



COAXIAL

Low Noise Amplifier

ZX60-06183LN+

50Ω 6 to 18 GHz SMA Female

THE BIG DEAL

- Low Noise Figure, 2.8 dB Typ.
- Excellent Gain Flatness, ±1.3 dB
- High Gain, 20 dB Typ.
- Voltage Regulated Internally and Reverse Voltage Protected
- Excellent Directivity, 20 dB Typ.
- Medium Power with Good Linearity, +15 dBm Typ. P1dB, +26 dBm Typ. OIP3
- Protected by US Patent 6,790,049



Generic photo used for illustration purposes only

Model No.	ZX60-06183LN+
Case Style	GC957
Connectors	SMA female

APPLICATIONS

- Microwave Point-to-Point Radios
- Military EW and Radar
- Satellite Systems

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our website for methodologies and qualifications

PRODUCT OVERVIEW

Mini-Circuits' ZX60-06183LN+ is a wideband low noise connectorized amplifier providing a unique combination of low noise figure, high IP3 and flat gain over a very wide frequency range, supporting 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 (0.74x0.75x0.46") with SMA connectors, making it an excellent candidate for tough operating conditions and crowded system layouts.

KEY FEATURES

Feature	Advantages
Ultra-Wideband with Excellent Gain Flatness, ±1.3 dB for 8 to 18 GHz	Enables a single amplifier to be used in a wide range of applications including EW and communication systems instrumentation and more.
Broadband Low Noise Amplifier	Broadband amplification of the desired signal's power while adding as little noise and distortion as possible.
High Gain, 18 dB Typ.	Reduces the number of gain stages, lowering component count and overall system cost.
High IP3 +25 dBm Typ. Over 6 to 12 GHz +26 dBm Typ. Over 12 to 18 GHz	The combination of low noise and high IP3 makes the ZX60-06183LN+ ideal for use in low noise receiver front end (RFE) as it gives the user the advantages of sensitivity and two-tone IM performance at both ends of the dynamic range.
Excellent Directivity (Isolation-Gain), 20 dB Typ.	Buffer amplifier reduces need for adjacent circuits.
Low Operating Voltage, +5 V	The amplifier features low operating voltage.
Rugged, Unibody Construction	Mini-Circuits unibody construction integrates the RF connector into the case body, providing high reliability and excellent survivability in critical applications.





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

Parameter	Condition (GHz)	V _{DD} = +5.0 V			Units
		Min.	Typ.	Max.	
Frequency Range		6		18	GHz
Noise Figure	6-8		2.2		dB
	8-12		2.2		
	12-16		2.9		
	16-18		3.1		
Gain	6-8		21		dB
	8-12	16	20		
	12-16	16	20		
	16-18	15	19		
Input Return Loss	6-8		12		dB
	8-12		11		
	12-16		8		
	16-18		12		
Output Return Loss	6-8		9		dB
	8-12		12		
	12-16		14		
	16-18		15		
Output Power at 1 dB Compression ¹	6-8		+14		dBm
	8-12		+15		
	12-16		+15		
	16-18		+15		
Output IP ₃ ²	6-8		+25		dBm
	8-12		+26		
	12-16		+26		
	16-18		+26		
Device Operating Voltage (V _{DD})		+4.9	+5.0	+6.0	V
Device Operating Current (I _{DD})			110	150	mA

1. Current increases at P1dB.

2. OIP3 measured with 0 dBm tones and 1 MHz spacing.

ABSOLUTE MAXIMUM RATINGS³

Parameter	Ratings
Operating Temperature (Ground Lead)	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C
Total Power Dissipation	0.7 W
Input Power (CW), V _D = +5 V	+17 dBm
DC Voltage	+9 V

3. Permanent damage may occur if any of these limits are exceeded. Electrical maximum ratings are not intended for continuous normal operation.





