

Amplifier

50Ω 0.5 to 2.5 GHz
ZX60-2534MA+

Features

- From 2.8V to 5V operation
- High directivity
- Wide bandwidth, 0.5 to 2.5 GHz
- Low noise figure, 2.6 dB typ.
- Output power, up to 18 dBm typ.
- Protected by US patent 6,790,049

Applications

- Buffer amplifier
- Cellular
- PCN
- Lab
- Instrumentation
- Test equipment



CASE STYLE: GA955

Connectors	Model
SMA	ZX60-2534MA-S+

+RoHS Compliant

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

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

MODEL NO.	FREQ. (GHz) $f_L - f_U$	DC VOLTAGE @ Pin V+ (V)	GAIN over frequency in GHz Typ (dB)						MAXIMUM POWER (dBm) Output (1 dB Comp.) Typ. f_L f_U		DYNAMIC RANGE			VSWR (:1) Typ.		ACTIVE DIRECTIVITY (dB) Isolation-Gain Typ.		DC OPERATING CURRENT @ Pin V+ (mA)	
			0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz			NF (dB) Typ.	IP3 (dBm) Typ.		In	Out	f_L	f_U	Typ.	Max.
											1GHz	1GHz	2GHz						
ZX60-2534MA+	0.5-2.5	5.0	37.5	43.5	43.0	41.0	39.0	38.0	19.0	17.0	2.2	16	18	1.6	1.6	28	16	170	190
		2.8	33.5	38.0	37.5	35.5	33.5	32.0	11.0	12.0	2.6	13	18	1.6	1.3	34	21	160	185

Maximum Ratings

Operating Temperature -40°C to 80°C case

Storage Temperature -55°C to 100°C

DC Voltage 7V

Input Power (no damage) -15dBm

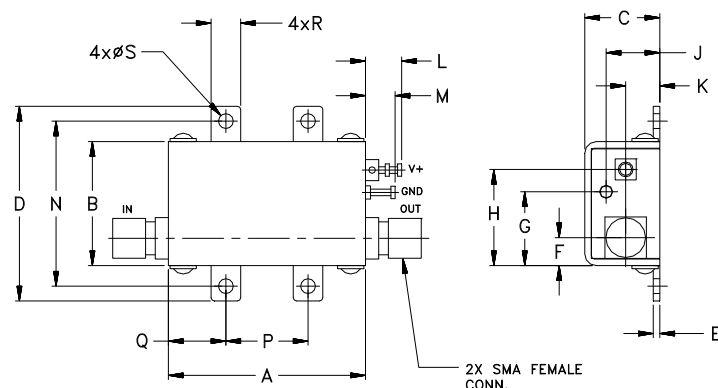
Power Dissipation 0.5W

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	.18	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	4.57	25.40	12.70	8.89	4.57	2.69	35.0

Notes

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 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.
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Typical Performance Data at 25°C

ZX60-2534MA+

V+ = 5.0V

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	POWER OUT @ 1dB COMPRESSION (dBm)	IP3 (dBm)	NF (dB)
500	38.64	37.49	2.78	1.59	18.90	22.42	2.91
550	39.99	30.55	2.59	1.47	19.23	21.49	2.86
600	40.93	29.95	2.41	1.36	19.09	19.75	2.85
650	41.61	34.75	2.27	1.27	19.16	18.9	2.70
700	42.10	28.32	2.14	1.20	19.33	18.54	2.75
800	42.71	23.14	1.94	1.13	19.29	17.28	2.39
900	43.16	30.62	1.81	1.15	19.33	16.96	2.34
1000	43.50	20.67	1.71	1.20	19.15	16.21	2.30
1100	43.71	27.26	1.62	1.24	18.93	15.46	2.06
1300	43.82	22.34	1.48	1.29	18.86	15.54	2.29
1400	43.67	16.21	1.41	1.29	18.65	15.19	2.20
1500	43.42	18.47	1.37	1.28	18.67	15.67	2.24
1600	43.06	20.52	1.31	1.25	18.48	15.94	2.25
1800	42.20	20.24	1.24	1.21	18.03	16.65	2.15
2000	41.30	20.68	1.18	1.16	18.11	17.83	2.00
2200	40.43	25.27	1.14	1.19	17.49	18.35	1.84
2300	40.02	17.35	1.12	1.23	17.24	18.65	2.05
2400	39.62	17.21	1.11	1.27	17.43	18.85	2.14
2450	39.42	16.77	1.11	1.30	17.07	18.99	2.07
2500	39.21	18.21	1.11	1.32	17.16	19.32	1.99

