

Amplifier

ZX60-1215LN-S+

50Ω 800 MHz to 1400 MHz

Features

- Ultra low noise figure 0.4 typ.
- 11V-13V operation
- Good IP3, 27 dBm typ.
- Reverse voltage connection protected
- Small size
- Low cost
- Protected by US patent 6,790,049

Applications

- Low noise amplifier RF front end
- Low noise pre-amp
- Buffer amplifier
- LNA for GPS application
- General purpose small signal
- Lab
- Instrumentation
- Test equipment



CASE STYLE: GA955

Connectors	Model
SMA	ZX60-1215LN-S+

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

Electrical Specifications at T_{AMB} = 25°C

MODEL NO.	FREQ. (MHz)	GAIN (dB)				MAXIMUM POWER (dBm)	DYNAMIC RANGE			VSWR (:1) Typ.		ACTIVE DIRECTIVITY (dB) Isolation-Gain	DC VOLTAGE @ Pin V+ (V)	DC OPERATING CURRENT @ Pin V+ (mA)		
		Flatness					Output (1 dB Comp.)	NF (dB)	IP3 (dBm)	In	Out			Typ.	Typ.	Max.
		Typ.	Min.	Typ.	Max.											
ZX60-1215LN-S+	800-1000	16.5	14.0	±0.7	±1.3	12.5	0.4	0.7	26.0	1.65	1.40	13	12	42	50	
	1000-1400	14.5	11.0	±1.2	±2.5	12.5	0.4	0.7	27.5	1.70	1.40	13	12	42	50	

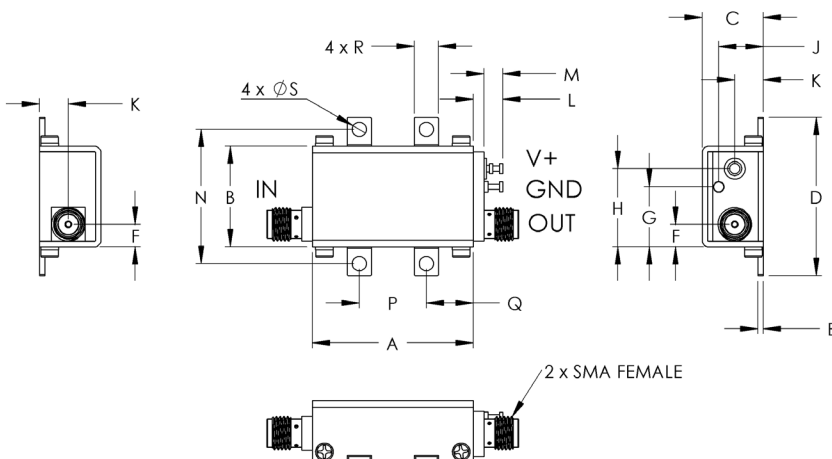
Maximum Ratings

Operating Temperature	-40°C to 80°C case
Storage Temperature	-55°C to 100°C
DC Voltage	15V
Input Power(no Damage)	13dBm

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

! NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note [AN-40-10](#).

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	wt.
1.20	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.14	1.00	.50	.35	.18	.106	grams
30.48	19.05	11.68	29.97	1.02	4.32	11.43	14.99	8.38	5.33	5.59	3.56	25.40	12.70	8.89	4.57	2.69	35.0

Notes

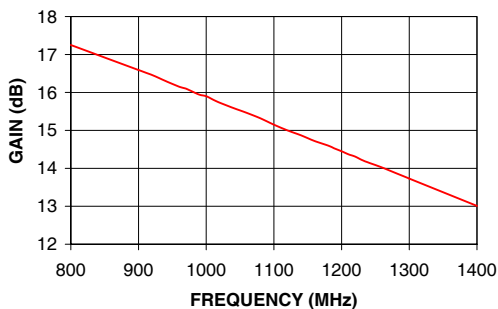
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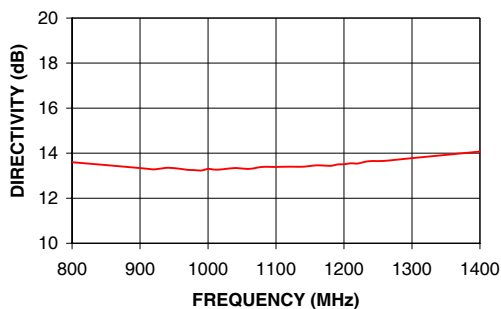
Typical Performance Data & Curves at 25°C ZX60-1215LN-S+

