COAXIAL

Low Noise Amplifier

ZX60-06183P+

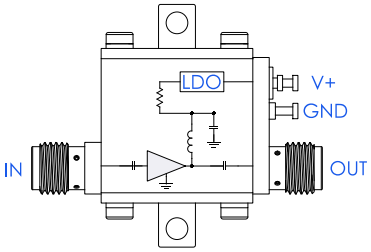
50Ω 6 to 18 GHz Positive Gain Slope SMA Female

KEY FEATURES

- Wideband, 6 to 18 GHz
- High gain, 24 dB typ.
- Low noise figure, 1.7 dB typ at 15 GHz.
- Voltage regulated internally and reverse voltage protected
- Excellent directivity, 30 dB typ.

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



APPLICATIONS

- Microwave point to point radios
- Military EW and radar
- Satellite Systems

PRODUCT OVERVIEW

Mini-Circuits' ZX60-06183P+ is a wideband, low noise, connectorized amplifier, providing a unique combination of low noise figure and high gain over a very wide frequency range. It supports a wide range of applications and many systems where high performance over wideband is needed. This design operates on a single +5V 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

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		6		18	GHz
Noise Figure	6-8	—	1.6	—	dB
	8-13	—	1.6	—	
	13-17	—	1.6	—	
	17-18	—	1.8	—	
Gain	6-8	—	24	—	dB
	8-13	—	24	—	
	13-17	—	25	—	
	17-18	—	27	—	
Input Return Loss	6-8	—	8	—	dB
	8-13	—	13	—	
	13-17	—	11	—	
	17-18	—	6	—	
Output Return Loss	6-8	—	9	—	dB
	8-13	—	17	—	
	13-17	—	12	—	
	17-18	—	10	—	
Output Power at 1dB Compression (P1dB) [1]	6-8	—	+8.0	—	dBm
	8-13	—	+6.5	—	
	13-17	—	+8.0	—	
	17-18	—	+9.0	—	
Output Third Order Intercept Point (OIP3)[2]	6-8	—	+19	—	dBm
	8-13	—	+16.5	—	
	13-17	—	18.5	—	
	17-18	—	+21.0	—	
Device Operating Voltage (V_{DD})	—	+4.75	+5.0	+10	V
Device Operating Current (I_{DD})	—	—	56	75	mA

1. Current increases at P1dB
2. OIP3 measured with 0 dBm tones and 1 MHz spacing.

REV. A
ECO-020150
ZX60-06183P+
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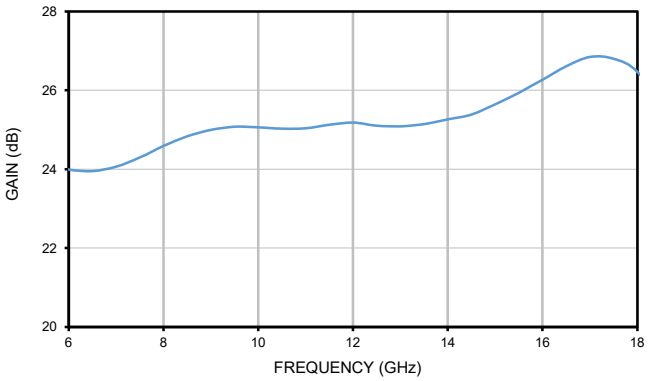
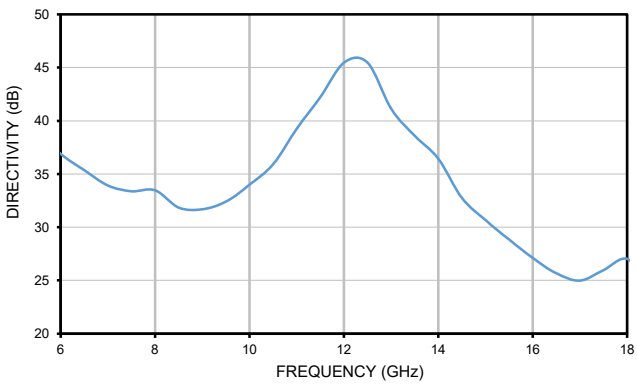
TYPICAL PERFORMANCE GRAPHS