V+ = 2.8V

FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	POWER OUT @ 1dB COMPRESSION (dBm)	IP3 (dBm)	NF (dB)
500	34.90	22.62	2.69	1.68	10.88	17.11	3.10
550	36.06	30.26	2.45	1.59	11.18	16.05	3.07
600	36.86	29.20	2.26	1.55	11.43	14.81	2.96
650	37.44	23.29	2.11	1.51	11.59	14.12	2.97
700	37.86	29.44	2.01	1.52	11.61	13.81	2.96
800	38.35	24.24	1.82	1.56	12.08	13.49	2.74
900	38.65	34.71	1.71	1.62	12.07	13.4	2.67
1000	38.81	33.39	1.61	1.68	12.09	13.19	2.65
1100	38.83	27.76	1.54	1.73	12.27	13.38	2.65
1300	38.62	24.19	1.41	1.79	12.21	13.91	2.66
1400	38.38	23.03	1.36	1.78	12.36	14.31	2.60
1500	38.09	21.15	1.31	1.77	12.27	14.63	2.53
1600	37.74	20.35	1.27	1.74	12.41	15.22	2.68
1800	36.95	21.22	1.20	1.67	12.45	16.62	2.69
2000	36.13	23.63	1.17	1.60	12.68	17.74	2.59
2200	35.31	24.45	1.16	1.54	12.59	18.83	2.56
2300	34.90	20.27	1.15	1.53	12.42	19.23	2.68
2400	34.50	20.65	1.16	1.51	12.49	19.46	2.77
2450	34.30	20.80	1.17	1.51	12.44	19.88	2.73
2500	34.09	25.56	1.17	1.50	12.28	20.04	2.71

