Coaxial

Low Noise Amplifier

ZX60-63GLN+

50Ω 1.8 to 6 GHz

The Big Deal

- Low Noise Figure, 0.9 dB typ.
- High Gain, up to 29.6 dB typ.

CASE STYLE: GC957

Product Overview

Mini-Circuits' ZX60-G63LN-S+ 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 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.

Key Features

Feature	Advantages
Low noise, 0.8 dB typ. at 2.5 GHz	Enables lower system noise figure performance.
Wideband with flat gain • ±1.6 dB typ. over 2.5 to 5 GHz	Enables a single amplifier to be used in a wide range of applications including WiFi, LTE, S-Band radar, C-band SATCOM, defense, instrumentation and more.
High gain, 29.8 dB typ. at 2.5 GHz	Reduces the number of gain stages, lowering component count and overall system cost.
High IP3 at 27 dBm at 2.5 GHz	The combination of low noise and high IP3 makes the ZX60-63GLN+ ideal for use in low noise receiver fron end (RFE) as it gives th user the advantages of sensitivity and two-tone IM performance at both ends of the dynamic range.
Low operating voltage, 5V	The amplifier achieves high IP3 using low 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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50Ω 1.8 to 6.0 GHz

Features

- Low Noise Figure, 0.9 dB typ.
- High IP3, 27.7 dBm typ.
- Excellent Gain Flatness, ±1.6 dB typ. over 2.5 - 5 GHz
- High Gain, 29.6 dB typ.

Applications

- 5G
- WiFi
- WLAN
- UMTS
- LTE
- WiMAX
- S-band radar
- C-band Satcom

Generic photo used for illustration purposes only

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Connectors	Model
SMA	ZX60-63GLN+

+RoHS Compliant

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

Electrical Specifications[1] at 25°C and 5V, unless noted

Parameter	Condition (GHz)	V_{DD}=5.0V			Units
		Min.	Typ.	Max.	
Frequency Range		1.8		6.0	GHz
Noise Figure	1.8		0.9		dB
	2.5		0.8		
	3.5		0.8		
	5.0		1.2		
	6.0		1.5		
Gain	1.8	28	31.5	—	dB
	2.5		29.6		
	3.5	24.5	27.8	—	
	5.0		26.3		
	6.0	21.5	24.5	—	
Input Return Loss	1.8		6		dB
	2.5		8.5		
	3.5		11		
	5.0		11.5		
	6.0		12.5		
Output Return Loss	1.8		10		dB
	2.5		10		
	3.5		10.5		
	5.0		16		
	6.0		21		
Output Power at 1dB Compression	1.8		15		dBm
	2.5		14.6		
	3.5	12.0	13.6		
	5.0		11.1		
	6.0		10.2		
Output IP3[1]	1.8		27.8		dBm
	2.5		27.7		
	3.5		26		
	5.0		22.8		
	6.0		21.7		
Device Operating Voltage (V_{DD})		4.9	5.0	7.0	V
Device Operating Current (I_{DD})		—	67	80	mA

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

Notes

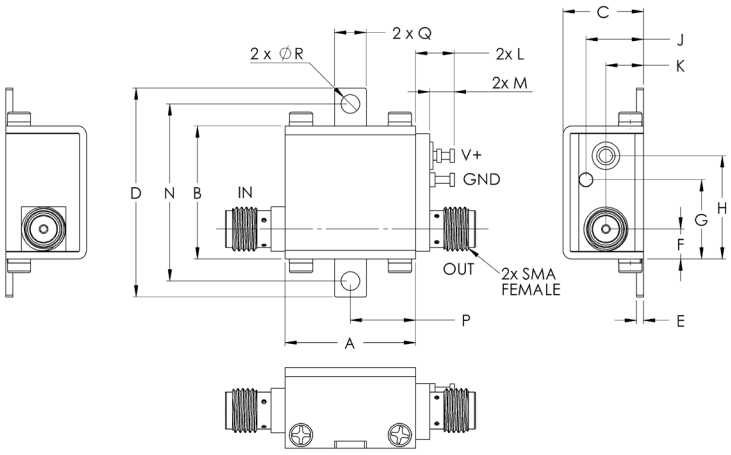
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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/MCLStore/terms.jsp

Absolute Maximum Ratings[2]

