

# Low Noise Amplifier

## ZX60-242LN-S+

50Ω

1710 to 2400 MHz

### Features

- Ultra low noise figure, 0.75 dB typ.
- Output power, up to +17 dBm typ.
- Good output IP3, 33 dBm typ.
- Low current consumption
- Good return loss
- Unconditionally stable
- Protected by US patent 6,790,049

### Applications

- Base transceiver station, tower mounted amplifier, repeater
- WCDMA
- TD SCDMA
- PCS Rx / PCS Tx
- General purpose low noise amplifier
- Lab
- Instrumentation
- Test equipment



CASE STYLE: GA955

Connectors	Model
SMA	ZX60-242LN-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)	Min.	Typ.	Max.	Units
Frequency Range		1710		2400	MHz
Noise Figure	1710 - 1880		0.70	0.95	dB
	1850 - 1990		0.70	0.95	
	1990 - 2200		0.75	0.95	
	2200 - 2400		0.75	1.00	
Gain	1710 - 1880	12.0	14.0		dB
	1850 - 1990	11.5	13.5		
	1990 - 2200	10.5	12.5		
	2200 - 2400	10.0	11.5		
Gain Flatness	1710 - 1880		± 0.5	± 1.0	dB
	1850 - 1990		± 0.3	± 0.7	
	1990 - 2200		± 0.5	± 1.0	
	2200 - 2400		± 0.4	± 0.8	
Output Power at 1dB compression	1710 - 1880	15.0	16.5		dBm
	1850 - 1990	15.0	16.5		
	1990 - 2200	15.0	16.5		
	2200 - 2400	15.0	16.5		
Output third order intercept point	1710 - 1880		32.0		dBm
	1850 - 1990		32.5		
	1990 - 2200		33.5		
	2200 - 2400		34.5		
Input VSWR	1710 - 1880		1.2		:1
	1850 - 1990		1.2		
	1990 - 2200		1.2		
	2200 - 2400		1.2		
Output VSWR	1710 - 1880		1.6		:1
	1850 - 1990		1.7		
	1990 - 2200		1.7		
	2200 - 2400		1.6		
Active Directivity	1710 - 2400		8		dB
DC Supply Voltage			5		V
Supply Current			40	46	mA

#### Notes

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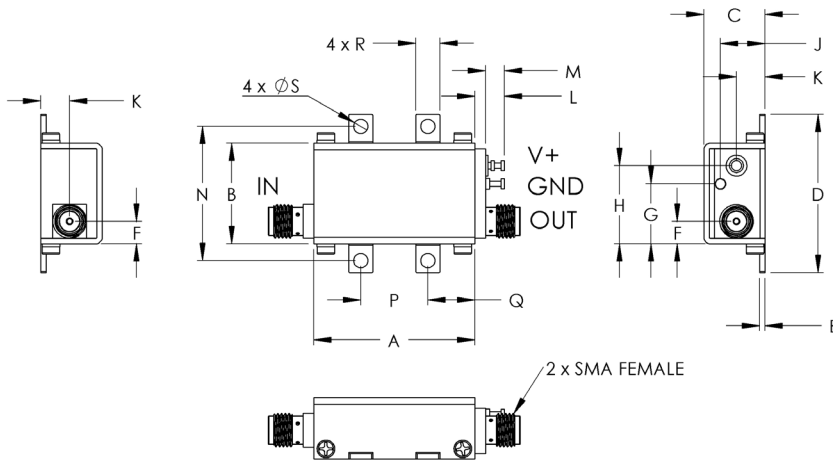


## Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 85°C Case
Storage Temperature	-55°C to 100°C
DC Voltage	5.5 V
Input RF Power (no damage)	+10 dBm
Power Consumption	250 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 terminals. See Application Note [AN-40-10](#).