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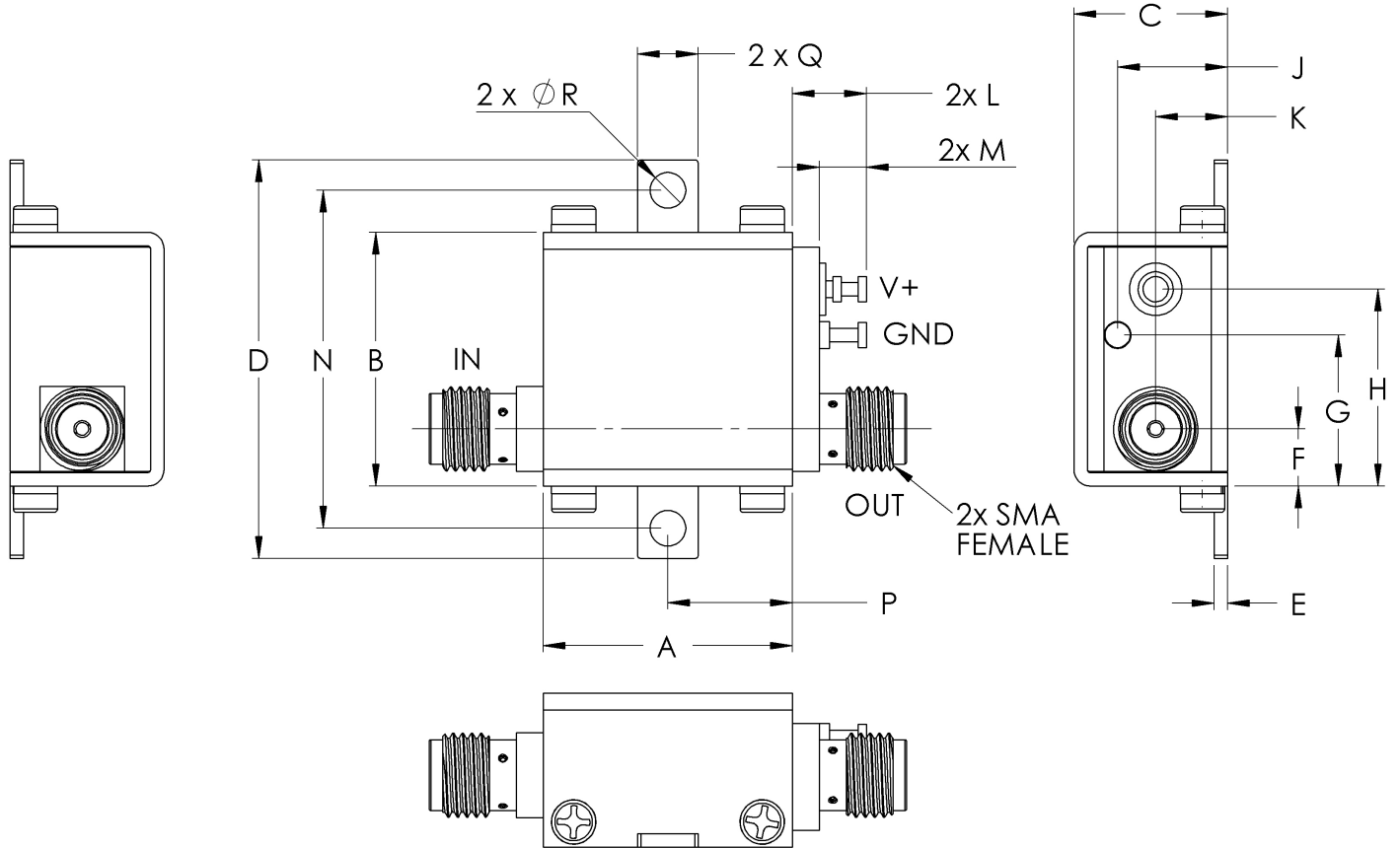
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OUTLINE DRAWING



