiver
- Wireless Communication Systems

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

RDP-6500+ is a lowpass + highpass diplexer. Lowpass port is designed for DC to 100 MHz and highpass port is designed for 1400 to 6500 MHz. The low pass channel offers a very good rejection and the high pass channel works for a broad frequency band until 6500 MHz offering low insertion loss. This diplexer can be used in military radio communication systems.

ELECTRICAL SPECIFICATIONS^{1,2} AT +25°C

Parameter		Function (Port)	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass (RF COM-RF1)	DC - 100	—	0.5	1	dB
		High Pass (RF COM-RF2)	1400 - 3500	—	0.3	1	
			3500 - 4400	—	0.5	1.2	
			4400 - 6500	—	1.5	3	
	Return Loss	Low Pass (RF1)	DC - 100	14	21	—	dB
		High Pass (RF2)	1400-3000	14	20	—	
			3000-4400	10	17	—	
			4400-6500	—	8	—	
Stop Band Rejection	Low Pass (RF COM-RF1)	DC-100	14	21	—	—	dB
		1400 - 3000	14	20	—	—	
		3000 - 4400	10	17	—	—	
		4400 - 6500	—	8	—	—	
	High Pass (RF COM-RF2)	DC-100	60	75	—	—	

1. Tested in Evaluation Board P/N TB-RDP-6500+.

2. Bi-Directional. See S-Parameters for actual performance.

ABSOLUTE MAXIMUM RATINGS³

Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power (RF COM)	1.5 W
Input Power (RF1)	1.5 W
Input Power (RF2)	1.5 W

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

 REV. A
 ECO-026123
 RDP-6500+
 EDU3099
 URJ
 250619
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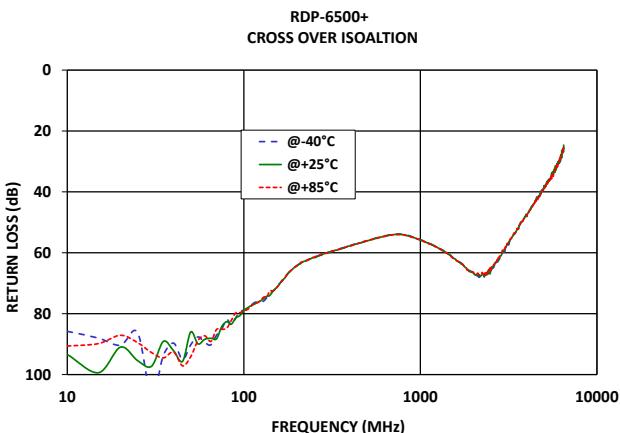
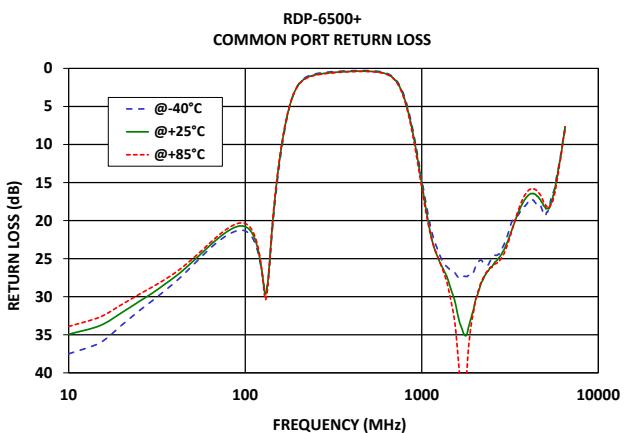
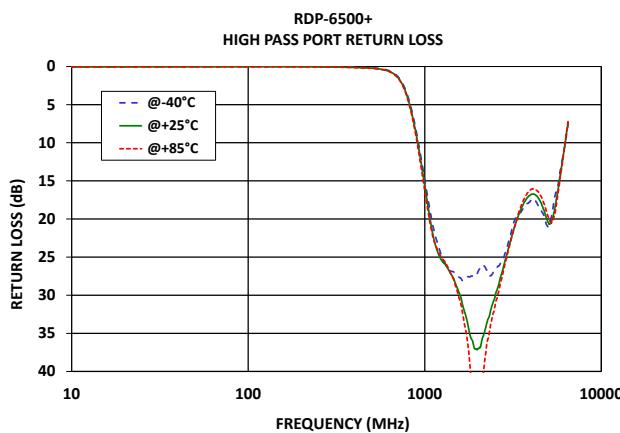
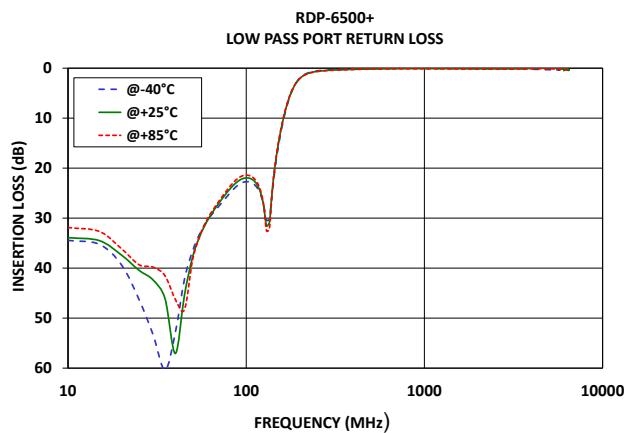
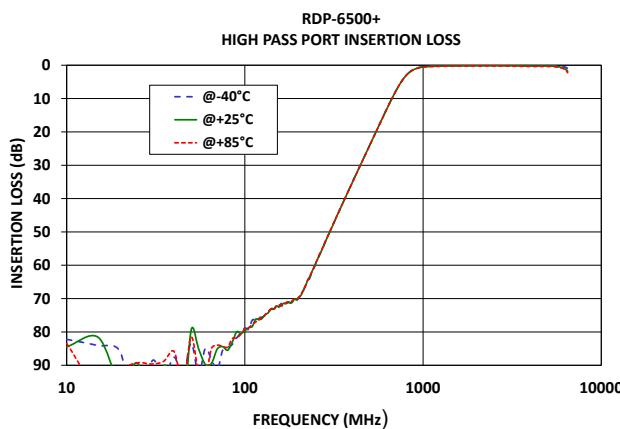
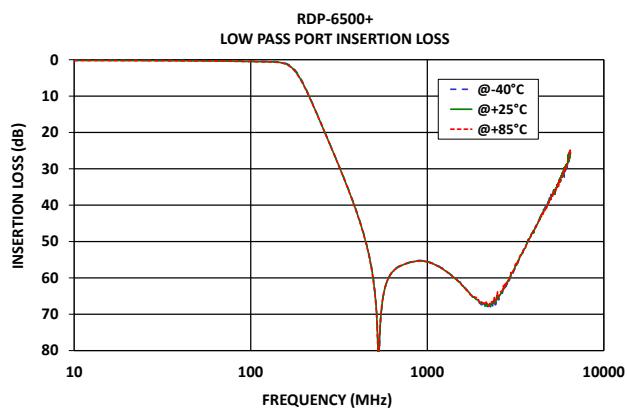
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TYPICAL PERFORMANCE GRAPHS