## Outline Dimensions (inch/mm)

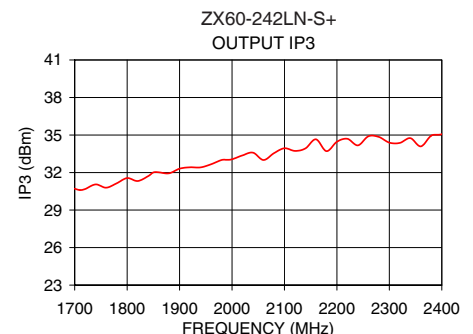
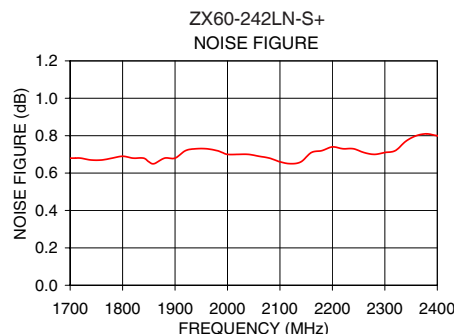
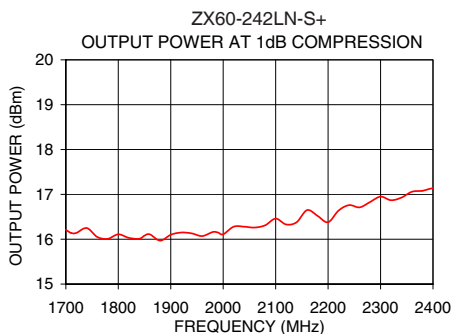
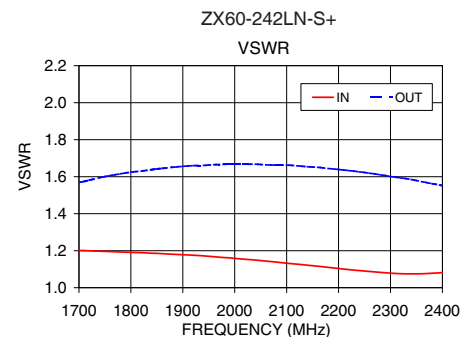
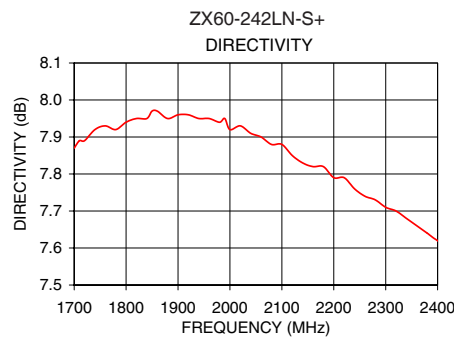
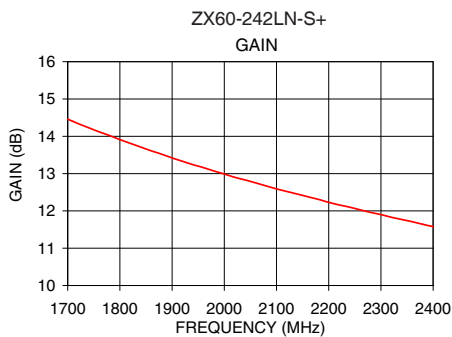
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	wt.
1.20	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.14	1.00	.50	.35	.18	.106	grams
30.48	19.05	11.68	29.97	1.02	4.32	11.43	14.99	8.38	5.33	5.59	3.56	25.40	12.70	8.89	4.57	2.69	35.0

