



## COAXIAL

# Positive Gain Slope Amplifier **ZX60-R5183P+**

50Ω 0.5 to 18 GHz SMA Female

### KEY FEATURES

- Ultra Wideband, 0.5 to 18 GHz
- Low Noise Figure, 4.5 dB typ, 5 to 18 GHz
- Positive Gain Slope, 3 dB, typ., 0.5 to 18 GHz
- Protected by US patent 6,790,049

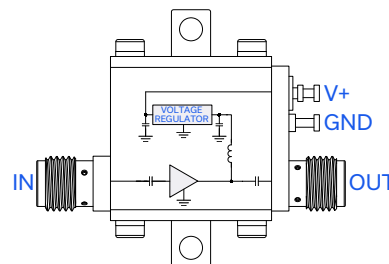


Generic photo used for illustration purposes only

### APPLICATIONS

- Microwave point to point radios
- Satellite Communication
- Military EW and Radar
- C-band Satcom

### FUNCTIONAL DIAGRAM



### PRODUCT OVERVIEW

Mini-Circuits' ZX60-R5183P+ is a wideband, positive gain slope, connectorized amplifier, providing a unique combination of low noise figure and positive gain slope, over a very wide frequency range. It supports a wide range of sensitive, high-dynamic range receiver applications and many systems where high performance over wideband is needed. This design operates on a single +5 V supply and comes in a rugged, compact unibody case (0.74 x 0.75 x 0.46") with SMA connectors, making it an excellent candidate for tough operating conditions and crowded system layouts.

### ELECTRICAL SPECIFICATIONS AT +25°C AND +5V, UNLESS NOTED OTHERWISE

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		0.5		18.0	GHz
Gain	0.5 - 5	-	6.5		dB
	5 - 10	5.0	7.1		
	10 - 13	5.2	8.2		
	13 - 15	6.0	8.8		
	15 - 18	-	9.5		
Input Return Loss	0.5 - 5		12.0		dB
	5 - 10		10.8		
	10 - 13		9.8		
	13 - 15		12.5		
	15 - 18		12.2		
Output Return Loss	0.5 - 5		10.2		dB
	5 - 10		6.2		
	10 - 13		9.5		
	13 - 15		10.6		
	15 - 18		11.2		
Output Power at 1 dB Compression (P1dB)	0.5 - 5		+10.2		dBm
	5 - 10		+10.6		
	10 - 13		+11.0		
	13 - 15		+10.8		
	15 - 18		+11.5		
Output Third Order Intercept Point (OIP3)	0.5 - 5		+23.5		dBm
	5 - 10		+20.5		
	10 - 13		+19.2		
	13 - 15		+18.6		
	15 - 18		+17.5		
Noise Figure	0.5 - 5		6.1		dB
	5 - 10		4.2		
	10 - 13		4.5		
	13 - 15		4.2		
	15 - 18		4.5		
Device Operating Voltage (V <sub>DD</sub> )		+4.8	+5.0	+5.2	V
Device Operating Current (I <sub>DD</sub> )			48	68	mA