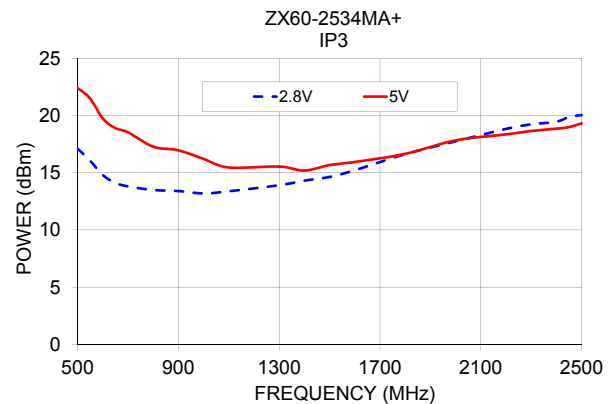
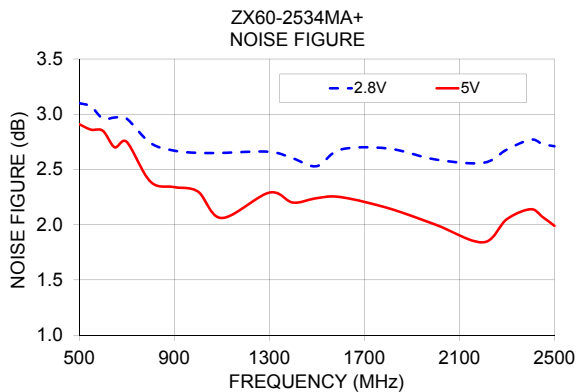
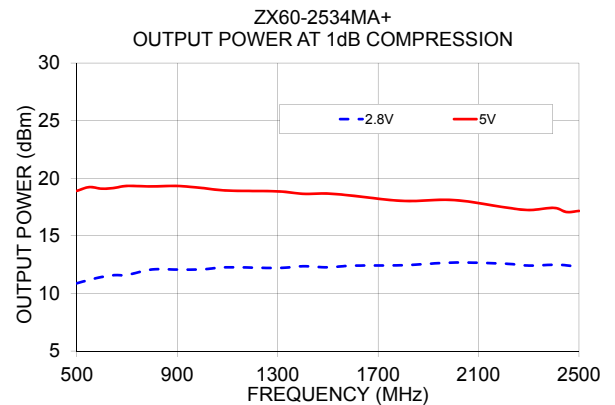
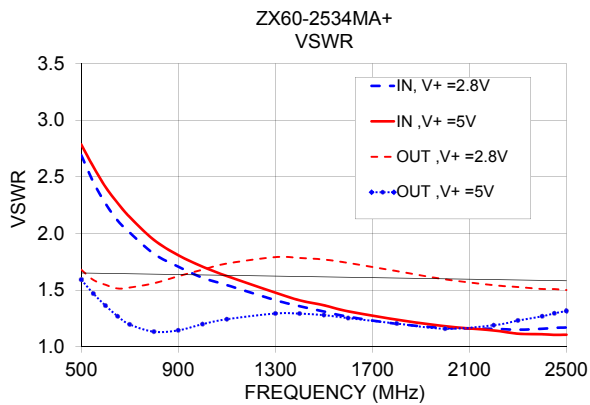
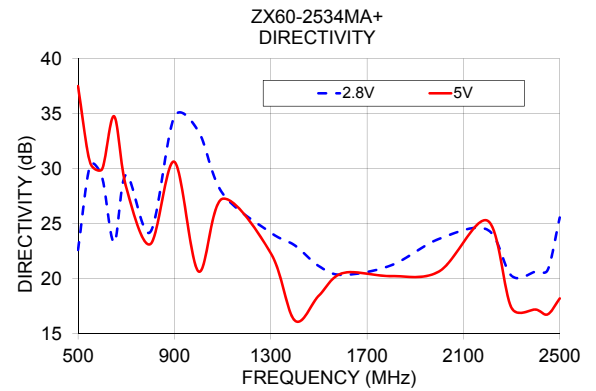
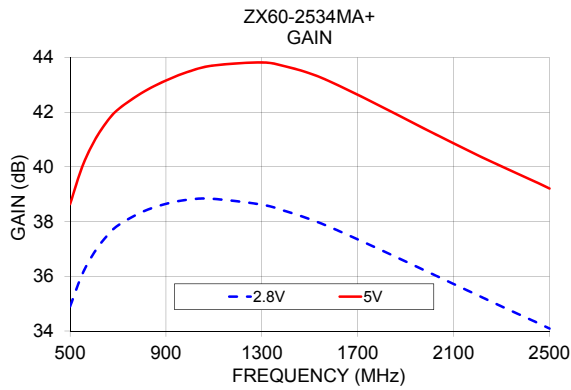
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Typical Performance Curves at 25 °C

