

# Coaxial Amplifier

## ZX60-5916MA+

50Ω High Isolation 1.5 to 6 GHz

### Features

- from 2.8V to 5V operation
- wide bandwidth, 1.5 to 6 GHz
- high active directivity
- output power, up to 17dBm typ.
- protected by US patent 6,790,049

### Applications

- buffer amplifier
- LO amplifiers for mixers
- cellular
- PCN



CASE STYLE: GC957

Connectors	Model
SMA	ZX60-5916MA-S+

### +RoHS Compliant

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

### Electrical Specifications $T_{AMB}=25^{\circ}\text{C}$

MODEL NO.	FREQ. (GHz)		DC VOLTS (V)	GAIN, dB Typical					MAXIMUM POWER (dBm)		DYNAMIC RANGE			VSWR* (:1) Typ.		ACTIVE DIRECTIVITY (dB) (Isolation-Gain) Typ.		DC OPERATING CURRENT @ Pin V+ (mA)		
	$f_L$	$f_U$		over frequency, GHz					Output (1 dB Comp.) Typ.		NF (dB) Typ.	IP3 (dBm) Typ.		In	Out	$f_L$	$f_U$	Typ	Max.	
				1.5	2.0	3.5	5.0	6.0	Min. at 2 GHz	$f_L$		$f_U$	at 2 GHz							at 2 GHz
ZX60-5916MA+	1.5	6.0	5.0	17.3	17.3	17.3	18.4	12.0	15	16.5	13	6.6	27	23.5	1.6	1.3	37	25	74	103
			2.8	14	14.2	14.2	16.2	7.0	—	10	16	5.8	22	16	1.6	1.7	37	27	70	—

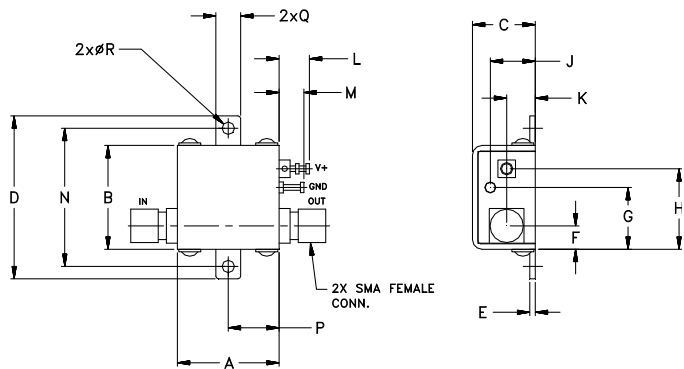
\* at 3 GHz - 5 GHz

### Maximum Ratings

Operating Temperature	-40°C to 85°C case
Storage Temperature	-55°C to 100°C
DC Voltage	7V
Input Power (No damage)	10 dBm (continuous operation) 26 dBm over 1.5 to 3.7 GHz (5 minutes max.) 20 dBm over 3.7 to 6 GHz (5 minutes max.)
Power Dissipation	750 mW

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 (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

### Notes

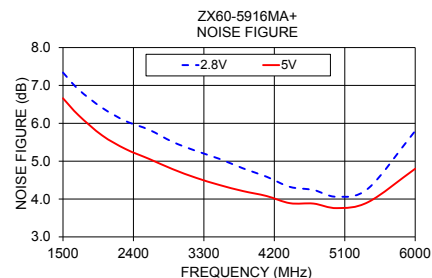
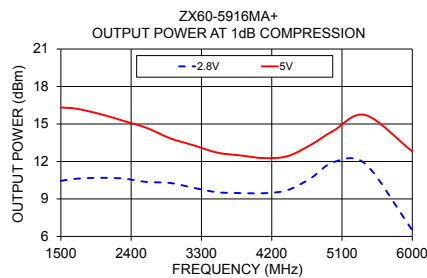
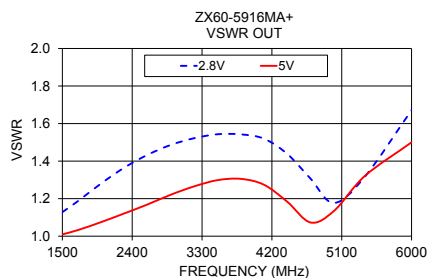
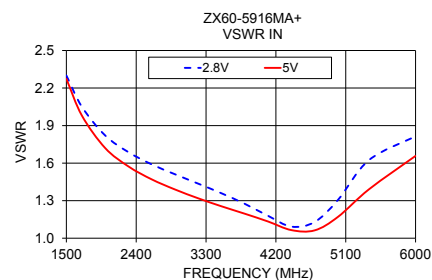
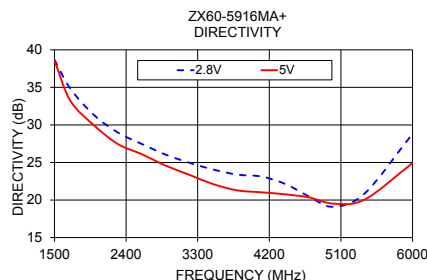
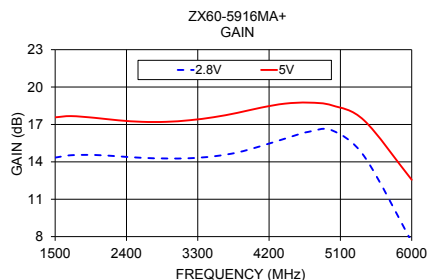
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)