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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	POWER OUT @ 1dB COMPRESSION (dBm)	OUTPUT IP3 (dBm)	NF (dB)
1710.00	14.40	7.89	1.20	1.57	16.14	30.60	0.68
1740.00	14.23	7.92	1.20	1.59	16.25	31.05	0.67
1760.00	14.12	7.93	1.20	1.61	16.05	30.79	0.67
1780.00	14.02	7.92	1.19	1.62	16.01	31.14	0.68
1800.00	13.91	7.94	1.19	1.62	16.11	31.56	0.69
1850.00	13.66	7.97	1.19	1.64	16.08	32.01	0.66
1880.00	13.52	7.95	1.18	1.65	15.97	31.94	0.68
1900.00	13.42	7.96	1.18	1.66	16.10	32.31	0.68
1940.00	13.24	7.95	1.17	1.66	16.13	32.41	0.73
1960.00	13.16	7.95	1.17	1.66	16.07	32.66	0.73
1990.00	13.03	7.95	1.16	1.67	16.15	33.02	0.71
2000.00	12.99	7.92	1.16	1.67	16.11	33.06	0.70
2040.00	12.83	7.91	1.15	1.67	16.28	33.59	0.70
2100.00	12.59	7.88	1.13	1.66	16.46	33.94	0.66
2140.00	12.45	7.83	1.12	1.65	16.38	33.93	0.66
2200.00	12.23	7.79	1.10	1.64	16.38	34.46	0.74
2240.00	12.10	7.76	1.09	1.63	16.76	34.17	0.73
2300.00	11.90	7.71	1.08	1.60	16.95	34.39	0.71
2340.00	11.77	7.68	1.07	1.58	16.93	34.75	0.77
2400.00	11.58	7.62	1.08	1.55	17.14	35.06	0.80



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# Amplifier

# ZX60-242LN-S+

## Typical Performance Data

FREQUENCY (MHz)	GAIN (dB) 5V	DIRECTIVITY (dB) 5V	VSWR IN (:1) 5V	VSWR OUT (:1) 5V	Output IP3 (dBm) 5V	NOISE FIGURE (dB) 5V	Pout at 1dB Comp. (dBm) 5V
1710	14.40	7.89	1.20	1.57	30.60	0.68	16.14
1740	14.23	7.92	1.20	1.59	31.05	0.67	16.25
1760	14.12	7.93	1.20	1.61	30.79	0.67	16.05
1780	14.02	7.92	1.19	1.62	31.14	0.68	16.01
1800	13.91	7.94	1.19	1.62	31.56	0.69	16.11
1850	13.66	7.97	1.19	1.64	32.01	0.66	16.08
1880	13.52	7.95	1.18	1.65	31.94	0.68	15.97
1900	13.42	7.96	1.18	1.66	32.31	0.68	16.10
1940	13.24	7.95	1.17	1.66	32.41	0.73	16.13
1960	13.16	7.95	1.17	1.66	32.66	0.73	16.07
1990	13.03	7.95	1.16	1.67	33.02	0.71	16.15
2000	12.99	7.92	1.16	1.67	33.06	0.70	16.11
2040	12.83	7.91	1.15	1.67	33.59	0.70	16.28
2100	12.59	7.88	1.13	1.66	33.94	0.66	16.46
2140	12.45	7.83	1.12	1.65	33.93	0.66	16.38
2200	12.23	7.79	1.10	1.64	34.46	0.74	16.38
2240	12.10	7.76	1.09	1.63	34.17	0.73	16.76
2300	11.90	7.71	1.08	1.60	34.39	0.71	16.95
2340	11.77	7.68	1.07	1.58	34.75	0.77	16.93
2400	11.58	7.62	1.08	1.55	35.06	0.80	17.14



ISO 9001 ISO 14001 AS 9100 CERTIFIED

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IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

