Connectorized

Amplifier

ZX60-2534MA+

50Ω 0.5 to 2.5 GHz

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

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

Electrical Specifications at T_{AMB} = 25°C

MODEL NO.	FREQ. (GHz) f_L- f_U	DC VOLTAGE @ Pin V+ (V)	GAIN over frequency in GHz Typ (dB) 0.5	1.0	1.5	2.0	2.5	Min.at 2 GHz	MAXIMUM POWER (dBm) Output (1 dB Comp.) Typ. f_L	f_U	DYNAMIC RANGE NF (dB) Typ. 1GHz	IP3 (dBm) Typ. 1GHz	2GHz	VSWR (:1) Typ. In	Out	ACTIVE DIRECTIVITY (dB) Isolation-Gain Typ. f_L	f_U	DC OPERATING CURRENT @ Pin V+ (mA) Typ.	Max.
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

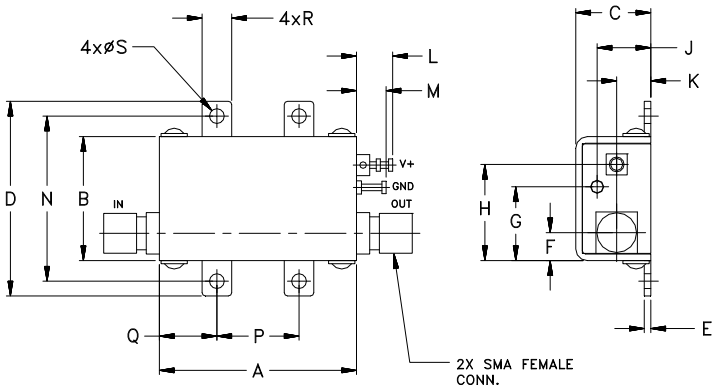
Maximum Ratings

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

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

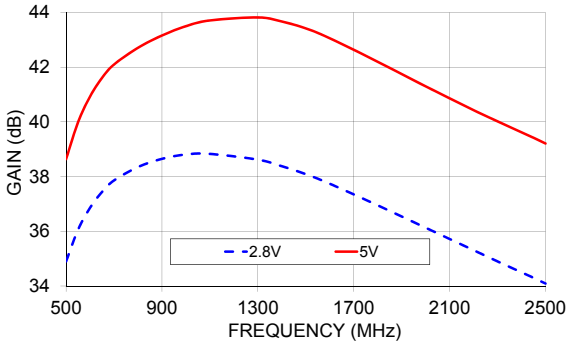
V+ = 5.0V

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

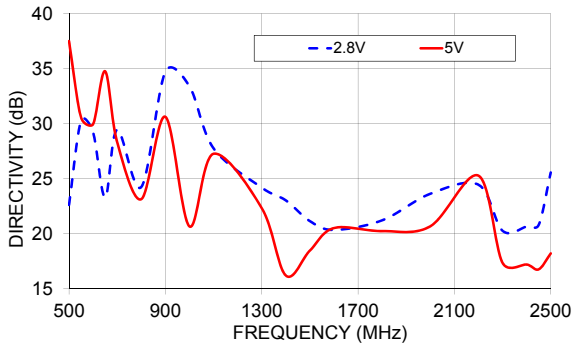
