Coaxial

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

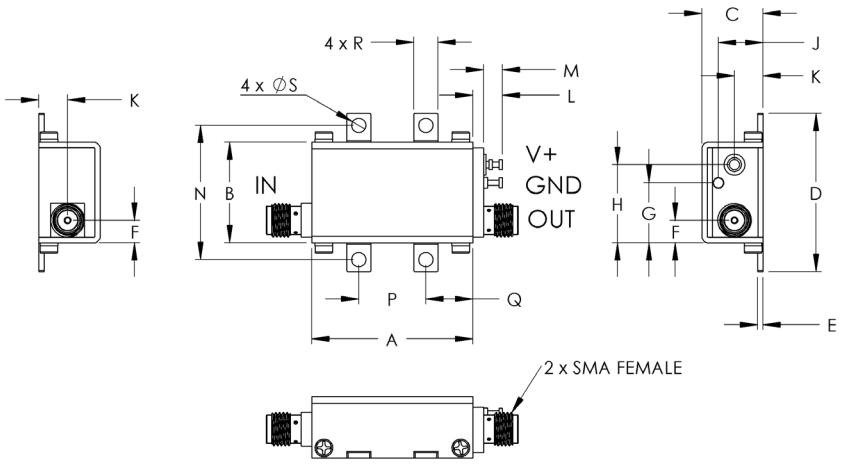
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

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

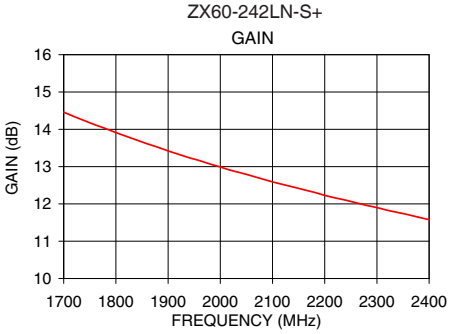


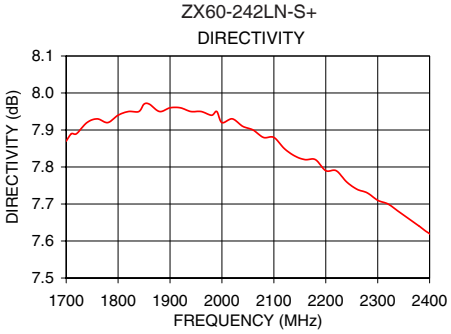
NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note AN-40-10 .

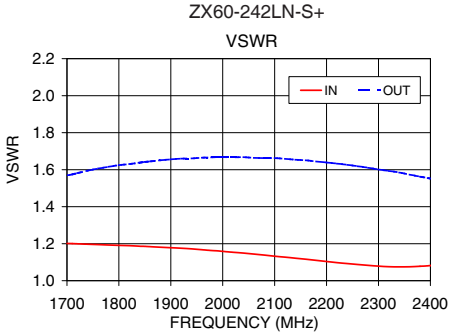
Outline Dimensions (inch / mm)

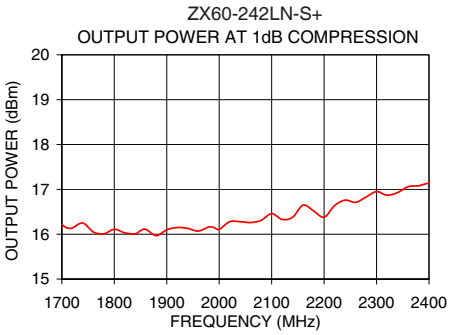
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	wt.
1.20	.75	.46	1.18	.04	.17	.45	.59	.33	.21	.22	.14	1.00	.50	.35	.18	.106	grams
30.48	19.05	11.68	29.97	1.02	4.32	11.43	14.99	8.38	5.33	5.59	3.56	25.40	12.70	8.89	4.57	2.69	35.0

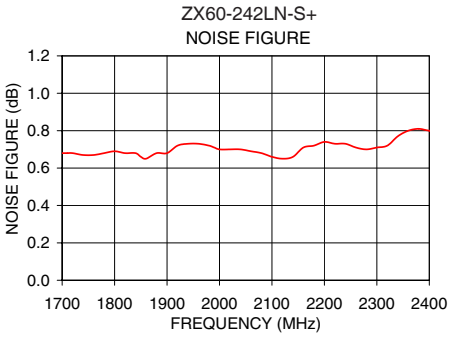
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	POWER OUT @ 1dB COMPRESSION (dBm)	OUTPUT IP3 (dBm)	NF (dB)
1710.00	14.40	7.89	1.20	1.57	16.14	30.60	0.68
1740.00	14.23	7.92	1.20	1.59	16.25	31.05	0.67
1760.00	14.12	7.93	1.20	1.61	16.05	30.79	0.67
1780.00	14.02	7.92	1.19	1.62	16.01	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