ZX60-2534MA+



Notes

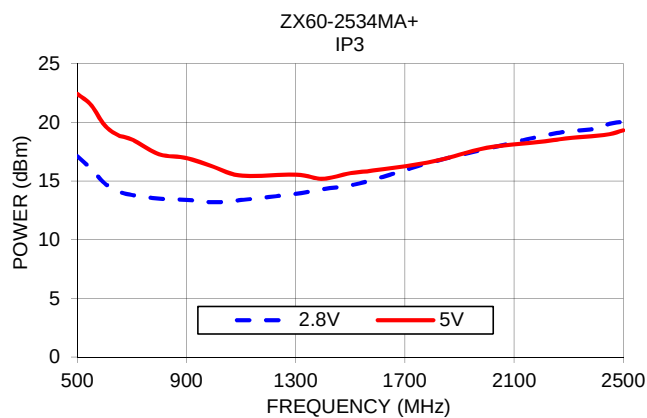
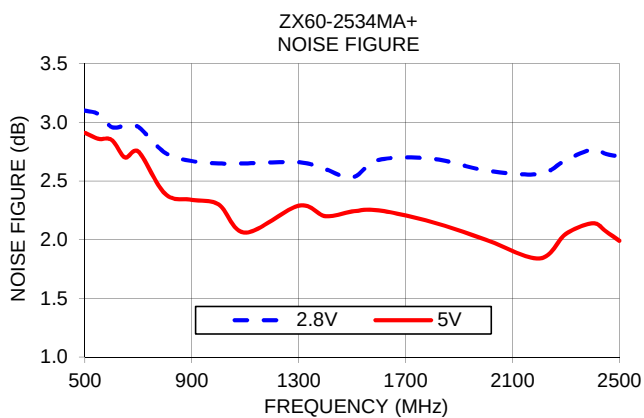
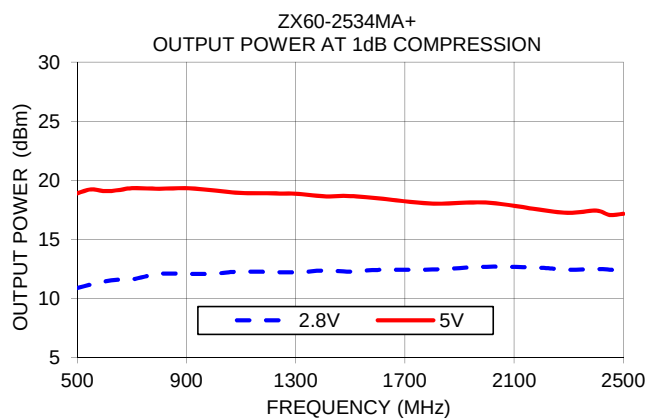
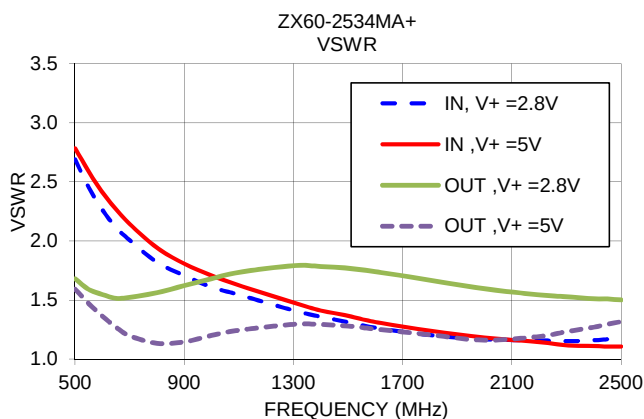
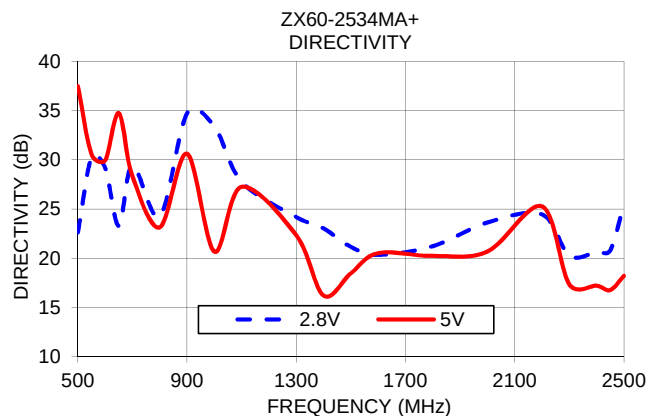
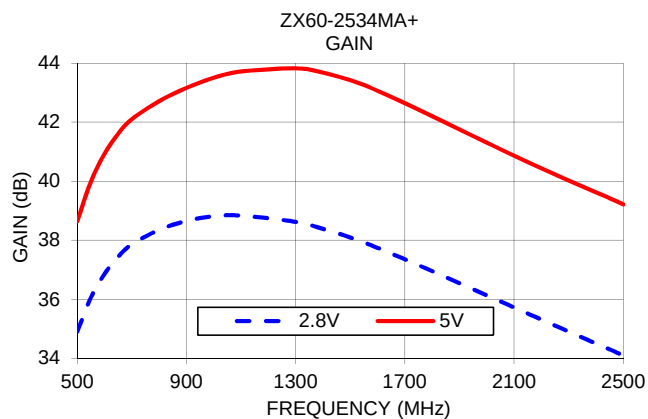
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Typical Performance Data

