Coaxial

Amplifier

ZX60-2510MA+

50Ω High Isolation 500 to 2500 MHz

Features

- from 2.8V to 5V operation
- wide bandwidth, 500 to 2500 MHz
- high active directivity
- output power, 18 dBm typ. at 2 GHz and 5V
- protected by US patent 6,790,049

Applications

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

CASE STYLE: GC957

Connectors	Model
SMA	ZX60-2510MA-S+

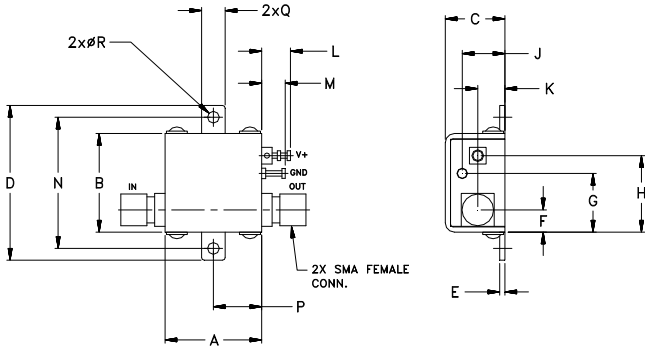
+RoHS Compliant

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

Electrical Specifications at 25°C

Parameter	Condition (MHz)	2.8V			5.0V			Units
		Min.	Typ.	Max.	Min	Typ.	Max.	
Frequency		500		2500	500		2500	MHz
Gain	500	—	12.6	—	—	14.3	—	dB
	1000	—	13.1	—	—	15	—	
	1500	—	13.1	—	—	15.2	—	
	2000	—	12.8	—	13.5	15	—	
	2500	—	12.2	—	—	14.6	—	
Output Power at 1dB compression	500	—	11.0	—	—	20.0	—	dBm
	2500	—	12.0	—	—	18.0	—	
Noise Figure	1000	—	5.4	—	—	5.3	—	dB
Output third order intercept point	1000	—	24.0	—	—	32.0	—	dBm
	2000	—	24.0	—	—	31.0	—	
Input VSWR	1100-2500	—	1.4	—	—	1.4	—	:1
Output VSWR	1100-2500	—	1.4	—	—	1.4	—	:1
Active Directivity (Isolation-Gain)	500	—	36	—	—	32	—	dB
	2500		20			19		
Supply Current		—	79	—	—	84	104	mA

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

Maximum Ratings

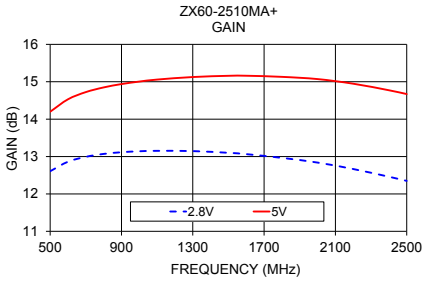
Parameter	Ratings
Operating Temperature	-40°C to 85°C Case
Storage Temperature	-55°C to 100°C
DC Voltage	7V
Input RF Power (no damage)	+11 dBm at VS=2.8V and +16 dBm at 5V (continuous operation) +23 dBm (5 minutes max.)
Power Dissipation	800 mW

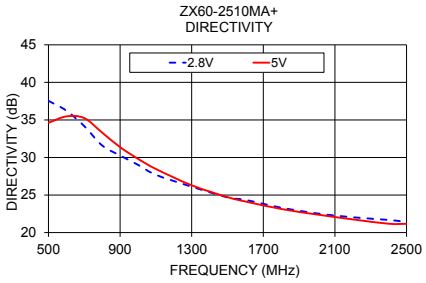
Permanent damage may occur if any of these limits are exceeded.