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	POWER OUT @1dB COMPRESSION (dBm)	IP3 (dBm)	NF (dB)
800	17.25	13.60	1.63	1.76	12.00	24.51	0.42
850	16.90	13.47	1.61	1.62	12.16	25.00	0.41
900	16.59	13.34	1.59	1.49	12.33	25.49	0.41
920	16.46	13.28	1.59	1.44	12.40	25.68	0.41
940	16.30	13.35	1.59	1.40	12.46	25.86	0.41
960	16.15	13.30	1.60	1.36	12.53	26.05	0.40
980	16.02	13.25	1.60	1.32	12.59	26.23	0.40
990	15.94	13.23	1.61	1.30	12.62	26.32	0.40
1000	15.90	13.30	1.61	1.29	12.64	26.41	0.40
1020	15.73	13.28	1.62	1.26	12.70	26.59	0.40
1050	15.53	13.34	1.63	1.23	12.77	26.83	0.40
1080	15.32	13.39	1.65	1.21	12.85	27.13	0.40
1100	15.15	13.39	1.67	1.21	12.89	27.32	0.40
1120	15.00	13.40	1.68	1.22	12.93	27.50	0.40
1150	14.79	13.43	1.69	1.25	12.96	27.73	0.40
1180	14.60	13.44	1.72	1.29	13.01	28.05	0.41
1200	14.45	13.51	1.74	1.31	13.03	28.23	0.41
1250	14.15	13.65	1.77	1.40	13.06	28.65	0.42
1300	13.73	13.78	1.81	1.51	13.05	29.11	0.43
1400	13.01	14.07	1.87	1.74	12.93	29.91	0.45

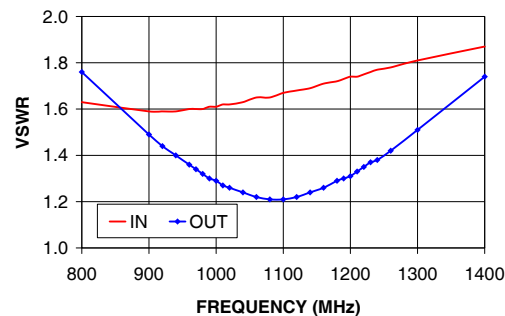
ZX60-1215LN-S+
GAIN



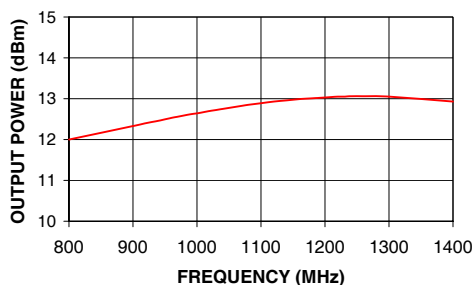
ZX60-1215LN-S+
DIRECTIVITY



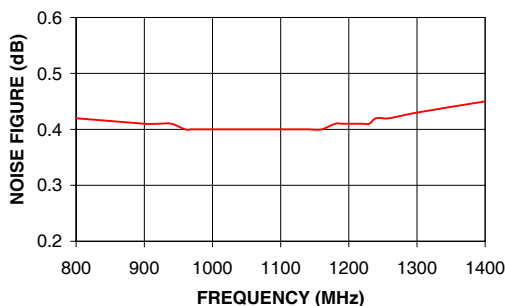
ZX60-1215LN-S+
VSWR



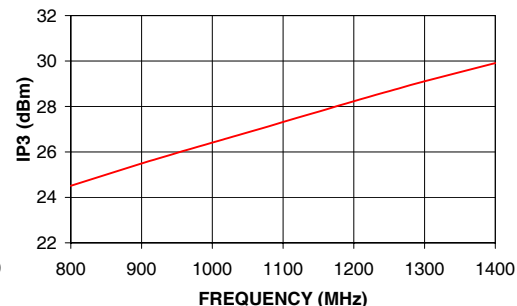
ZX60-1215LN-S+
OUTPUT POWER AT 1dB COMPRESSION