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	34.90	38.64	22.62	37.49	2.69	2.78	1.68	1.59	10.88	18.90	17.11	22.42	3.10	2.91
550	36.06	39.99	30.26	30.55	2.45	2.59	1.59	1.47	11.18	19.23	16.05	21.49	3.07	2.86
600	36.86	40.93	29.20	29.95	2.26	2.41	1.55	1.36	11.43	19.09	14.81	19.75	2.96	2.85
650	37.44	41.61	23.29	34.75	2.11	2.27	1.51	1.27	11.59	19.16	14.12	18.9	2.97	2.70
700	37.86	42.10	29.44	28.32	2.01	2.14	1.52	1.20	11.61	19.33	13.81	18.54	2.96	2.75
800	38.35	42.71	24.24	23.14	1.82	1.94	1.56	1.13	12.08	19.29	13.49	17.28	2.74	2.39
900	38.65	43.16	34.71	30.62	1.71	1.81	1.62	1.15	12.07	19.33	13.4	16.96	2.67	2.34
1000	38.81	43.50	33.39	20.67	1.61	1.71	1.68	1.20	12.09	19.15	13.19	16.21	2.65	2.30
1100	38.83	43.71	27.76	27.26	1.54	1.62	1.73	1.24	12.27	18.93	13.38	15.46	2.65	2.06
1300	38.62	43.82	24.19	22.34	1.41	1.48	1.79	1.29	12.21	18.86	13.91	15.54	2.66	2.29
1400	38.38	43.67	23.03	16.21	1.36	1.41	1.78	1.29	12.36	18.65	14.31	15.19	2.60	2.20
1500	38.09	43.42	21.15	18.47	1.31	1.37	1.77	1.28	12.27	18.67	14.63	15.67	2.53	2.24
1600	37.74	43.06	20.35	20.52	1.27	1.31	1.74	1.25	12.41	18.48	15.22	15.94	2.68	2.25
1800	36.95	42.20	21.22	20.24	1.20	1.24	1.67	1.21	12.45	18.03	16.62	16.65	2.69	2.15
2000	36.13	41.30	23.63	20.68	1.17	1.18	1.60	1.16	12.68	18.11	17.74	17.83	2.59	2.00
2200	35.31	40.43	24.45	25.27	1.16	1.14	1.54	1.19	12.59	17.49	18.83	18.35	2.56	1.84
2300	34.90	40.02	20.27	17.35	1.15	1.12	1.53	1.23	12.42	17.24	19.23	18.65	2.68	2.05
2400	34.50	39.62	20.65	17.21	1.16	1.11	1.51	1.27	12.49	17.43	19.46	18.85	2.77	2.14
2450	34.30	39.42	20.80	16.77	1.17	1.11	1.51	1.30	12.44	17.07	19.88	18.99	2.73	2.07
2500	34.09	39.21	25.56	18.21	1.17	1.11	1.50	1.32	12.28	17.16	20.04	19.32	2.71	1.99