[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. OR  
M157435  
ZX60-5916MA+  
RVN/CP/AM  
170104  
Page 1 of 2

FREQUENCY (MHz)	GAIN (dB)		DIRECTIVITY (dB)		VSWR IN (:1)		VSWR OUT (:1)		POUT at 1 dB COMPR. (dBm)		NOISE FIGURE (dB)	
	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V
1500	14.34	17.57	38.68	38.57	2.30	2.27	1.13	1.01	10.45	16.32	7.34	6.66
1700	14.53	17.67	34.82	33.21	2.05	1.98	1.19	1.03	10.62	16.22	6.89	6.21
2000	14.55	17.53	31.29	29.92	1.82	1.72	1.28	1.08	10.69	15.80	6.41	5.68
2300	14.44	17.33	28.97	27.44	1.69	1.57	1.37	1.12	10.63	15.25	6.06	5.32
2600	14.32	17.21	27.45	26.09	1.59	1.47	1.43	1.17	10.36	14.68	5.83	5.06
2900	14.27	17.21	26.03	24.57	1.51	1.39	1.49	1.22	10.28	13.85	5.51	4.79
3200	14.29	17.34	24.95	23.34	1.44	1.32	1.52	1.27	9.89	13.29	5.27	4.56
3500	14.44	17.58	24.05	22.10	1.36	1.25	1.54	1.30	9.54	12.71	5.06	4.37
3800	14.75	17.93	23.38	21.28	1.27	1.20	1.54	1.31	9.47	12.48	4.81	4.21
4100	15.27	18.35	23.13	21.03	1.18	1.13	1.52	1.27	9.46	12.27	4.59	4.08
4400	15.86	18.67	22.14	20.76	1.09	1.06	1.44	1.18	9.70	12.42	4.32	3.89
4700	16.41	18.75	20.47	20.35	1.13	1.06	1.31	1.07	10.66	13.33	4.24	3.88
5000	16.51	18.52	19.10	19.53	1.31	1.17	1.18	1.13	11.97	14.50	4.06	3.76
5400	14.45	17.32	20.89	20.07	1.62	1.39	1.32	1.32	11.80	15.71	4.28	3.92
6000	7.57	12.56	28.82	24.93	1.81	1.66	1.67	1.50	6.49	12.80	5.80	4.80



