



WIDEBAND

# Medium Power Amplifier **ZX60-83MP-S+**

50Ω 0.4 to 8 GHz SMA Female

## THE BIG DEAL

- Wideband, 400 MHz to 8 GHz
- P1dB, +27dBm Typ.
- Excellent OIP3, +40 dBm Typ.
- 3.2dB Typ Noise Figure
- Reverse Polarity Protection



Generic photo used for illustration purposes only

Model No.	ZX60-83MP-S+
Case Style	GC957
Connectors	SMA Female

### +RoHS Compliant

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

## APPLICATIONS

- Sub- 6GHz 5G Infrastructure
- WiFi6E, IoT & ISM Applications
- Test & Measurement Equipment
- R&D Lab, Production, and OTA Test Systems

## PRODUCT OVERVIEW

Mini-Circuits' ZX60-83MP-S+ is a medium power amplifier offering industry-leading performance over its full frequency range from 400 MHz to 8 GHz. This design operates on a single +8V supply @ 144 mA and comes in a rugged, compact unibody case (0.74" x 0.75" x 0.46") with integrated SMA female connectors, making it an excellent candidate for tough operating conditions and crowded system layouts.

## KEY FEATURES

Feature	Advantages
Wideband: 0.4 to 8 GHz	Ideal for a wide range of transmitter applications including military, commercial wireless, and instrumentation.
Flat gain	Ideal for broadband or multi-band applications. Just one, cost-efficient model required for multiple frequency usage.
High OIP3, +38 dBm typ.	Provides enhanced linearity over a broad frequency range.
High gain, 20 dB typ.	Reduces the number of gain stages, lowering component count and overall system cost.
Rugged unibody construction	Mini-Circuits' unibody construction integrates the RF connectors into the case body, providing high reliability and excellent survivability in critical applications.

REV. OR  
ECO-016347  
ZX60-83MP-S+  
MM/CP/AM  
230201





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## ELECTRICAL SPECIFICATIONS AT 25°C, Z<sub>0</sub> =50Ω AND +8V, UNLESS NOTED OTHERWISE

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range		0.4		8	GHz
Gain	0.4		21.5		dB
	1.0		21.4		
	2.0		20.7		
	4.0		19.5		
	6.0		18.5		
	8.0		16.5		
Gain Flatness	0.4-4.0		±1.0		dB
	0.4-8.0		±2.5		
Input Return Loss	0.4		13.5		dB
	1.0		14.5		
	2.0		13.5		
	4.0		12.5		
	6.0		9.7		
	8.0		5.4		
Output Return Loss	0.4		10.0		dB
	1.0		12.5		
	2.0		13.2		
	4.0		16.2		
	6.0		13.2		
	8.0		11.3		
Output Power at 1dB Compression	0.4		27.0		dBm
	1.0		27.5		
	2.0		27.5		
	4.0		27.2		
	6.0		25.5		
	8.0		24.2		
Output IP3	0.4		40.0		dBm
	2.0		37.7		
	4.0		40.0		
	8.0		34.3		
Noise Figure	0.4		3.3		dB
	2.0		3.2		
	4.0		2.8		
	8.0		3.2		
Device Operating Voltage (V <sub>DD</sub> )	—	7.7	8.0	8.3	V
Device Operating Current (I <sub>DD</sub> )	—	—	144	175	mA

## ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

Parameter	Ratings
Operating Temperature (Baseplate)	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Total Power Dissipation	1.4 W
Input Power	+22 dBm (5 minutes max.) +17 dBm (continuous)
DC Voltage V <sub>DD</sub> <sup>2</sup>	+8.8V

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

Electrical maximum ratings are not intended for continuous normal operation.

2. This module includes reverse voltage protection, however it does not include over voltage protection or internal voltage regulation. Caution must be used to not exceed the maximum rated voltage at all times.