Typical Performance Curves

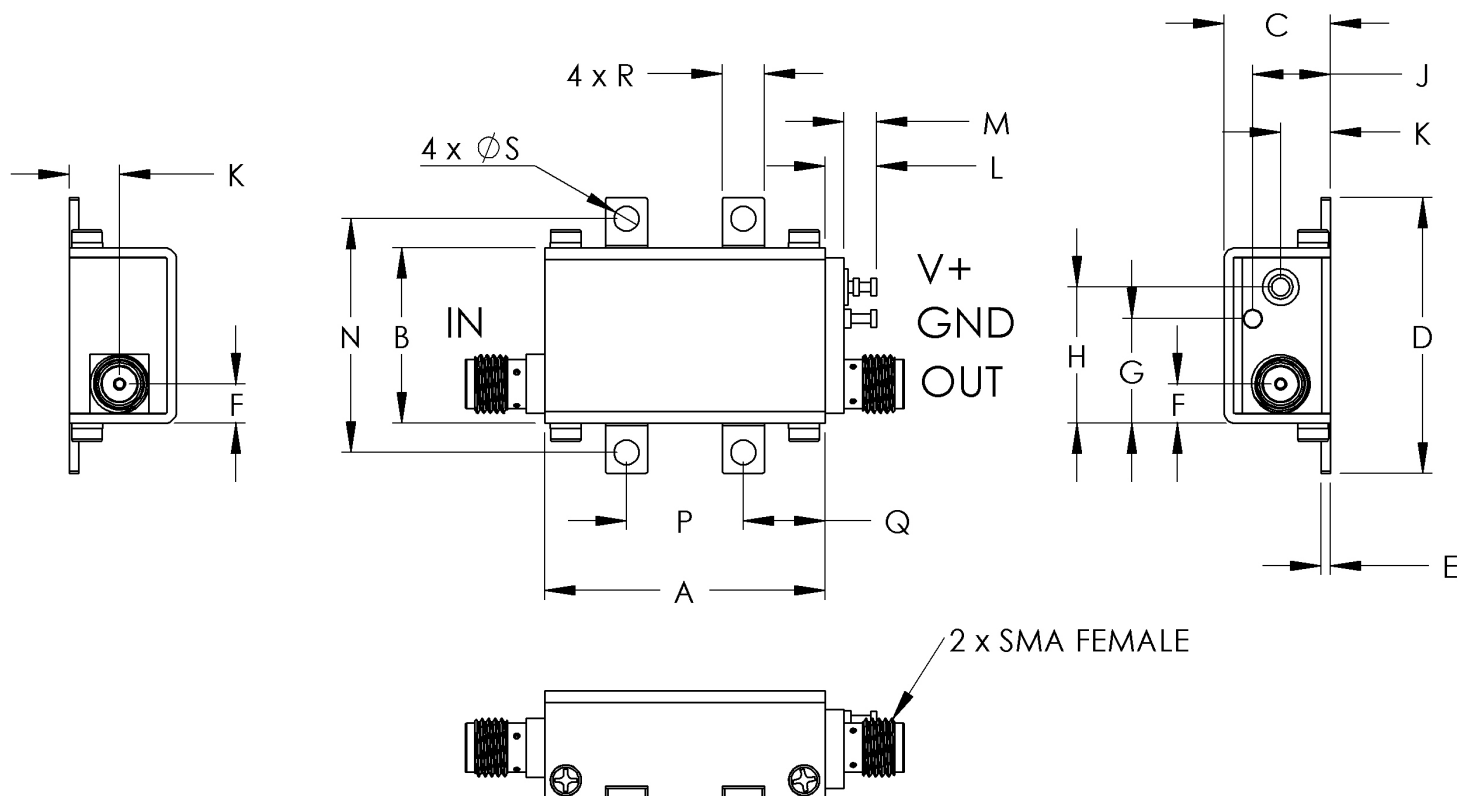


Case Style

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:

- Case material: Brass
- Case finish: Nickel plate



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Mini-Circuits ISO 9001 & ISO 14001 Certified



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