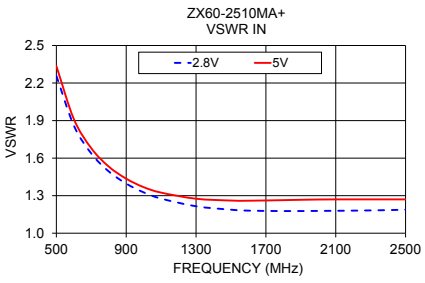
Notes

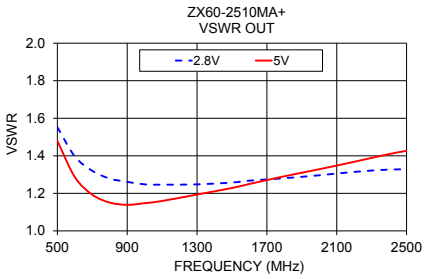
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

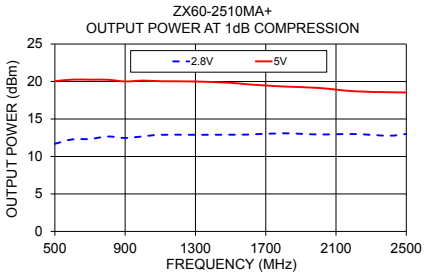
FREQUENCY (MHz)	GAIN (dB)		DIRECTIVITY (dB)		VSWR IN (:1)		VSWR OUT (:1)		POUT at 1 dB COMPR. (dBm)		NOISE FIGURE (dB)	
	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V
500	12.61	14.20	37.54	34.62	2.26	2.34	1.55	1.48	11.69	20.05	5.75	5.64
600	12.86	14.53	36.24	35.47	1.86	1.91	1.40	1.29	12.28	20.26	5.65	5.52
700	12.99	14.72	34.17	35.25	1.64	1.68	1.32	1.19	12.33	20.24	5.59	5.45
800	13.07	14.85	31.60	33.31	1.49	1.53	1.28	1.15	12.66	20.24	5.46	5.42
900	13.11	14.94	30.27	31.38	1.40	1.44	1.26	1.14	12.47	20.01	5.46	5.35
1000	13.14	15.00	29.02	29.82	1.33	1.37	1.25	1.15	12.68	20.12	5.43	5.36
1100	13.15	15.06	27.69	28.47	1.28	1.32	1.25	1.16	12.89	20.04	5.46	5.34
1300	13.15	15.13	26.11	26.29	1.22	1.28	1.25	1.19	12.89	20.00	5.56	5.39
1500	13.10	15.16	24.69	24.72	1.19	1.26	1.26	1.23	12.90	19.82	5.44	5.33
1600	13.06	15.16	24.35	24.14	1.18	1.26	1.27	1.25	12.92	19.62	5.44	5.29
1800	12.96	15.13	23.32	23.14	1.18	1.26	1.28	1.29	13.09	19.33	5.47	5.34
2000	12.84	15.07	22.55	22.41	1.18	1.27	1.30	1.33	12.94	19.14	5.44	5.30
2200	12.67	14.95	22.04	21.76	1.18	1.27	1.31	1.37	12.99	18.70	5.43	5.28
2400	12.46	14.77	21.68	21.18	1.18	1.27	1.33	1.41	12.77	18.57	5.42	5.30
2500	12.35	14.67	21.42	21.17	1.19	1.27	1.33	1.43	13.00	18.53	5.49	5.34