Parameter	Ratings
Operating Temperature (ground lead)	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Total Power Dissipation	0.56W
Input Power (CW), Vd=5V	+29 dBm (5 minutes max.) +10 dBm (continuous)
DC Voltage	7V

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

Outline Drawing

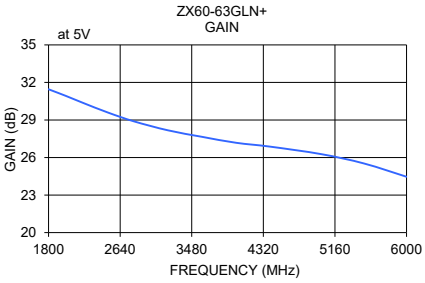


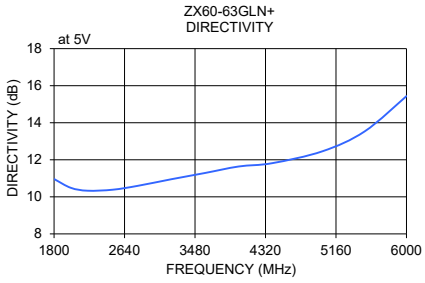
NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminal. See Application Note. AN-40-010.

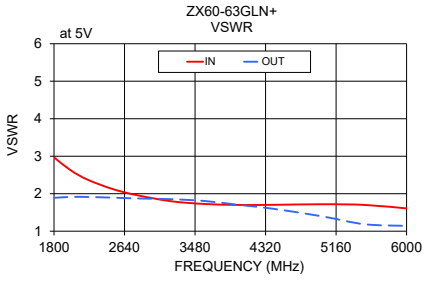
Outline Dimensions (inch / mm)

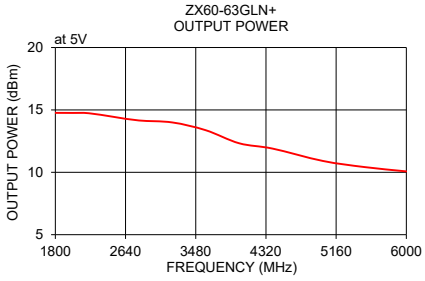
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	wt
.74	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.14	1.00	.37	.18	.106	grams
18.80	19.1	11.68	30.0	1.02	4.32	11.4	14.99	8.38	5.33	5.59	3.56	25.40	9.40	4.57	2.69	23.0

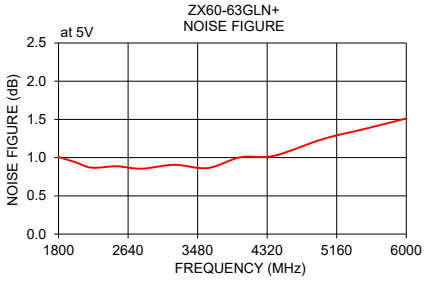
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	NF (dB)	POWER OUT @1 dB COMPR. (dBm)	IP3 (dBm)
1800	31.45	10.96	2.97	1.89	1.01	14.76	27.65
2000	30.93	10.49	2.62	1.91	0.94	14.76	27.76
2200	30.38	10.33	2.37	1.91	0.87	14.73	27.61
2500	29.59	10.39	2.12	1.89	0.89	14.44	27.57
2800	28.89	10.60	1.95	1.87	0.86	14.15	27.14
3200	28.17	10.95	1.80	1.85	0.91	13.99	26.66
3600	27.65	11.29	1.72	1.80	0.86	13.37	25.39
4000	27.18	11.64	1.70	1.70	1.01	12.32	24.56
4400	26.87	11.82	1.70	1.60	1.02	11.90	23.78
5000	26.27	12.46	1.72	1.39	1.25	10.91	22.72
5500	25.53	13.53	1.70	1.19	1.38	10.42	21.93
6000	24.46	15.44	1.61	1.14	1.51	10.07	21.35

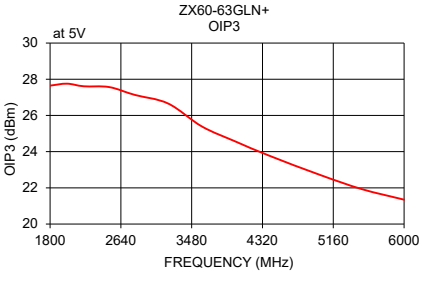












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