ZX60-1215LN-S+
NOISE FIGURE



ZX60-1215LN-S+
IP3



Notes

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Ultra Low Noise Amplifier

ZX60-1215LN-S+

Typical Performance Data

FREQUENCY (MHz)	GAIN (dB) 12V	DIRECTIVITY (dB) 12V	VSWR IN (:1) 12V	VSWR OUT (:1) 12V	NOISE FIGURE (dB) 12V	Pout at 1dB Comp. (dBm) 12V	Output IP3 (dBm) 12V
800	17.25	13.60	1.63	1.76	0.42	12.00	24.51
850	16.90	13.47	1.61	1.62	0.41	12.16	25.00
900	16.59	13.34	1.59	1.49	0.41	12.33	25.49
920	16.46	13.28	1.59	1.44	0.41	12.40	25.68
940	16.30	13.35	1.59	1.40	0.41	12.46	25.86
960	16.15	13.30	1.60	1.36	0.40	12.53	26.05
980	16.02	13.25	1.60	1.32	0.40	12.59	26.23
990	15.94	13.23	1.61	1.30	0.40	12.62	26.32
1000	15.90	13.30	1.61	1.29	0.40	12.64	26.41
1020	15.73	13.28	1.62	1.26	0.40	12.70	26.59
1050	15.53	13.34	1.63	1.23	0.40	12.77	26.83
1080	15.32	13.39	1.65	1.21	0.40	12.85	27.13
1100	15.15	13.39	1.67	1.21	0.40	12.89	27.32
1120	15.00	13.40	1.68	1.22	0.40	12.93	27.50
1150	14.79	13.43	1.69	1.25	0.40	12.96	27.73
1180	14.60	13.44	1.72	1.29	0.41	13.01	28.05
1200	14.45	13.51	1.74	1.31	0.41	13.03	28.23
1250	14.15	13.65	1.77	1.40	0.42	13.06	28.65
1300	13.73	13.78	1.81	1.51	0.43	13.05	29.11
1400	13.01	14.07	1.87	1.74	0.45	12.93	29.91



ISO 9001 ISO 14001 AS 9100 CERTIFIED

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IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

