COAXIAL

Low Noise Amplifier

ZX60-P103LN+

50Ω 50 to 3000 MHz SMA Female

THE BIG DEAL

- Ultra Low Noise Figure, 0.5 dB typ.
- High Dynamic Range
- Protected by US patent 6,790,049



Generic photo used for illustration purposes only

Model No.	ZX60-P103LN+
Case Style	GC957
Connectors	SMA Female

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

APPLICATIONS

- Front-end amplifier
- Cellular
- GPS
- Bluetooth
- Lab
- Instrumentation
- Test equipment

PRODUCT OVERVIEW

The ZX60-P103LN+ (RoHS compliant) uses Mini-Circuits' E-pHEMT technology to offer ultra low noise figure over a broad frequency range and high IP3. Housed in a rugged, cost effective unibody chassis, this amplifier supports a wide variety of applications requiring moderate power output, low distortion and 50 ohm matched input/output ports.

KEY FEATURES

Feature	Advantages
Ultra Low Noise Figure, 0.5 dB at 1GHz	Outstanding world class noise figure performance.
High IP3 vs. DC power consumption 39.4 dBm typical at 1 GHz	Combining Low Noise and High IP3 makes this model ideal for use in Low Noise Receiver Front End (RFE)
Max. Input Power, 50 MHz - 2000 MHz 21 dBm Max. Input Power, 2000 MHz- 3000 MHz 26 dBm	Ruggedized design operates to high input powers often seen at receiver inputs.
Very Small Size, 0.75" x 0.75"	The unique unibody size and construction enable the ZX60-P103LN+ to be used in extremely compact connectorized applications.

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ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range		50		3000	MHz
Noise Figure	50 500 1000 2000 3000		1.2 0.4 0.5 0.6 1.0		dB
Gain	50 500 1000 2000 3000	23.0 18.0 13.5 8.0 4.5	25.2 20.3 15.6 10.0 6.9		dB
Output Power at 1dB Compression	50 500 1000 2000 3000		19.8 22.3 22.4 23.2 23.8		dBm
Output IP3	50 500 1000 2000 3000		36.9 39.7 39.4 42.6 44.3		dBm
Input VSWR	50 500 1000 2000 3000		2.15 1.91 1.65 1.48 1.27		:1
Output VSWR	50 500 1000 2000 3000		1.27 1.10 1.47 2.36 1.80		:1
Active Directivity (Isolation-Gain)	50 500 1000 2000 3000		6.46 5.82 6.27 6.99 7.01		dB
DC Supply Voltage		—	5.0	—	V
Supply Current		—	95	120	mA

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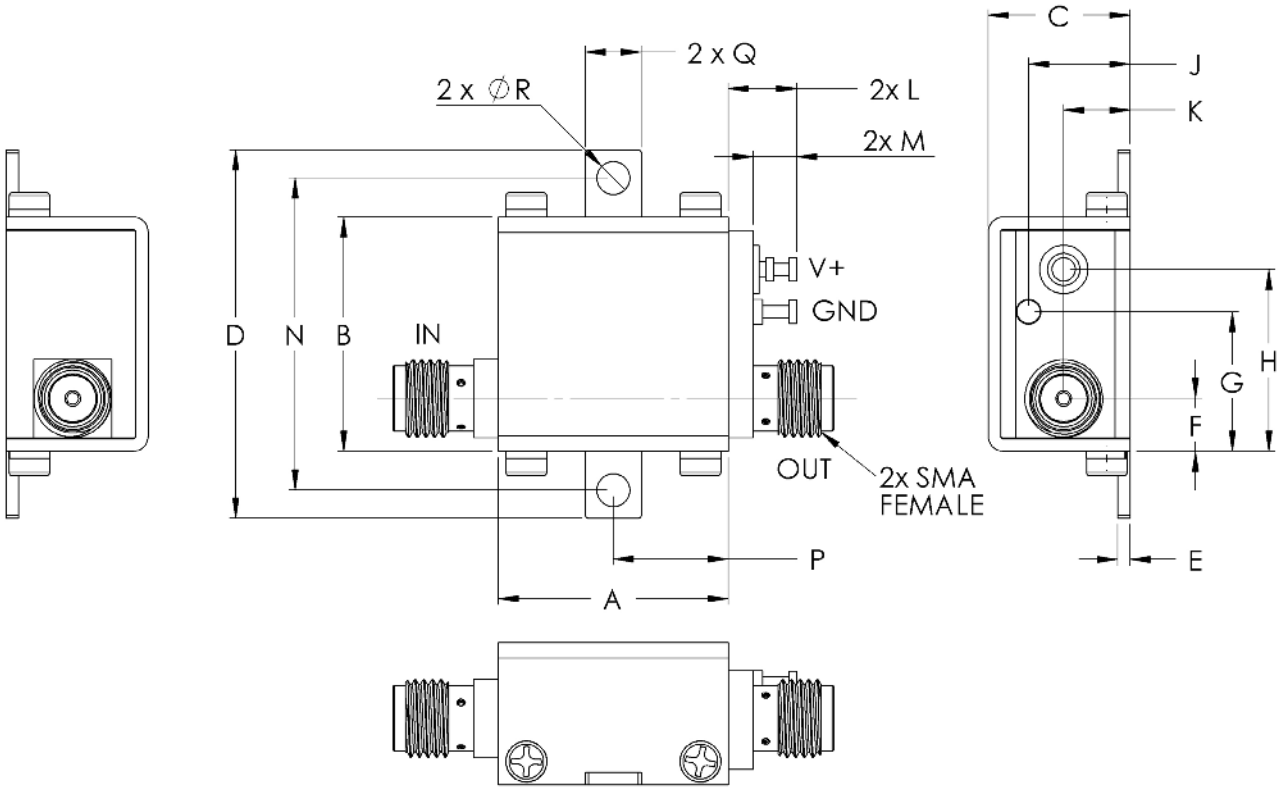
50Ω 50 to 3000 MHz SMA Female