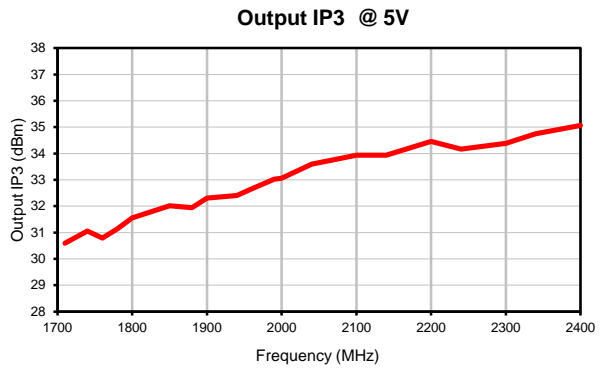
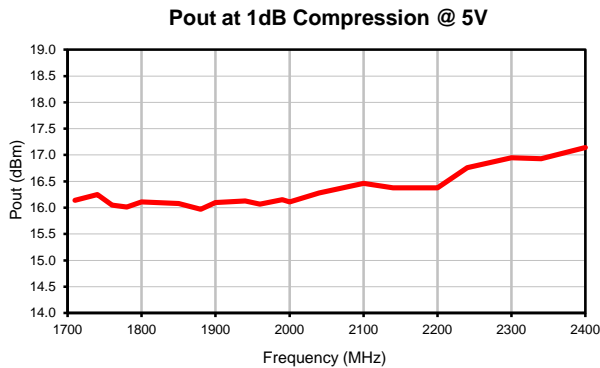
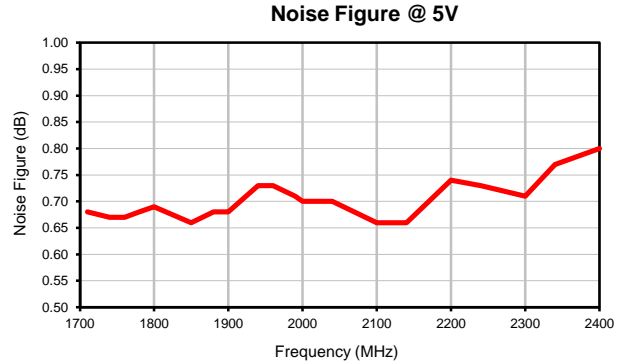
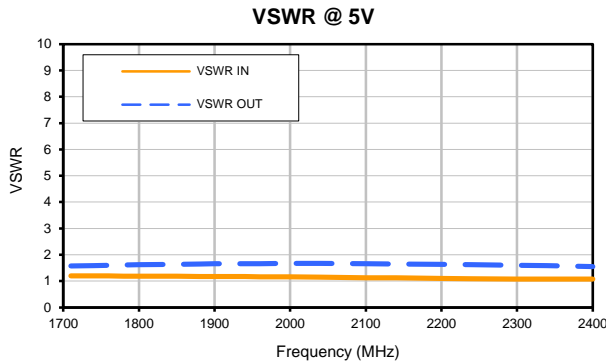
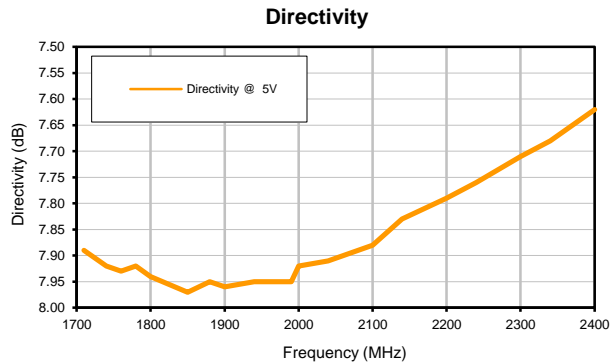
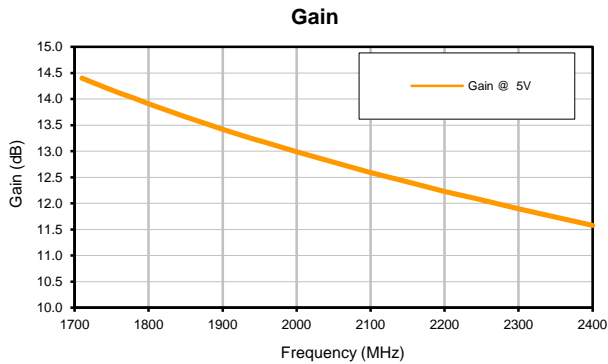
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REV. OR  
ZX60-242LN-S+  
190227

# Amplifier

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## Typical Performance Curves