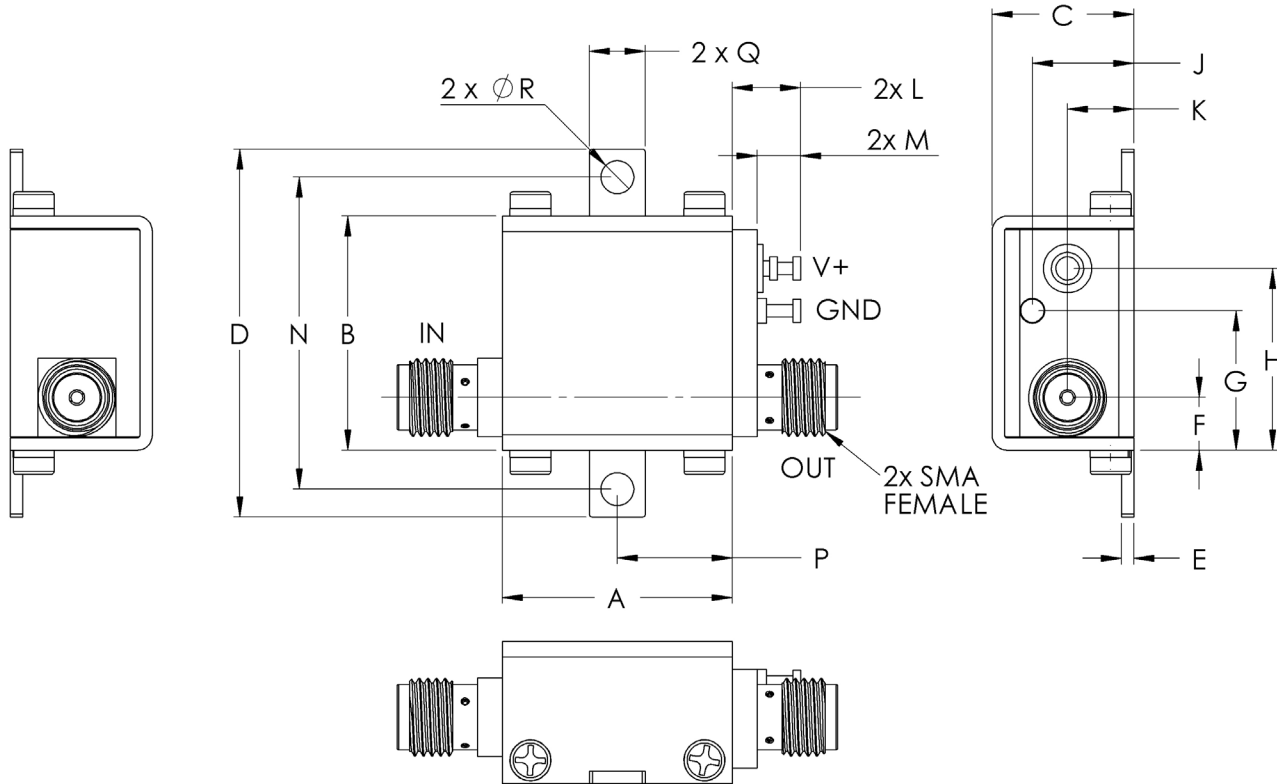
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## OUTLINE DRAWING



**!** 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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### TYPICAL PERFORMANCE DATA

Frequency (MHz)	Gain (dB)	VSWR (:1)		Power Out @1 dB COMPR. (dBm)	Noise Figure (dB)	Frequency (MHz)	Output IP3 (dBm)
		IN	OUT				
400	21.60	1.51	1.87	27.04	3.24	400	39.73
500	21.63	1.46	1.79	27.44	3.28	2000	37.55
600	21.63	1.44	1.73	27.22	3.22	4000	41.65
1000	21.44	1.43	1.64	27.70	3.29	8000	35.63
2000	20.71	1.51	1.51	27.69	3.14		
3000	19.89	1.51	1.32	27.44	3.12		
4000	19.57	1.61	1.32	27.05	2.86		
5000	19.11	1.69	1.35	26.65	2.81		
6000	18.58	1.93	1.43	25.75	2.97		
6600	18.17	2.17	1.48	25.54	3.16		
7000	17.87	2.44	1.53	25.29	3.29		
7600	17.19	2.90	1.66	24.41	3.27		
8000	16.70	3.37	1.68	24.24	3.23		