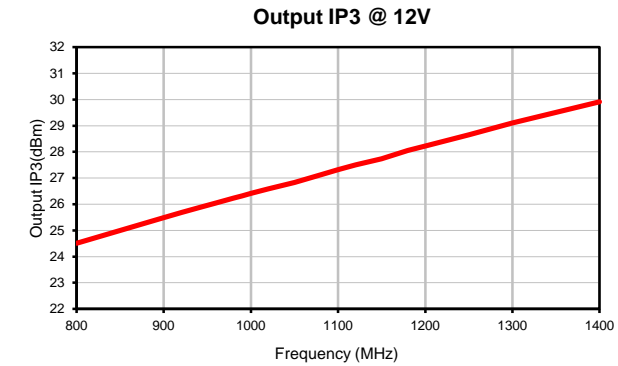
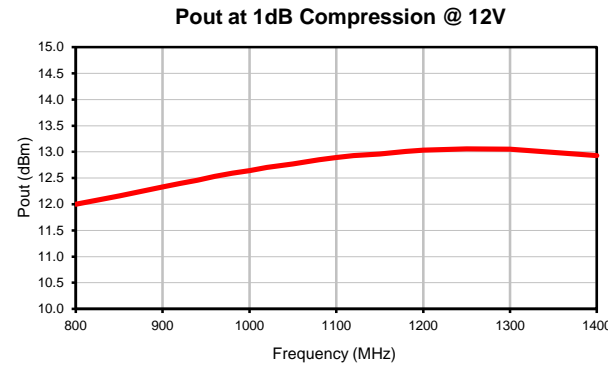
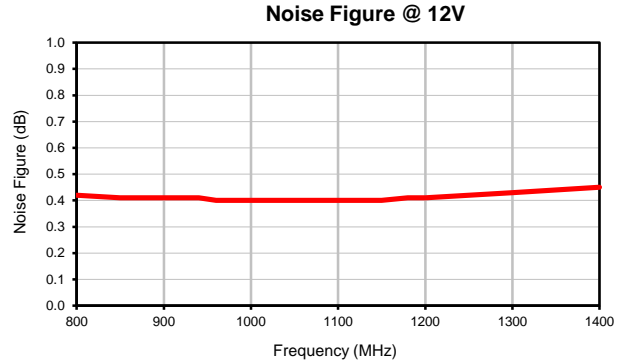
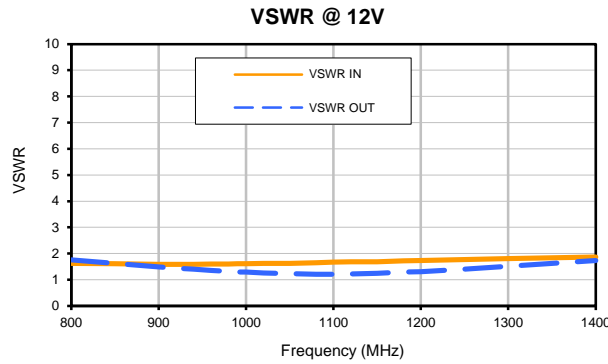
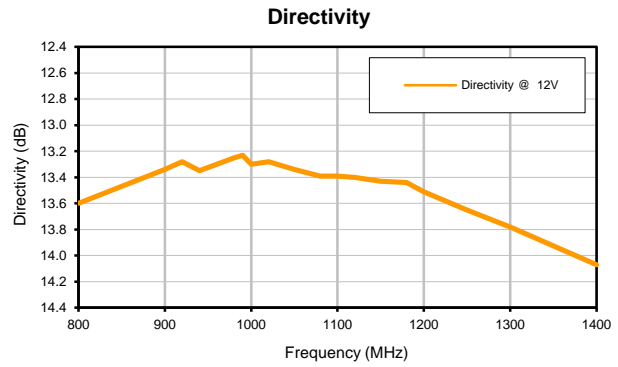
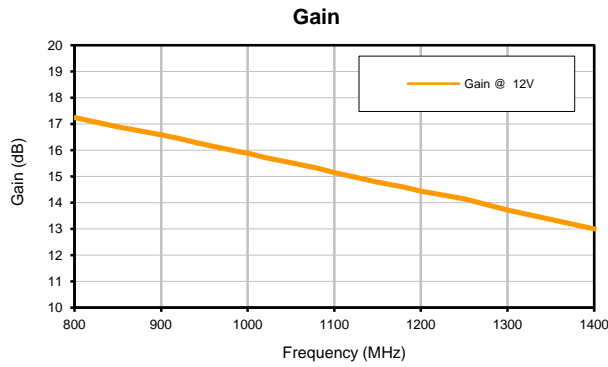
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REV. OR
ZX60-1215LN-S+
190227