**Notes**

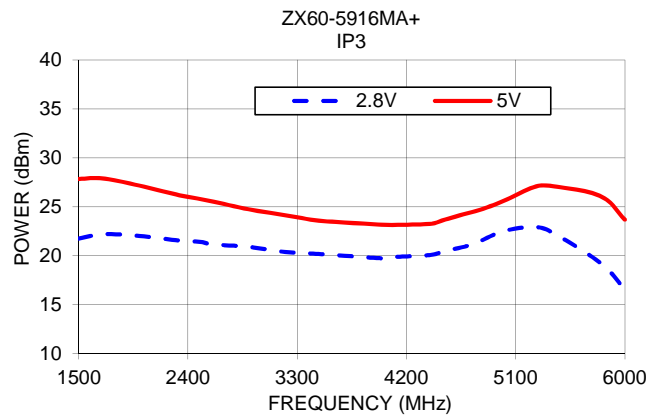
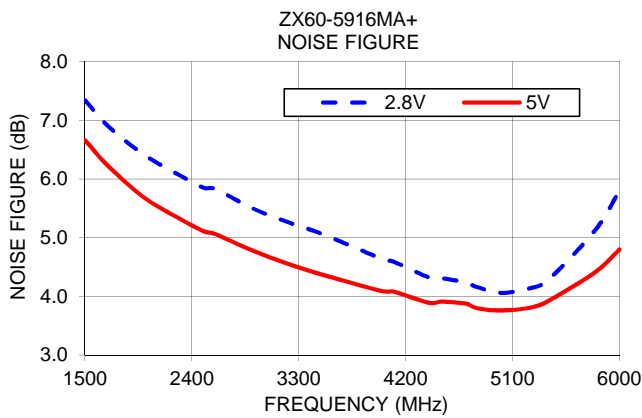
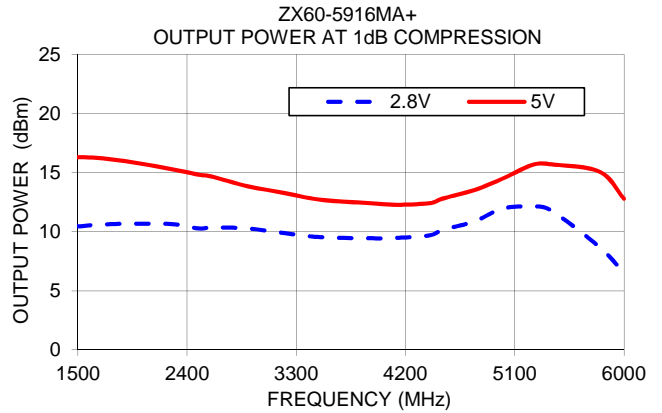
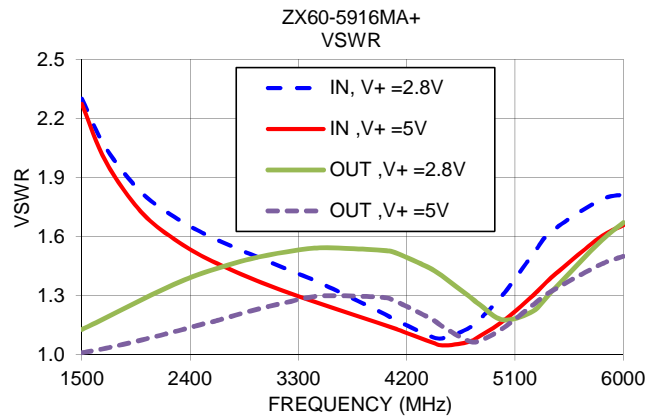
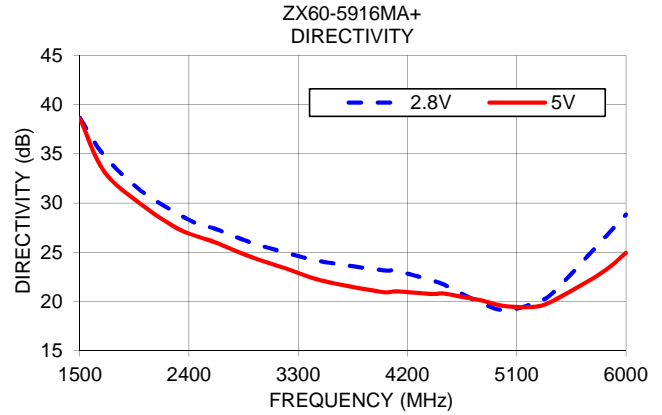
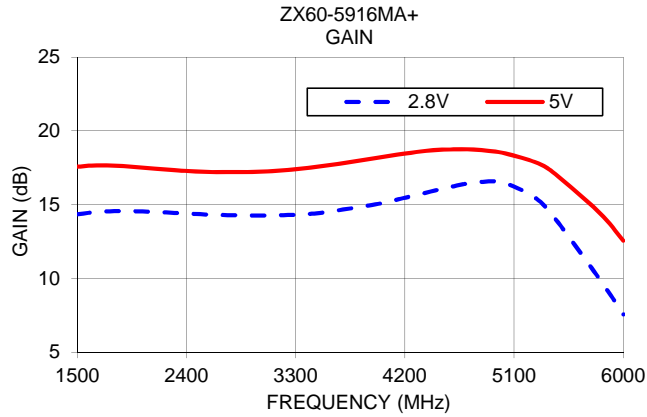
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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



