Coaxial

Low Noise Amplifier

ZX60-06183LN+

50Ω 6 to 18 GHz

The Big Deal

- Low noise figure, 1.9 dB typ, 8 to 16 GHz
- Excellent gain flatness
- High gain broadband performance
- Voltage regulated internally and reverse voltage protected
- Excellent directivity, 20 dB typ.



CASE STYLE: GC957

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 (0.74 x 0.75 x 0.46") 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 dB for entire band 6 - 18 GHz	Enables a single amplifier to be used in a wide range of applications including EW and communication systems instrumentation and more.
Low noise over the whole band	Enables lower system noise figure performance.
High gain, 25 dB typ.	Reduces the number of gain stages, lowering component count and overall system cost.
Low operating voltage, 5V	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.
Excellent Directivity (Isolation-Gain), 20 dB typ	Ideal for use as a buffer amplifier, minimizing need for adjacent components.

Notes
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Features

- Low noise figure, 1.9 dB typ, over 8 to 16 GHz
- High gain 25 dB typ over 6 to 18 GHz
- Excellent Gain flatness, ±1 dB over 6 to 18 GHz
- Excellent Directivity, 20 dB typ

Applications

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



Generic photo used for illustration purposes only

CASE STYLE: GC957

Connectors	Model
SMA	ZX60-06183LN+

+RoHS Compliant

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

Electrical Specifications at 25°C and 5V, unless noted

Parameter	Condition (GHz)	V_{DD}=5.0 Min.	V_{DD}=5.0 Typ.	V_{DD}=5.0 Max.	Units
Frequency Range		6.0		18.0	GHz
Noise Figure	6.0-8.0		2.2		dB
	8.0-12.0		2.0		
	12.0-16.0		2.1		
	16.0-18.0		2.0		
Gain	6.0-8.0		25.4		dB
	8.0-12.0	22.0	26.2		
	12.0-16.0	21.0	25.3		
	16.0-18.0		25.2		
Input Return Loss	6.0-8.0		16.5		dB
	8.0-12.0		9.8		
	12.0-16.0		8.5		
	16.0-18.0		11.0		
Output Return Loss	6.0-8.0		12.3		dB
	8.0-12.0		12.4		
	12.0-16.0		9.5		
	16.0-18.0		8.9		
Output Power at 1dB Compression [1]	6.0-8.0		11.8		dBm
	8.0-12.0		12.0		
	12.0-16.0		10.5		
	16.0-18.0		11.5		
Output IP3[2]	6.0-8.0		25.0		dBm
	8.0-12.0		25.0		
	12.0-16.0		21.3		
	16.0-18.0		23.8		
Device Operating Voltage (V_{DD})		4.9	5.0	7.0	V
Device Operating Current (I_{DD})			64	75	mA

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

Notes

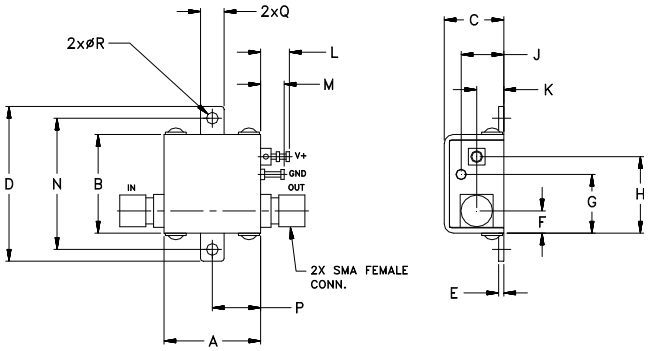
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Absolute Maximum Ratings[3]

Parameter	Ratings
Operating Temperature (ground	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Total Power Dissipation	0.7 W
Input Power (CW), Vd=5V	17 dBm
DC Voltage	7V

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

Outline Drawing



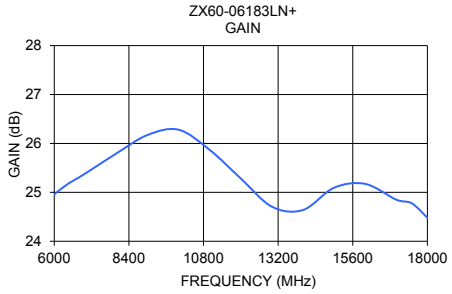
NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminal. See Application Note. AN-40-010.