⚠ 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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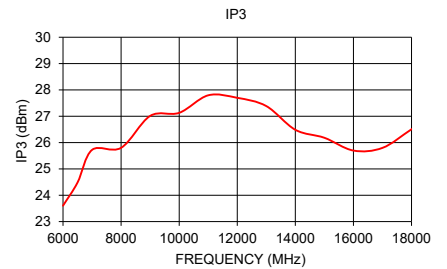
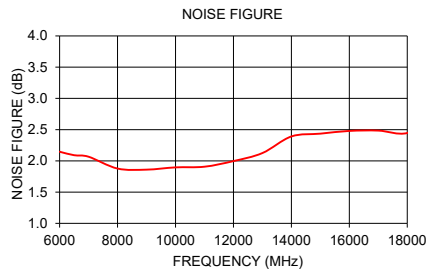
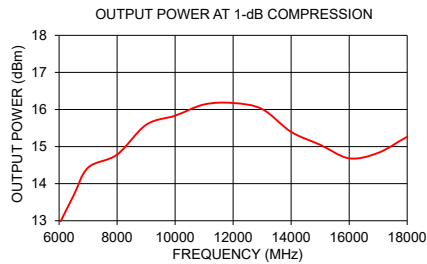
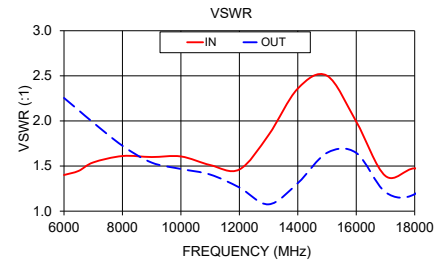
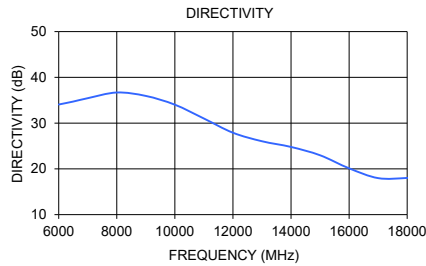
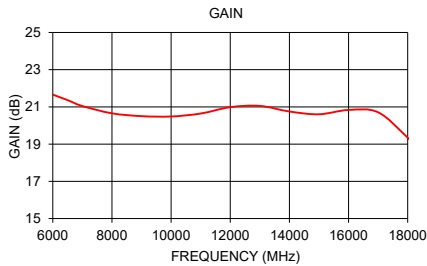
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TYPICAL PERFORMANCE DATA/CURVES

Frequency (MHz)	Gain (dB)	Directivity (dB)	VSWR (:1) +5 V		Power Out at 1 dB COMPR. (dBm)	Noise Figure (dB)	IP3 (dBm)
	+5 V	+5 V	IN	OUT	+5 V	+5 V	+5 V
6000	21.66	34.07	1.40	2.25	12.90	2.15	23.60
6500	21.36	34.71	1.45	2.12	13.68	2.09	24.48
7000	21.05	35.45	1.54	1.98	14.43	2.07	25.72
8000	20.65	36.69	1.61	1.72	14.78	1.88	25.80
9000	20.50	35.94	1.60	1.54	15.59	1.86	27.01
10000	20.48	34.02	1.61	1.47	15.83	1.90	27.13
11000	20.64	31.00	1.51	1.41	16.14	1.91	27.80
12000	20.98	27.90	1.46	1.26	16.18	2.00	27.70
13000	21.05	26.04	1.84	1.08	16.01	2.13	27.39
14000	20.75	24.79	2.36	1.31	15.40	2.39	26.49
15000	20.60	22.97	2.50	1.65	15.05	2.44	26.18
16000	20.84	20.12	1.99	1.65	14.68	2.48	25.70
17000	20.71	17.98	1.39	1.21	14.83	2.48	25.80
18000	19.35	18.02	1.47	1.19	15.26	2.45	26.51



- 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.
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