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FUNCTIONAL DIAGRAM

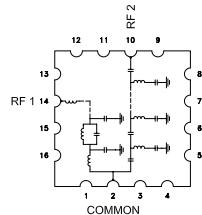
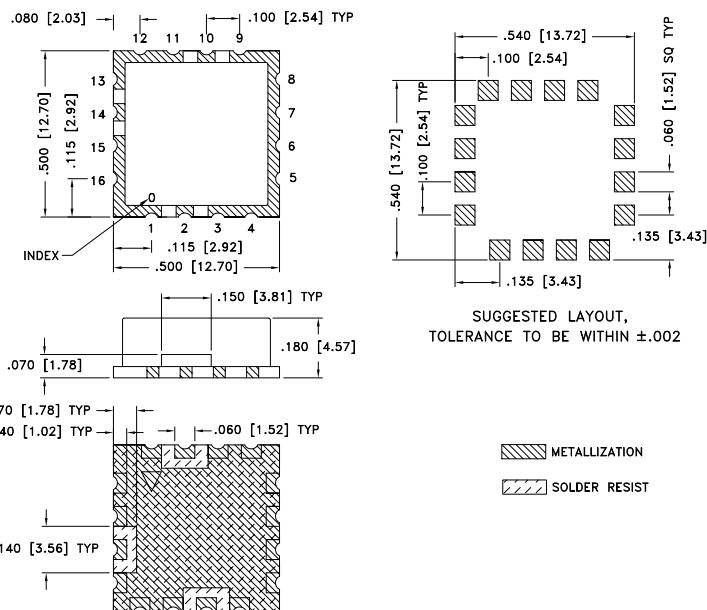


Figure 1. RDP-6500+ Functional Diagram

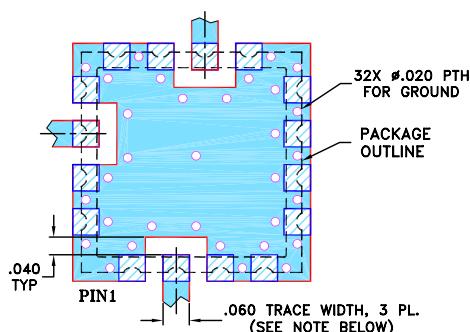
PAD DESCRIPTION

Port	Pad Number	Description
COMMON	2	Connects to Common Port
RF1 ²	14	Connects to Low Pass Port
RF2 ²	10	Connects to High Pass Port
GROUND	1,3-9,11-13,15,16	Connects to Ground on PCB, (See drawing PL-012)
NC	—	No connection, not used internally. See drawing PL-012 for connection to PCB

CASE STYLE DRAWING



SUGGESTED PCB LAYOUT (PL-012)



NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS $.030" \pm .002"$; 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

Figure 2. Suggested PCB Layout PL-012

Weight: 1.2 gram

Dimensions are in inches (mm). Tolerances: 2PI. $\pm .03$; 3PI. $\pm .015$

PRODUCT MARKING*: RDP-6500

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



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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD.

[CLICK HERE](#)

Performance Data & Graphs	Data Graphs S-Parameter (S3P Files) Data Set (.zip file) De-embedded to device pads
Case Style	CK605 Lead Finish: Gold over Nickel Plate
RoHS Status	Compliant
Tape and Reel	TR-F37
Suggested Layout for PCB Design	PL-012
Evaluation Board	TB-RDP-6500+ 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