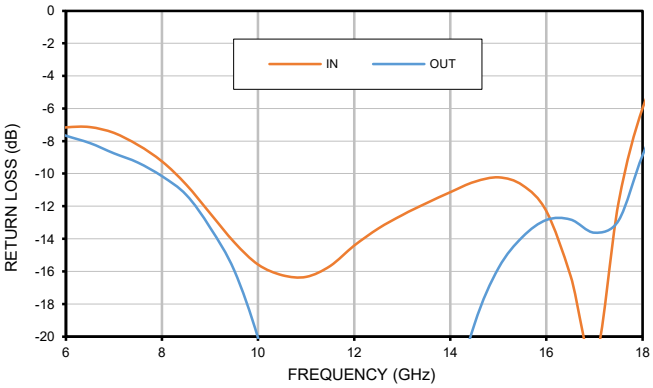
GAIN



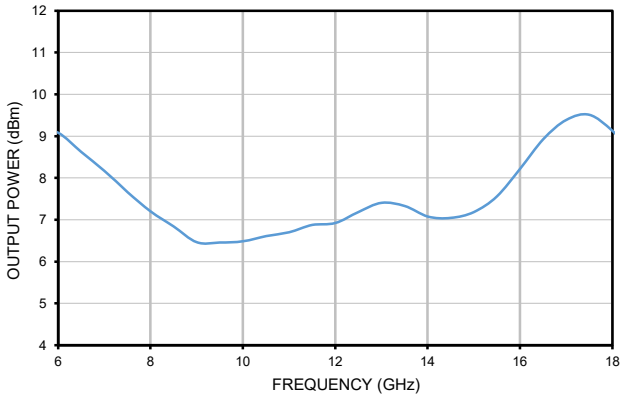
DIRECTIVITY



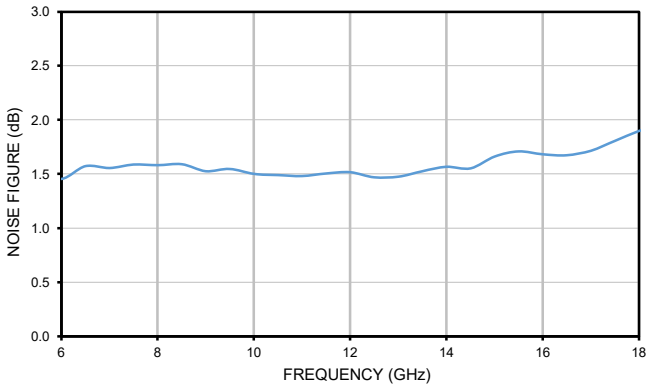
RETURN LOSS



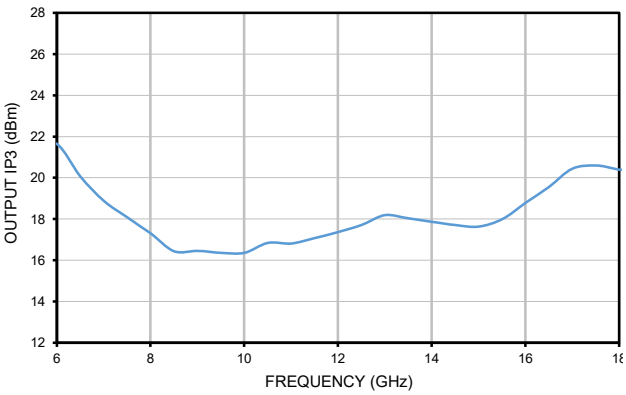
OUTPUT POWER AT 1dB COMPRESSION



NOISE FIGURE



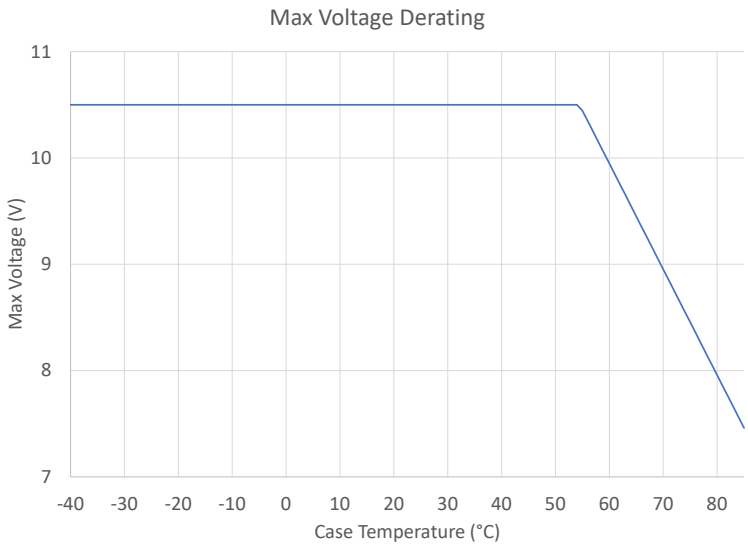
OUTPUT IP3



ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature (ground lead)	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Total Power Dissipation	0.9 W
Input Power (CW), Vd=5V	+13 dBm
DC Voltage[3]	+10.5 V