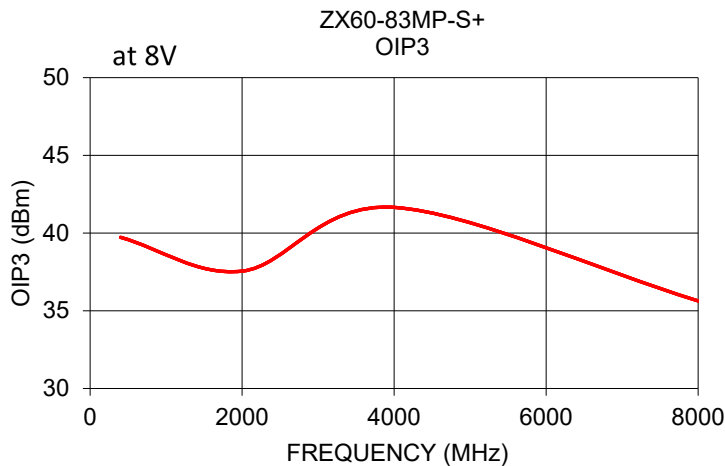
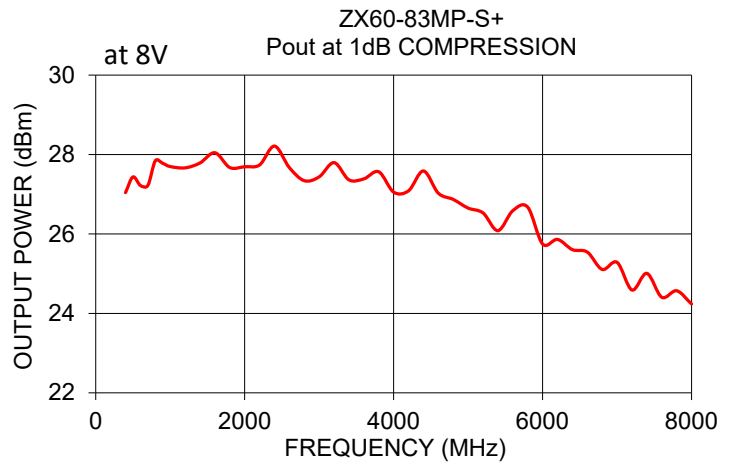
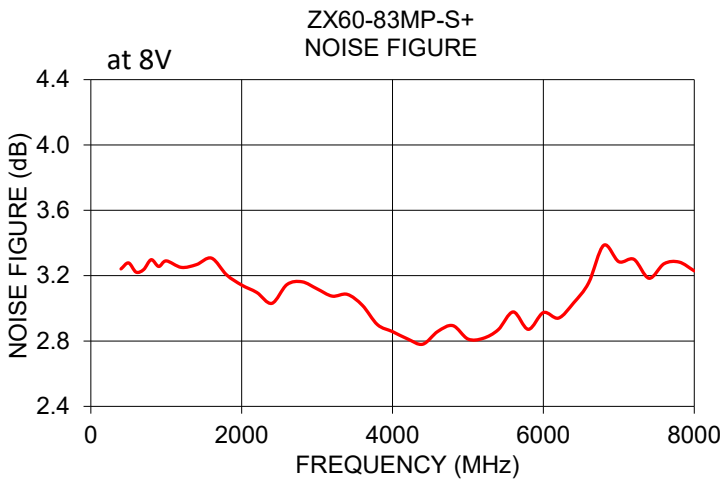
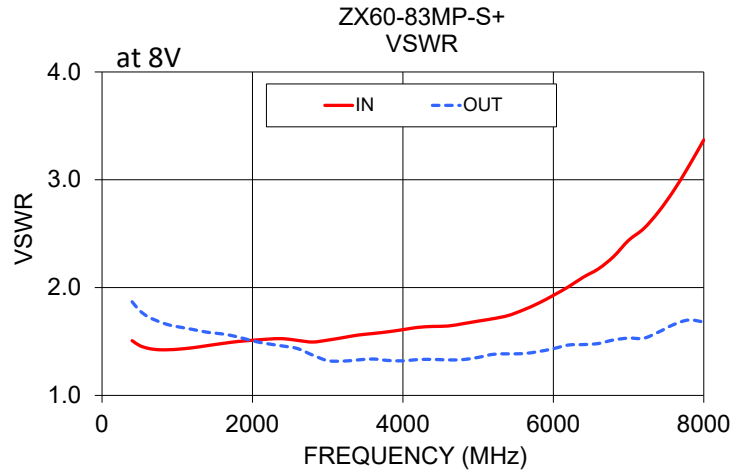
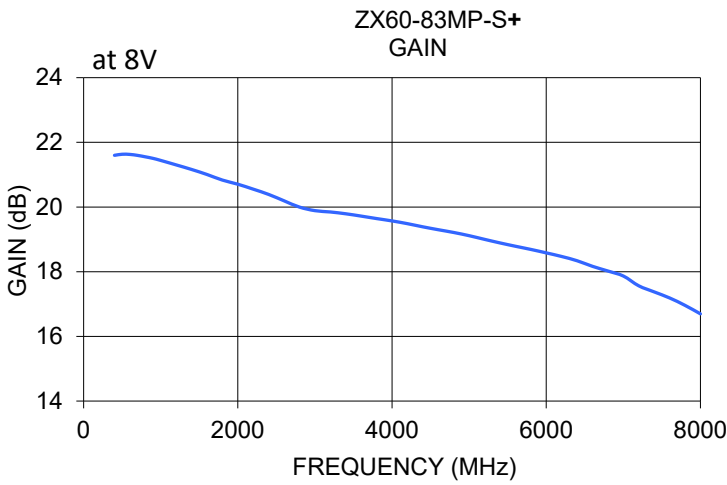
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## TYPICAL PERFORMANCE GRAPHS



- 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](http://www.minicircuits.com/terms/viewterm.html)