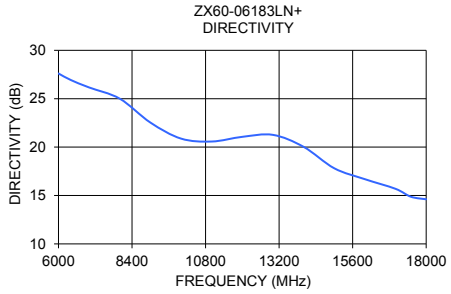
Outline Dimensions (inch / mm)

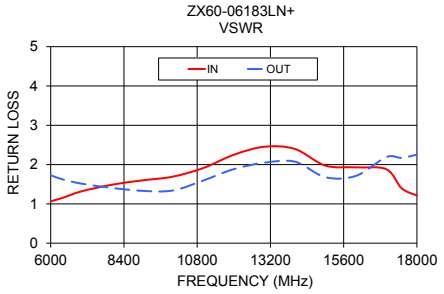
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	wt
.74	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.18	1.00	.37	.18	.106	grams
18.80	19.05	11.68	29.97	1.02	4.32	11.43	14.99	8.38	5.33	5.59	4.57	25.40	9.40	4.57	2.69	23.0

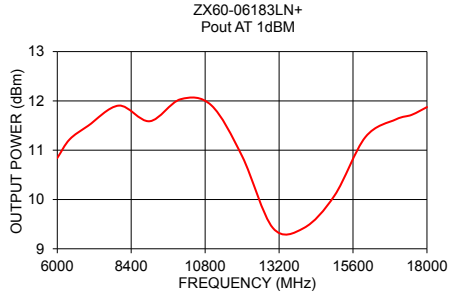
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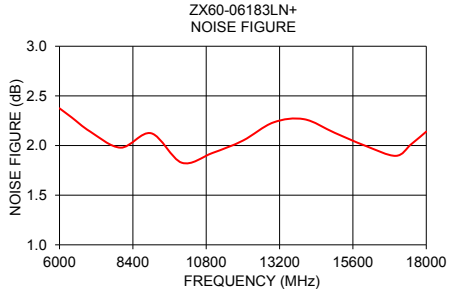
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1) 5V		POWER OUT @1 dB COMPR. (dBm)	NF (dB)	IP3 (dBm)
	5V	5V	IN	OUT	5V	5V	5V
6000	24.96	27.61	1.06	1.73	10.84	2.37	23.29
6400	25.16	26.93	1.16	1.62	11.22	2.28	24.56
7000	25.39	26.16	1.32	1.52	11.49	2.14	24.84
8000	25.80	25.00	1.49	1.41	11.90	1.98	26.01
9000	26.17	22.53	1.60	1.33	11.59	2.12	24.40
10000	26.28	20.88	1.69	1.34	12.03	1.83	24.55
11000	25.87	20.58	1.91	1.59	11.91	1.92	24.27
12000	25.28	21.06	2.25	1.88	10.88	2.05	22.46
13000	24.71	21.26	2.45	2.05	9.42	2.23	20.26
14000	24.64	20.03	2.40	2.07	9.42	2.27	20.00
15000	25.09	17.81	1.97	1.68	10.08	2.13	20.67
16000	25.17	16.68	1.93	1.71	11.27	2.00	22.68
17000	24.85	15.69	1.88	2.19	11.63	1.90	23.92
17500	24.78	14.87	1.40	2.17	11.72	2.01	24.19
18000	24.48	14.61	1.21	2.25	11.87	2.14	24.84

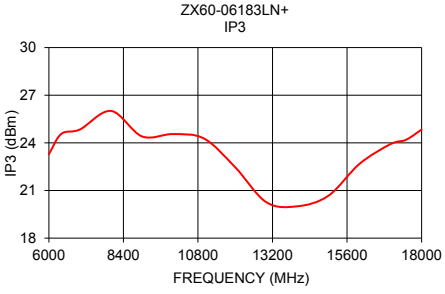












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