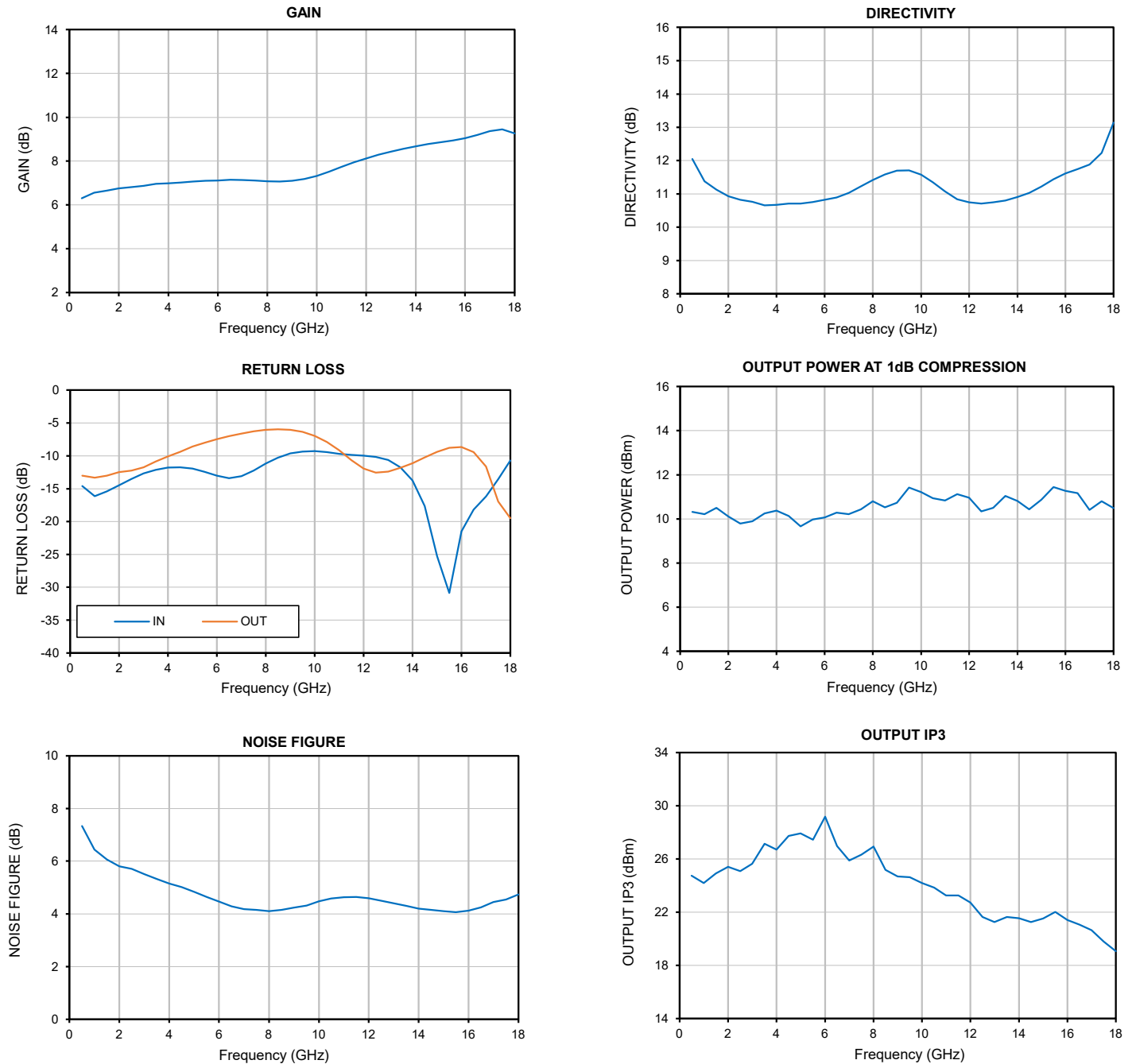
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## TYPICAL PERFORMANCE GRAPHS





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### ABSOLUTE MAXIMUM RATINGS<sup>3</sup>

Parameter	Ratings
Operating Temperature	-40°C to +85 °C
Storage Temperature	-55 °C to +100 °C
Total Power Dissipation	0.8 W
RF Input Power (CW)	+22 dBm (5 minutes, max.) +13 dBm (continuous)
DC Operating Voltage	+8.5 V

3. Continuous operation is not recommended at these extremes. Permanent damage may occur if any of these limits are exceeded.

### DETERMINING MAXIMUM THERMAL RESISTANCE OF USERS' EXTERNAL HEAT SINK

$\text{MAXIMUM THERMAL RESISTANCE} = \frac{\text{MAXIMUM OPERATING CASE TEMP} - \text{MAXIMUM USER AMBIENT TEMP}}{\text{POWER DISSIPATION}}$	
<b>Example:</b>	MAXIMUM OPERATING CASE TEMP = +50 °C (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) MAXIMUM USER AMBIENT TEMP = +30 °C (USER DEFINED) POWER DISSIPATION = 10 WATTS (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) THEN MAXIMUM ALLOWABLE THERMAL RESISTANCE = 2 °C/W