V+ = 2.8V

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

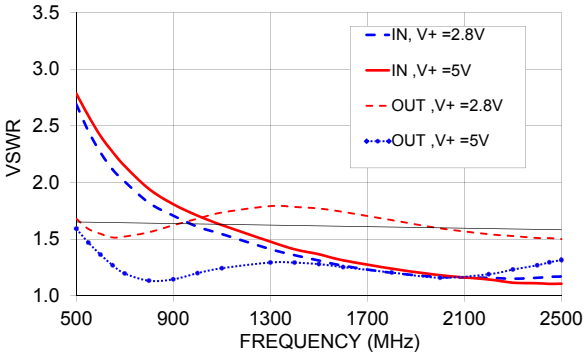
ZX60-2534MA+
GAIN



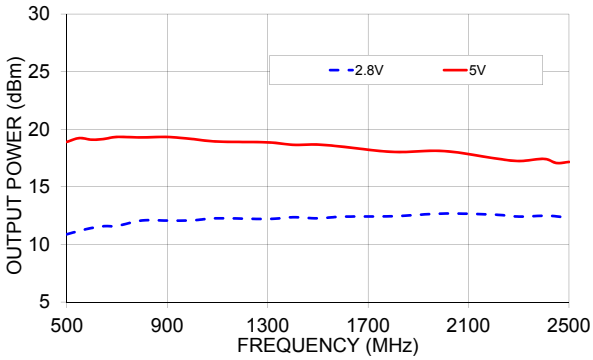
ZX60-2534MA+
DIRECTIVITY



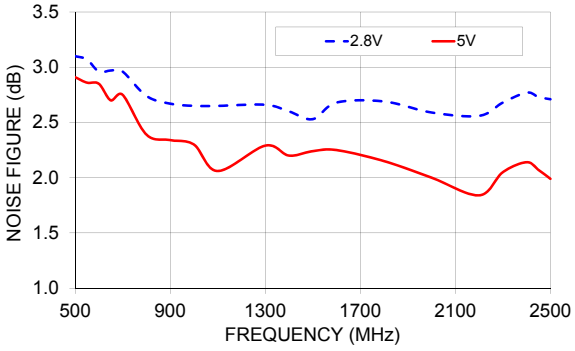
ZX60-2534MA+
VSWR



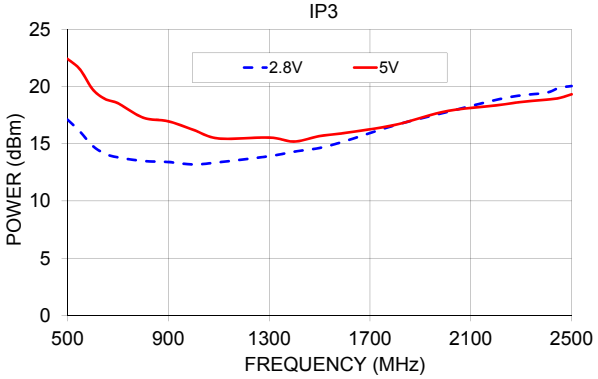
ZX60-2534MA+
OUTPUT POWER AT 1dB COMPRESSION



ZX60-2534MA+
NOISE FIGURE



ZX60-2534MA+
IP3



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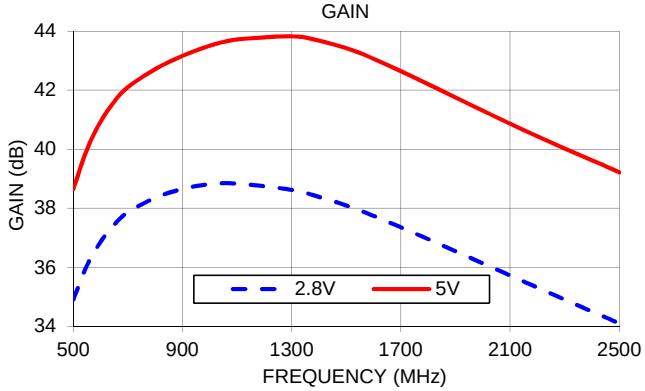
Typical Performance Data

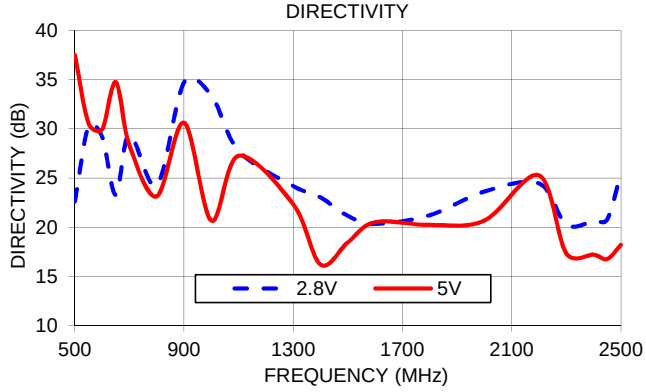
FREQ. (MHz)	GAIN (dB)		DIRECTIVITY (dB)		VSWR IN (:1)		VSWR OUT (:1)		POWER OUT @ 1dB COMPRESSION (dBm)		IP3 (dBm)		NF (dB)	
	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V	2.8V	5V
500	34.90	38.64	22.62	37.49	2.69	2.78	1.68	1.59	10.88	18.90	17.11	22.42	3.10	2.91
550	36.06	39.99	30.26	30.55	2.45	2.59	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