*Typical Performance Data*

FREQ. (MHz)	GAIN		DIRECTIVITY		VSWR IN		VSWR OUT		POWER OUT @ 1dB COMPRESSION		IP3		NF	
	(dB)		(dB)		(:1)		(:1)		(dBm)		(dBm)		(dB)	
	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V
1500	14.34	17.57	38.68	38.57	2.30	2.27	1.13	1.01	10.45	16.32	21.75	27.84	7.34	6.66
1700	14.53	17.67	34.82	33.21	2.05	1.98	1.19	1.03	10.62	16.22	22.20	27.90	6.89	6.21
2000	14.55	17.53	31.29	29.92	1.82	1.72	1.28	1.08	10.69	15.80	22.02	27.16	6.41	5.68
2300	14.44	17.33	28.97	27.44	1.69	1.57	1.37	1.12	10.63	15.25	21.58	26.26	6.06	5.32
2500	14.36	17.24	27.70	26.47	1.62	1.50	1.41	1.15	10.27	14.82	21.41	25.79	5.85	5.11
2600	14.32	17.21	27.45	26.09	1.59	1.47	1.43	1.17	10.36	14.68	21.16	25.55	5.83	5.06
2900	14.27	17.21	26.03	24.57	1.51	1.39	1.49	1.22	10.28	13.85	20.90	24.74	5.51	4.79
3200	14.29	17.34	24.95	23.34	1.44	1.32	1.52	1.27	9.89	13.29	20.38	24.14	5.27	4.56
3500	14.44	17.58	24.05	22.10	1.36	1.25	1.54	1.30	9.54	12.71	20.16	23.56	5.06	4.37
4000	15.08	18.21	23.16	20.94	1.21	1.15	1.53	1.29	9.44	12.36	19.73	23.17	4.64	4.09
4400	15.27	18.35	23.13	21.03	1.18	1.13	1.52	1.27	9.46	12.27	19.86	23.14	4.59	4.08
4500	15.86	18.67	22.14	20.76	1.09	1.06	1.44	1.18	9.70	12.42	20.07	23.26	4.32	3.89
4700	16.06	18.72	21.71	20.81	1.08	1.05	1.40	1.14	10.15	12.79	20.41	23.62	4.31	3.91
4800	16.41	18.75	20.47	20.35	1.13	1.06	1.31	1.07	10.66	13.33	20.99	24.33	4.24	3.88
5000	16.52	18.71	19.89	20.14	1.18	1.09	1.26	1.07	11.00	13.64	21.45	24.66	4.16	3.80
5250	16.51	18.52	19.10	19.53	1.31	1.17	1.18	1.13	11.97	14.50	22.51	25.59	4.06	3.76
5400	15.59	17.94	19.85	19.46	1.51	1.30	1.22	1.25	12.15	15.68	22.94	27.01	4.14	3.81
5500	14.45	17.32	20.89	20.07	1.62	1.39	1.32	1.32	11.80	15.71	22.39	27.12	4.28	3.92
5750	10.00	14.48	26.15	22.91	1.78	1.59	1.57	1.46	8.69	15.08	19.24	26.09	5.14	4.42
6000	7.57	12.56	28.82	24.93	1.81	1.66	1.67	1.50	6.49	12.80	16.56	23.69	5.80	4.80