3. See max voltage derating chart below.
Permanent damage may occur if any of these limits are exceeded.



DETERMINING MAXIMUM THERMAL RESISTANCE OF USERS' EXTERNAL HEAT SINK

$$\text{MAXIMUM THERMAL RESISTANCE} = \frac{\text{MAXIMUM OPERATING CASE TEMP} - \text{MAXIMUM USER AMBIENT TEMP}}{\text{POWER DISSIPATION}}$$

Example:	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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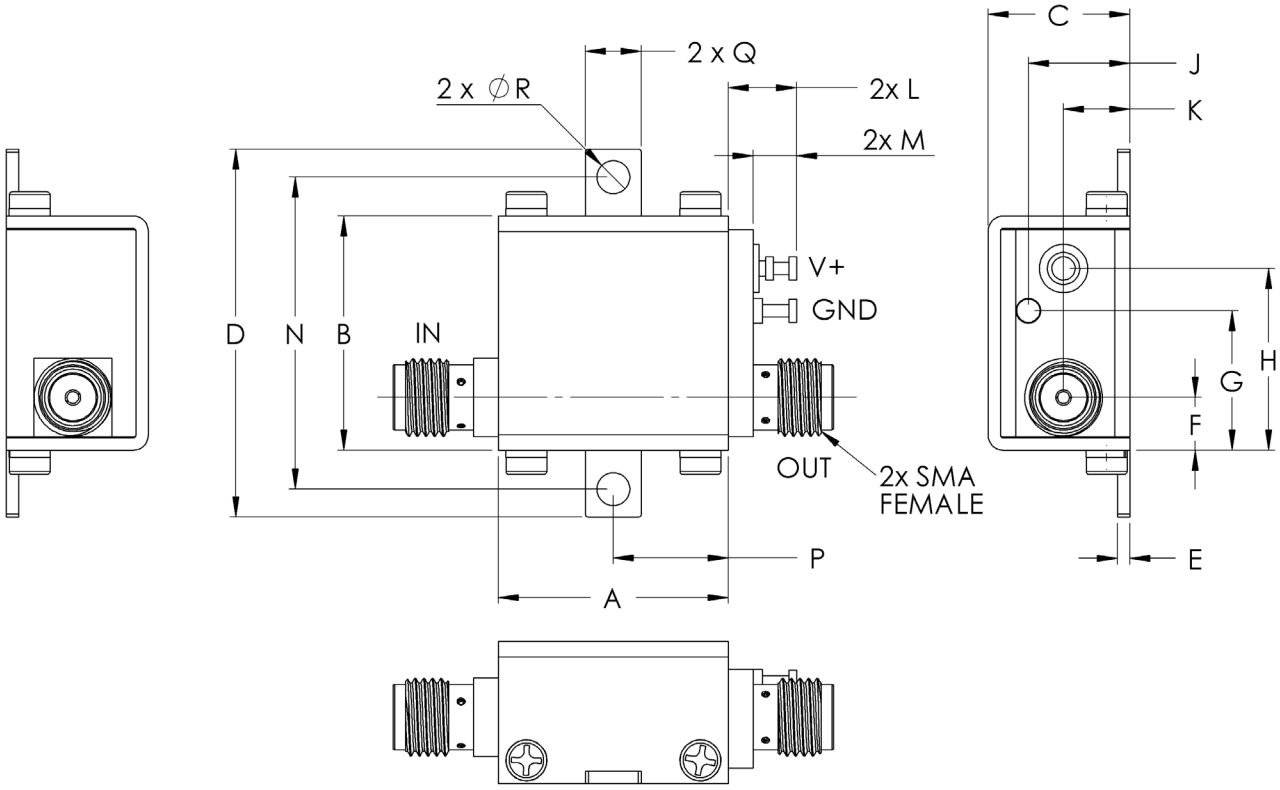
CASE STYLE DRAWING



Weight: 23.0 grams
Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl. ±.015 Inches

⚠ NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminal. See Application Note AN-40-010

OUTLINE DIMENSIONS (Inches / 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. Link	ZX60-06183P+
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

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