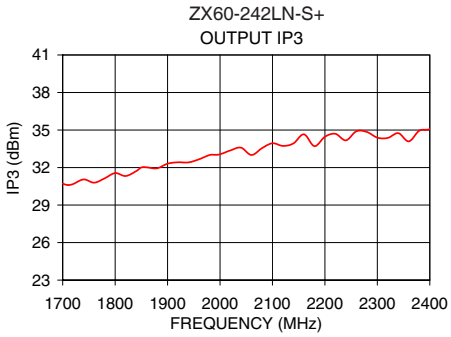












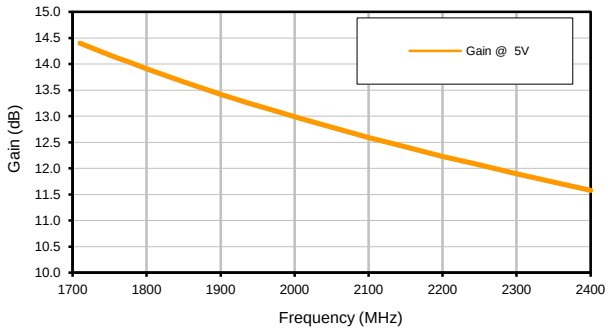
Amplifier ZX60-242LN-S+

Typical Performance Data

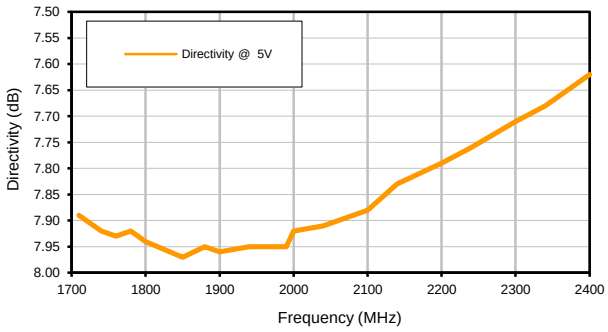
FREQUENCY (MHz)	GAIN (dB) 5V	DIRECTIVITY (dB) 5V	VSWR IN (:1) 5V	VSWR OUT (:1) 5V	Output IP3 (dBm) 5V	NOISE FIGURE (dB) 5V	Pout at 1dB Comp. (dBm) 5V
1710	14.40	7.89	1.20	1.57	30.60	0.68	16.14
1740	14.23	7.92	1.20	1.59	31.05	0.67	16.25
1760	14.12	7.93	1.20	1.61	30.79	0.67	16.05
1780	14.02	7.92	1.19	1.62	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