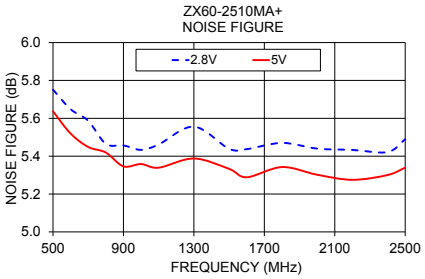










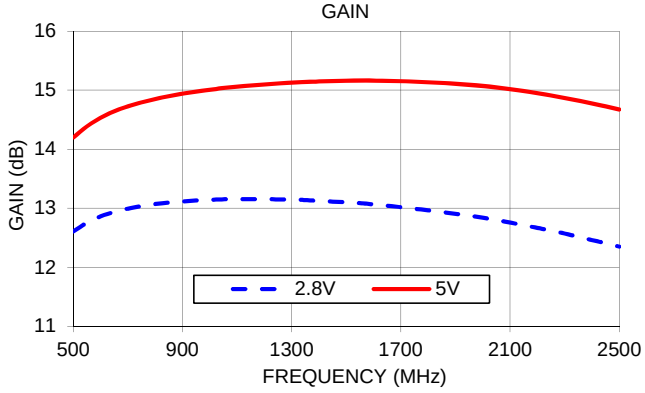


Typical Performance Data

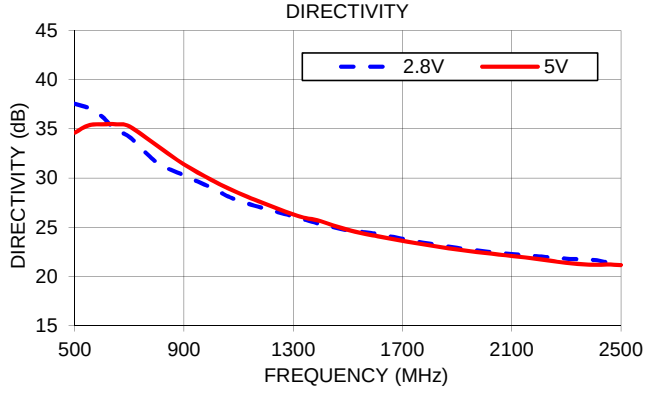
FREQ. (MHz)	GAIN (dB)		DIRECTIVITY (dB)		VSWR IN (:1)		VSWR OUT (:1)		POWER OUT @ 1dB COMPRESSION (dBm)		IP3 (dBm)		NF (dB)	
	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V
500	12.61	14.20	37.54	34.62	2.26	2.34	1.55	1.48	11.69	20.05	23.89	32.87	5.75	5.64
550	12.75	14.38	37.11	35.35	2.03	2.09	1.46	1.37	12.01	20.21	23.83	32.99	5.84	5.63
600	12.86	14.53	36.24	35.47	1.86	1.91	1.40	1.29	12.28	20.26	24.15	32.94	5.65	5.52
650	12.94	14.64	34.86	35.46	1.73	1.78	1.35	1.23	12.43	20.38	24.25	33.06	5.68	5.53
700	12.99	14.72	34.17	35.25	1.64	1.68	1.32	1.19	12.33	20.24	24.03	32.90	5.59	5.45
800	13.07	14.85	31.60	33.31	1.49	1.53	1.28	1.15	12.66	20.24	24.50	32.69	5.46	5.42
900	13.11	14.94	30.27	31.38	1.40	1.44	1.26	1.14	12.47	20.01	24.09	32.71	5.46	5.35
1000	13.14	15.00	29.02	29.82	1.33	1.37	1.25	1.15	12.68	20.12	24.32	32.63	5.43	5.36
1100	13.15	15.06	27.69	28.47	1.28	1.32	1.25	1.16	12.89	20.04	24.68	32.26	5.46	5.34
1300	13.15	15.13	26.11	26.29	1.22	1.28	1.25	1.19	12.89	20.00	24.41	32.03	5.56	5.39
1400	13.12	15.15	25.32	25.62	1.20	1.27	1.26	1.21	12.91	19.80	24.45	31.76	5.46	5.37
1500	13.10	15.16	24.69	24.72	1.19	1.26	1.26	1.23	12.90	19.82	24.18	31.56	5.44	5.33
1600	13.06	15.16	24.35	24.14	1.18	1.26	1.27	1.25	12.92	19.62	24.55	31.42	5.44	5.29
1800	12.96	15.13	23.32	23.14	1.18	1.26	1.28	1.29	13.09	19.33	24.56	31.06	5.47	5.34
2000	12.84	15.07	22.55	22.41	1.18	1.27	1.30	1.33	12.94	19.14	24.42	30.73	5.44	5.30
2200	12.67	14.95	22.04	21.76	1.18	1.27	1.31	1.37	12.99	18.70	24.22	30.21	5.43	5.28
2300	12.57	14.86	21.80	21.37	1.18	1.27	1.32	1.39	13.05	18.59	24.34	30.07	5.46	5.29
2400	12.46	14.77	21.68	21.18	1.18	1.27	1.33	1.41	12.77	18.57	24.00	30.06	5.42	5.30
2450	12.41	14.72	21.45	21.22	1.19	1.27	1.33	1.42	13.09	18.49	24.21	29.86	5.43	5.27
2500	12.35	14.67	21.42	21.17	1.19	1.27	1.33	1.43	13.00	18.53	24.28	30.01	5.49	5.34