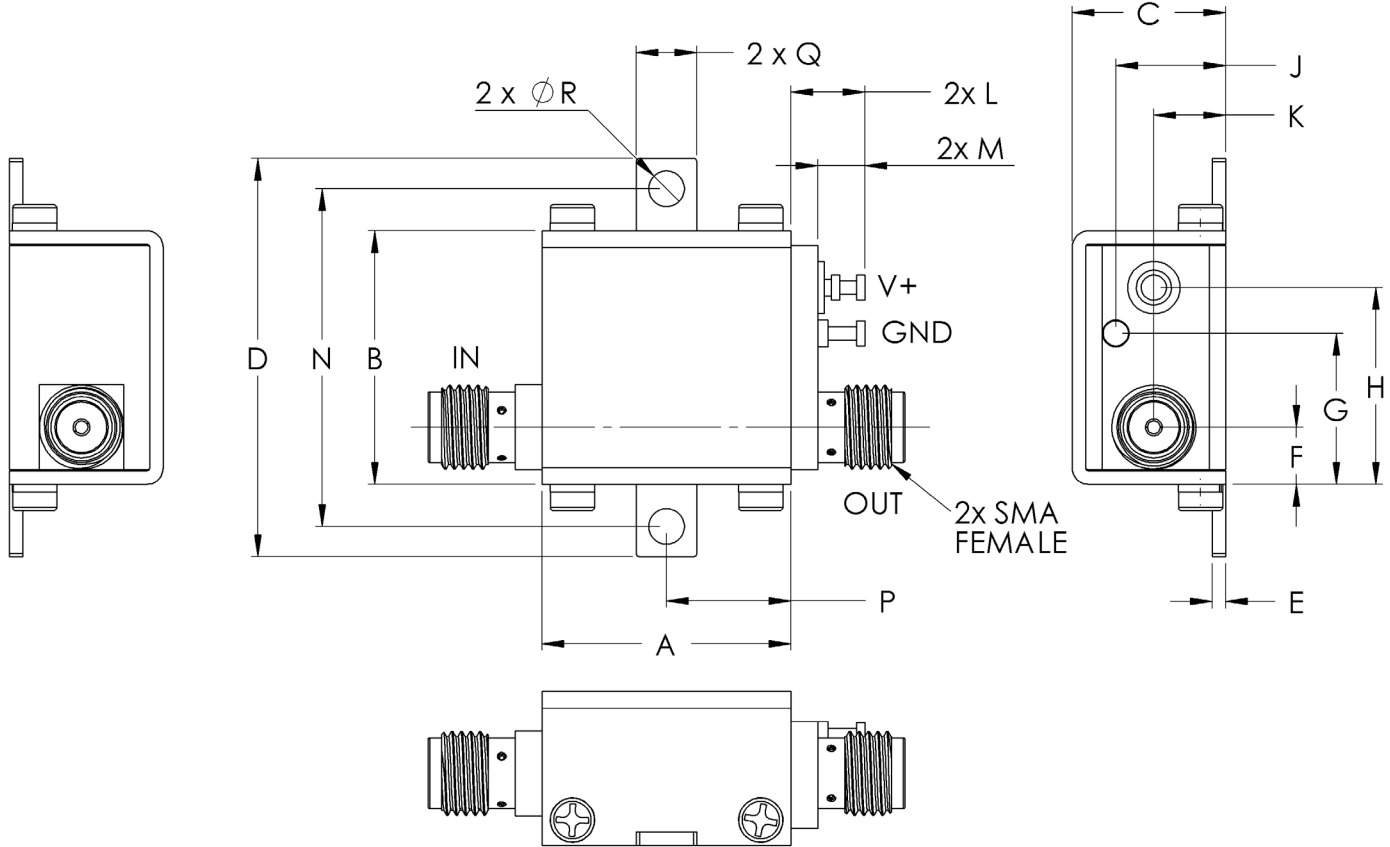


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## CASE STYLE DRAWING



## OUTLINE DIMENSIONS (inch mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	wt
.74	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.14	1.00	.37	.18	.106	grams
18.80	19.1	11.68	30.0	1.02	4.32	11.4	14.99	8.38	5.33	5.59	3.56	25.40	9.40	4.57	2.69	23.0





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## ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD.

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
RoHs Status	Compliant
Environmental Ratings	ENV23T10

## ORDERING INFORMATION

Model No. Links	<a href="#">ZX60-R5183P+</a>
Case Style	GC957
Connector	IN SMA/Female / OUT SMA/Female

### 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)



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