Typical Performance Curves

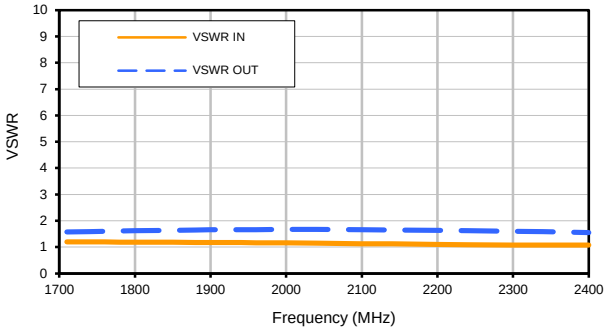
Gain



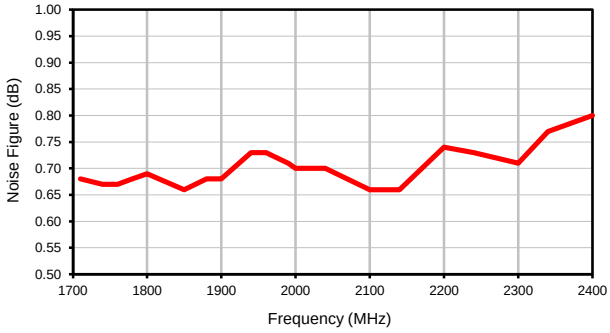
Directivity



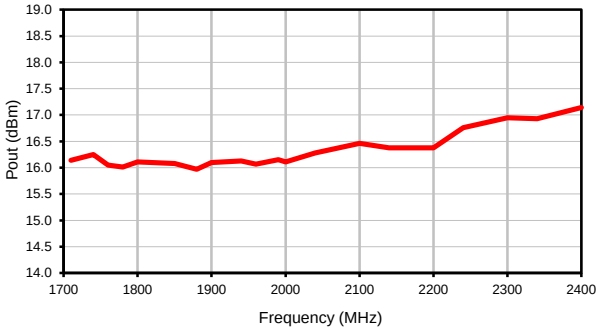
VSWR @ 5V



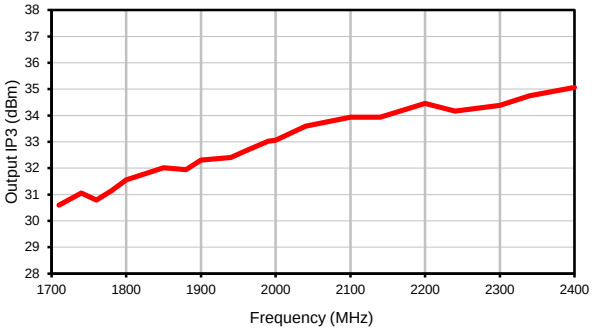
Noise Figure @ 5V



Pout at 1dB Compression @ 5V



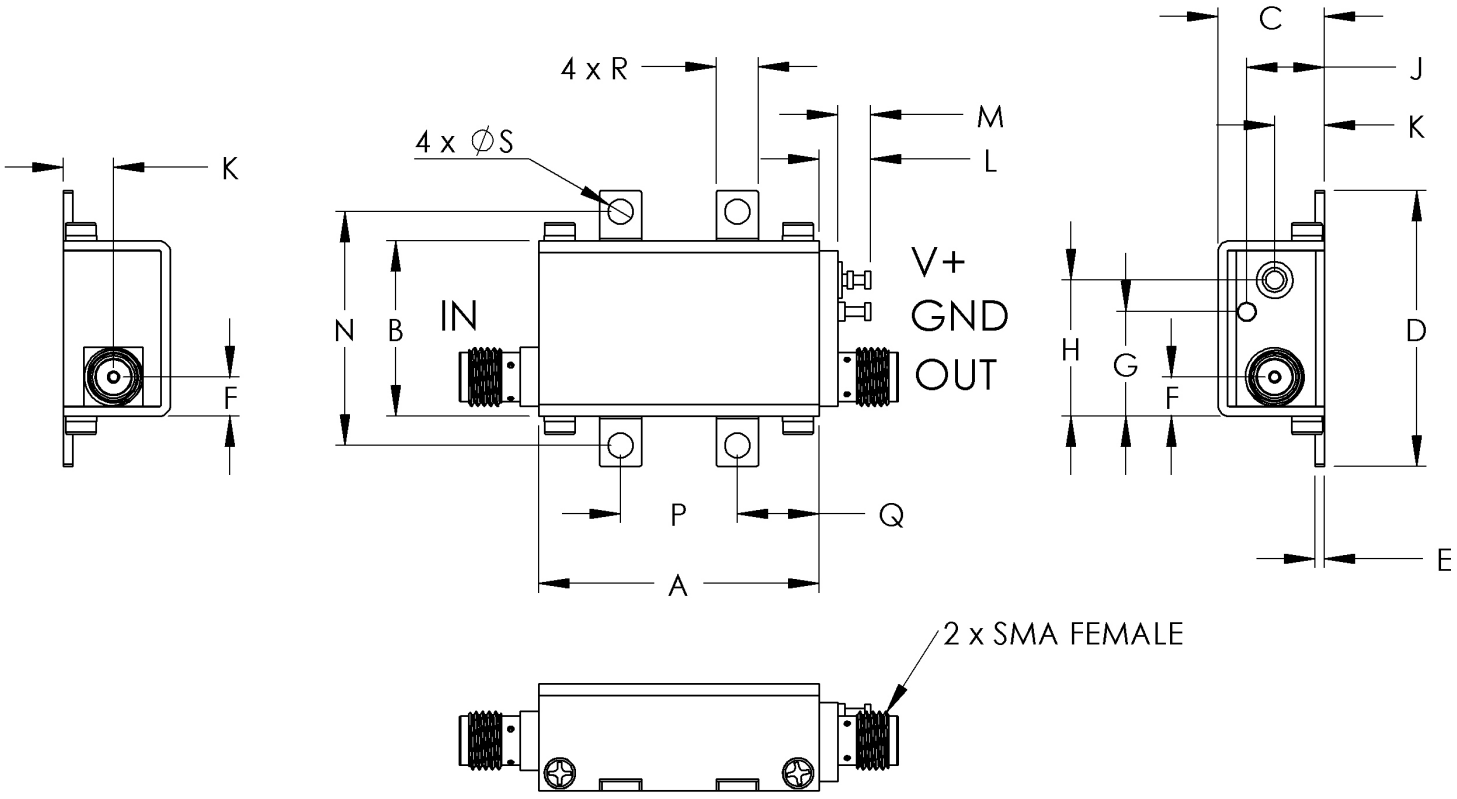
Output IP3 @ 5V



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. ± .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