Typical Performance Curves

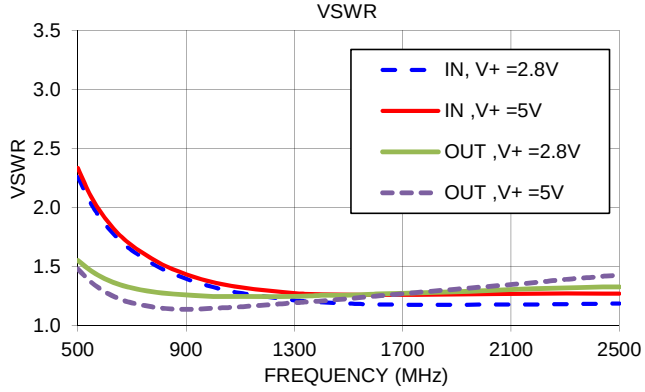
ZX60-2510MA+
GAIN



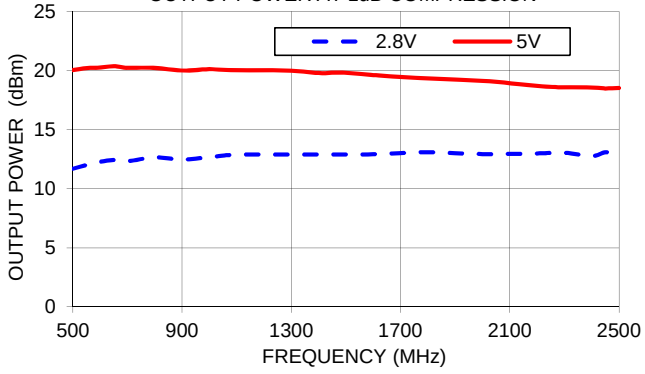
ZX60-2510MA+
DIRECTIVITY



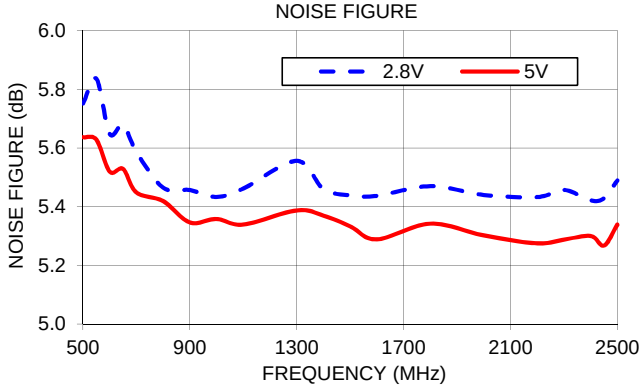
ZX60-2510MA+
VSWR



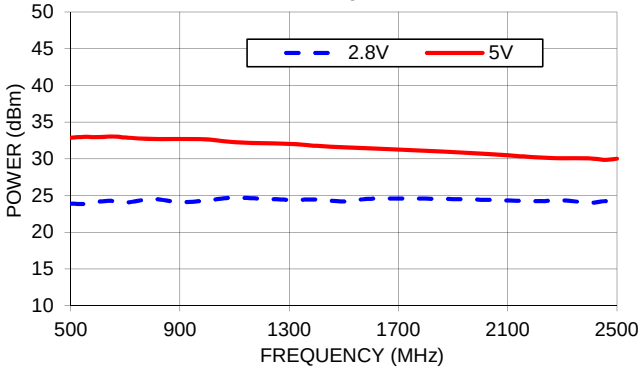
ZX60-2510MA+
OUTPUT POWER AT 1dB COMPRESSION