For detailed performance specs & shopping online see web site

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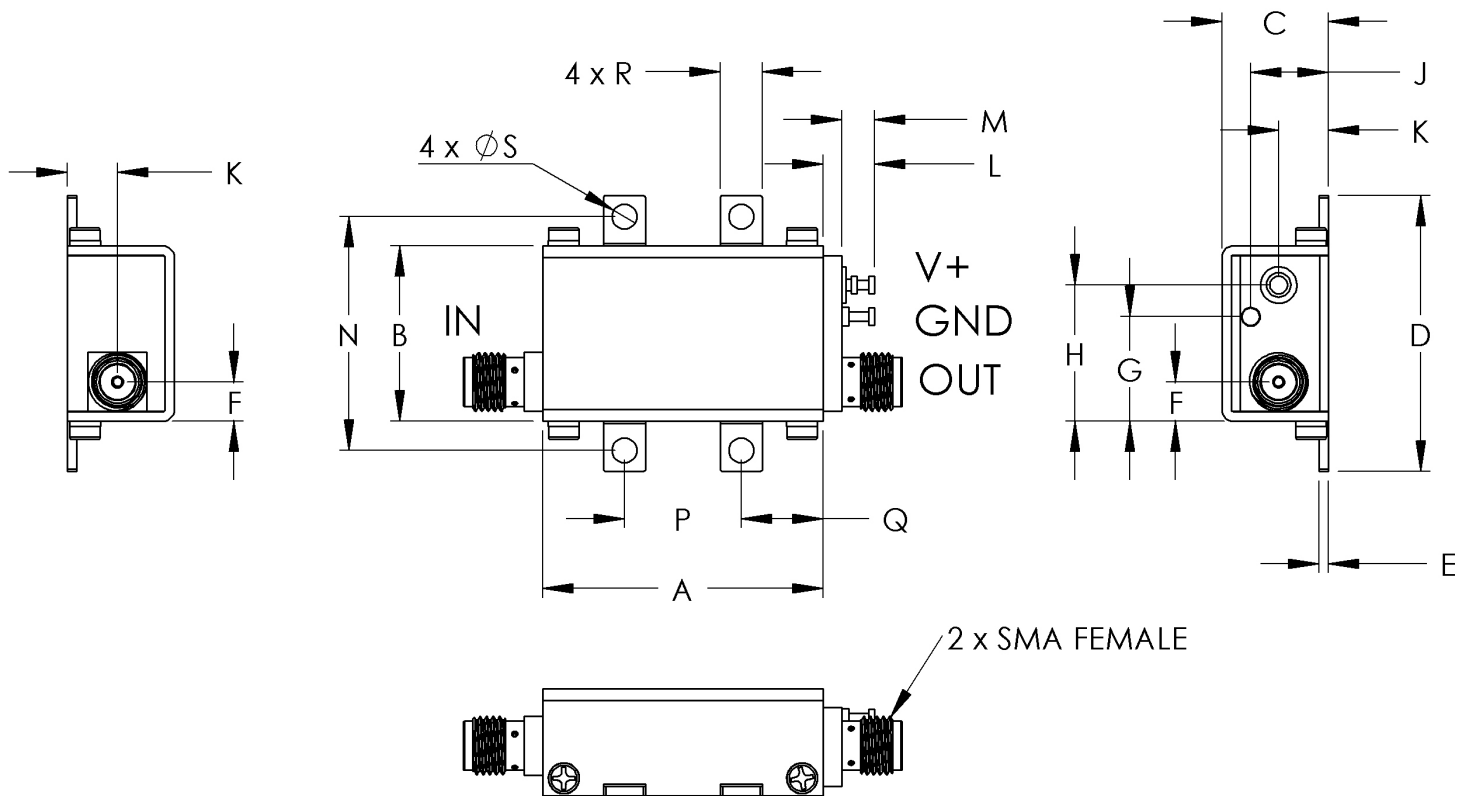
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# Case Style

# 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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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