## Typical Performance Curves

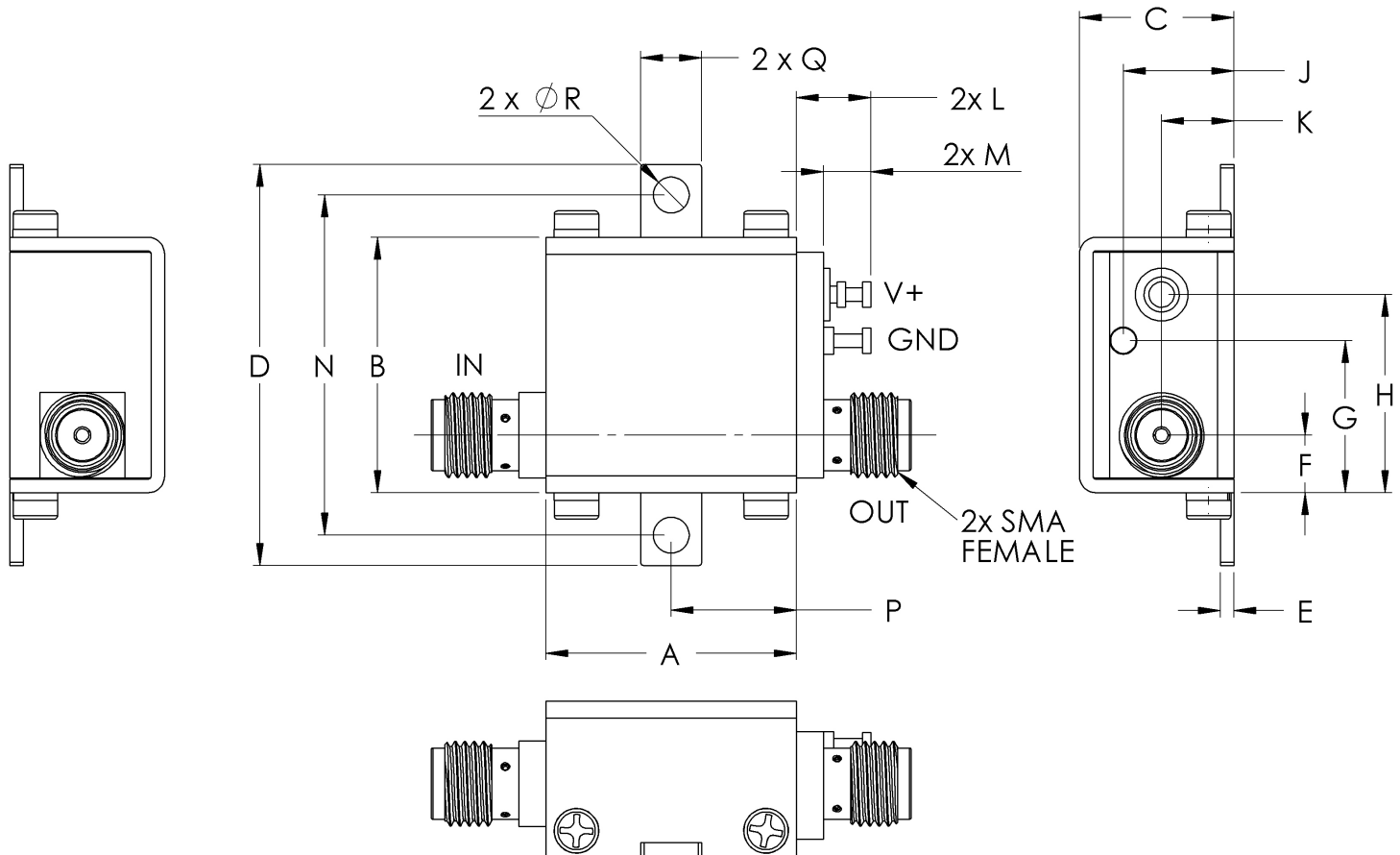


# Case Style

# GC

## Outline Dimensions

## GC957



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N
GC957	.74 (18.80)	.75 (19.15)	.46 (11.61)	1.18 (30.07)	.04 (1.02)	.17 (4.32)	.45 (11.40)	.59 (14.86)	.33 (8.31)	.21 (5.44)	.22 (5.59)	.14 (3.56)	1.00 (25.4)

CASE #.	P	Q	R	WT GRAMS
GC957	.37 (9.40)	.18 (4.57)	.106 (2.69)	23.0

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$   
Tolerance on hole size and interaxes dimensions to be  $\pm .005$ .

### Note:

1. Case material: Brass
2. Case finish: Nickel plate

**Mini-Circuits**<sup>®</sup>

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85° C Case Temperature	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Stabilization Bake	(non-operating) 125°C, 24 hours	- - -
Burn-in at Elevated Temp.	(DC on) 160 hours at 85° C	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C