ZX60-2510MA+
NOISE FIGURE



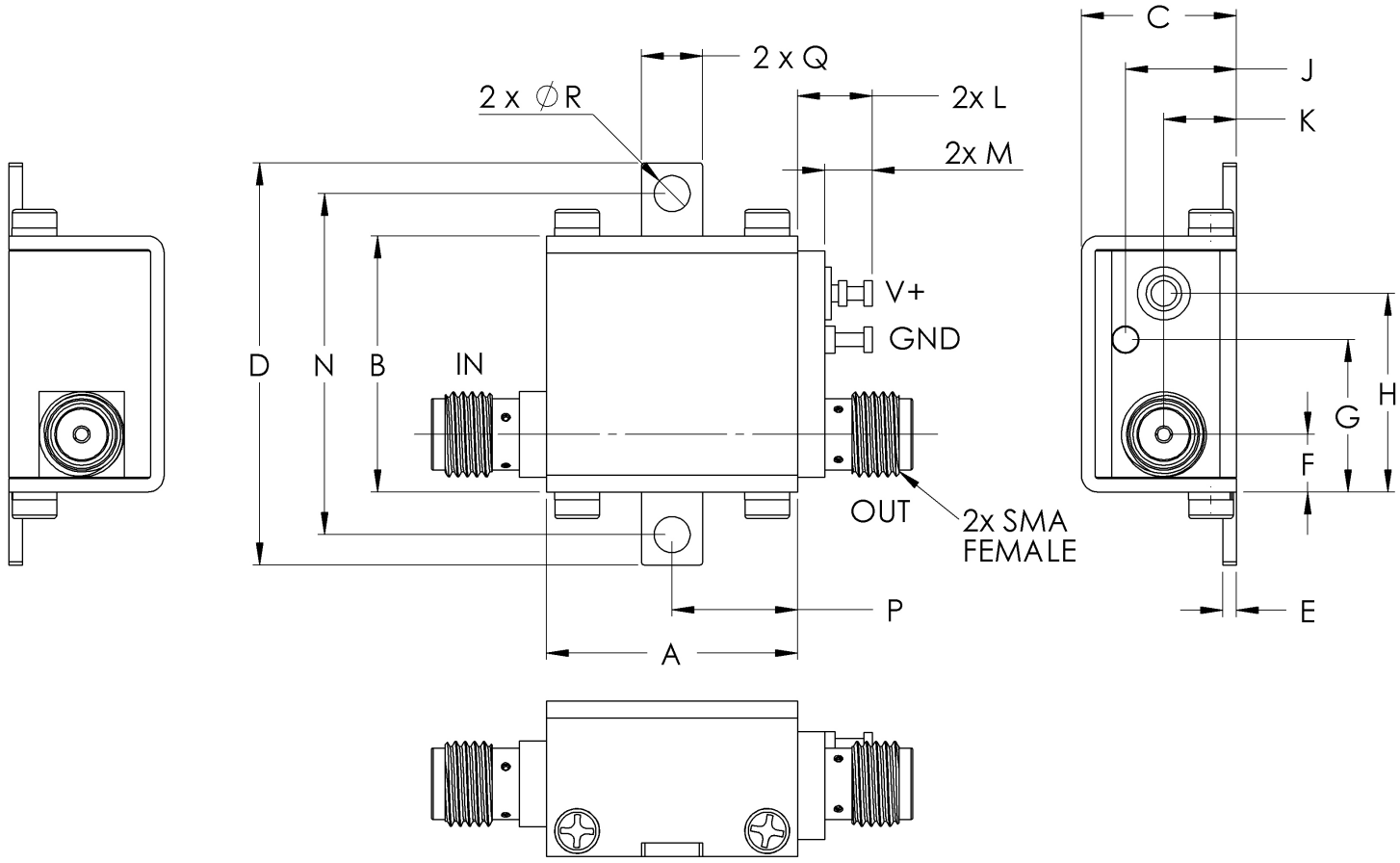
ZX60-2510MA+
IP3



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. ± .03; 3Pl. ± .015
Tolerance on hole size and interaxes dimensions to be ± .005.

Note:

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

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Environmental Specifications ENV23T10

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