Ultra Low Noise Amplifier

Typical Performance Curves

ZX60-1215LN-S+



For detailed performance specs & shopping online see web site

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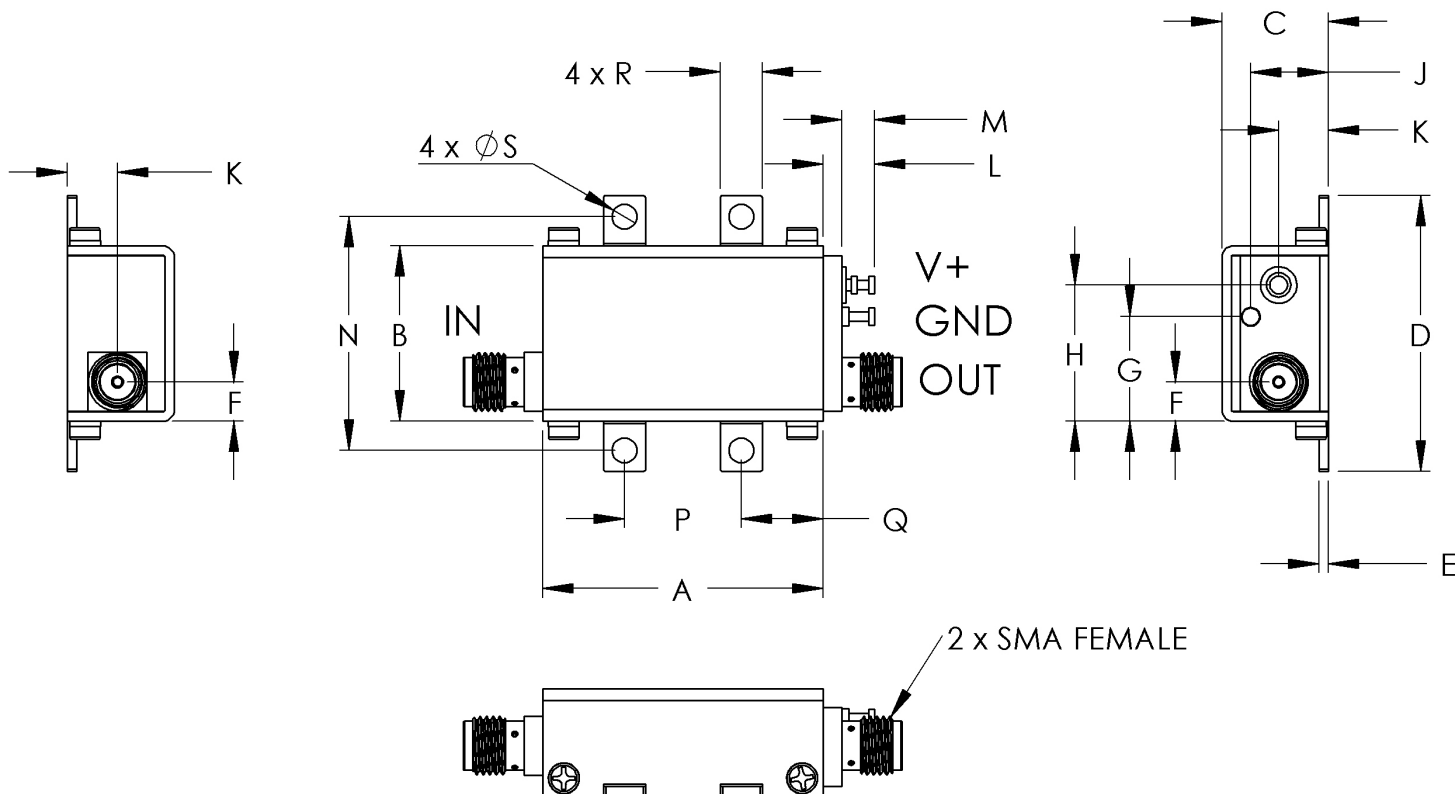
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Case Style

GA

Outline Dimensions

GA955



CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N
GA955	1.20 (30.48)	.75 (19.05)	.46 (11.61)	1.18 (29.97)	.04 (1.02)	.17 (4.27)	.45 (11.35)	.58 (14.81)	.33 (8.46)	.21 (5.44)	.22 (5.59)	.14 (3.56)	1.000 (25.4)

CASE #.	P	Q	R	S	WT GRAMS
GA955	.500 (12.70)	.35 (8.89)	.18 (4.57)	.106 (2.69)	35.0

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

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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 80° 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