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C Case
Storage Temperature	-55°C to 100°C
DC Voltage	+5.5V
Input RF Power (no damage)	50 MHz - 2000 MHz 21dBm 2000 MHz- 3000 MHz 26dBm
Power Consumption	0.66W

Permanent damage may occur if any of these limits are exceeded.

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

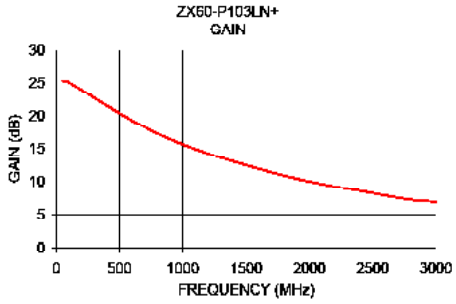
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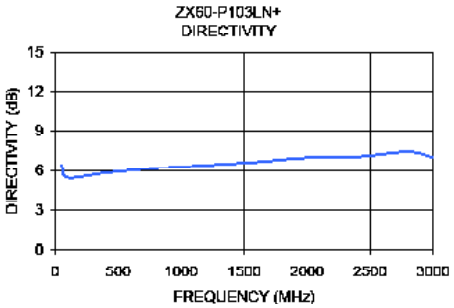
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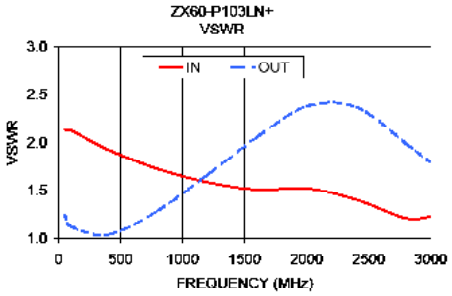
50Ω 50 to 3000 MHz SMA Female

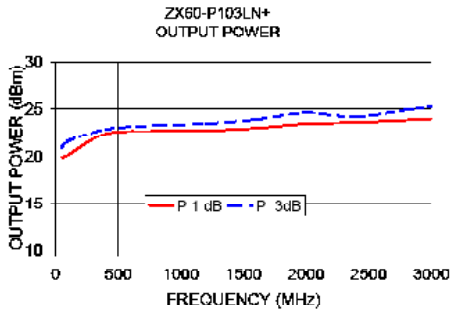
TYPICAL PERFORMANCE DATA/CURVES

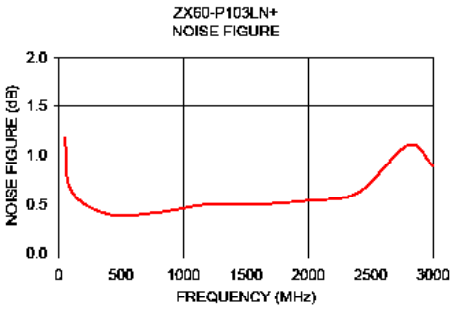
Frequency (MHz)	Gain (dB)	Directivity (dB)	VSVR (:1)		Power Out @1 dB COMPR. (dBm)	Noise Figure (dB)	Output IP3 (dBm)
			IN	OUT			
50.00	25.29	6.46	2.13	1.25	19.9	1.2	37.0
100.00	25.05	5.47	2.12	1.13	20.1	0.6	37.9
400.00	21.49	5.82	1.93	1.04	22.4	0.4	39.4
800.00	17.27	6.18	1.73	1.29	22.7	0.4	40.1
1200.00	14.22	6.42	1.59	1.67	22.7	0.5	40.6
1600.00	11.92	6.66	1.51	2.06	23.0	0.5	41.4
2000.00	10.03	6.99	1.53	2.37	23.5	0.5	42.6
2400.00	8.60	7.06	1.41	2.37	23.6	0.6	43.8
2800.00	7.25	7.43	1.21	1.99	23.8	1.1	45.7
3000.00	6.95	7.01	1.23	1.80	24.0	0.9	44.3

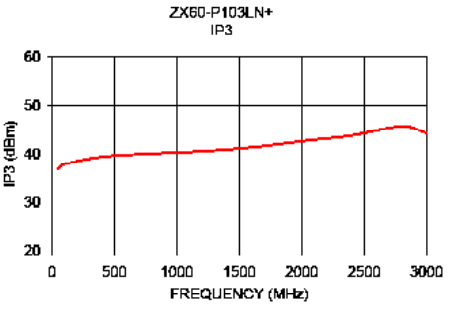












NOTES

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