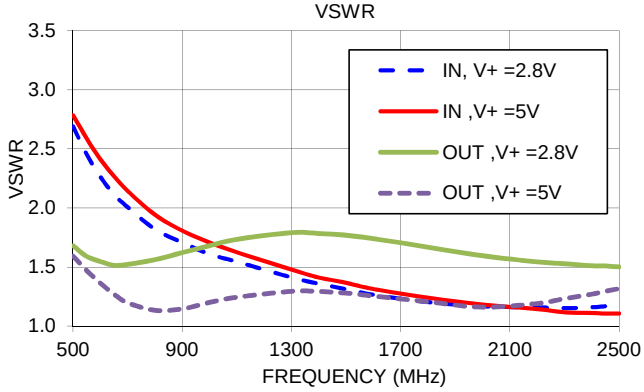
ZX60-2534MA+
GAIN



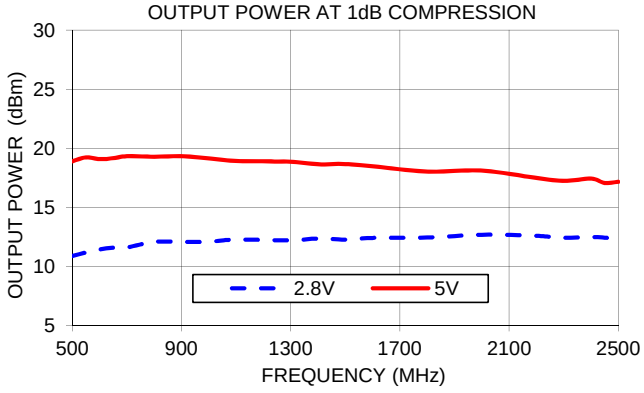
ZX60-2534MA+
DIRECTIVITY



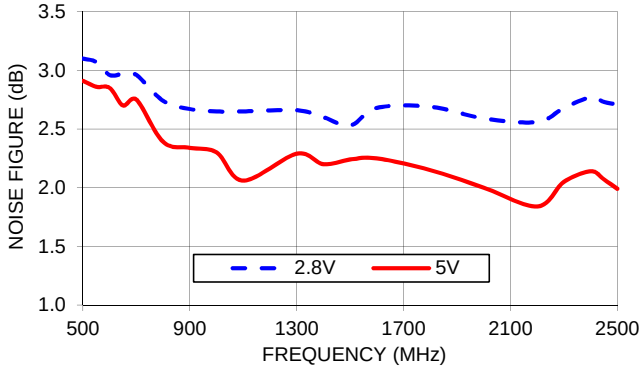
ZX60-2534MA+
VSWR



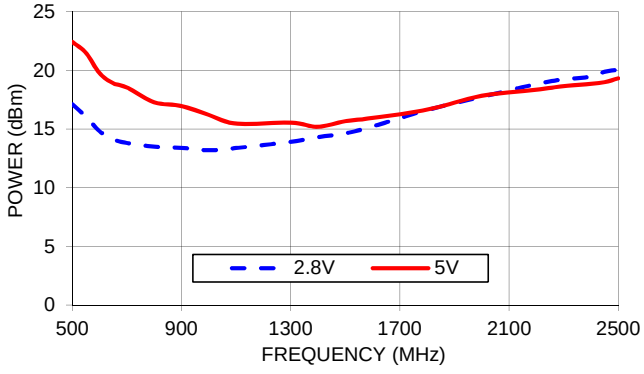
ZX60-2534MA+
OUTPUT POWER AT 1dB COMPRESSION



ZX60-2534MA+
NOISE FIGURE



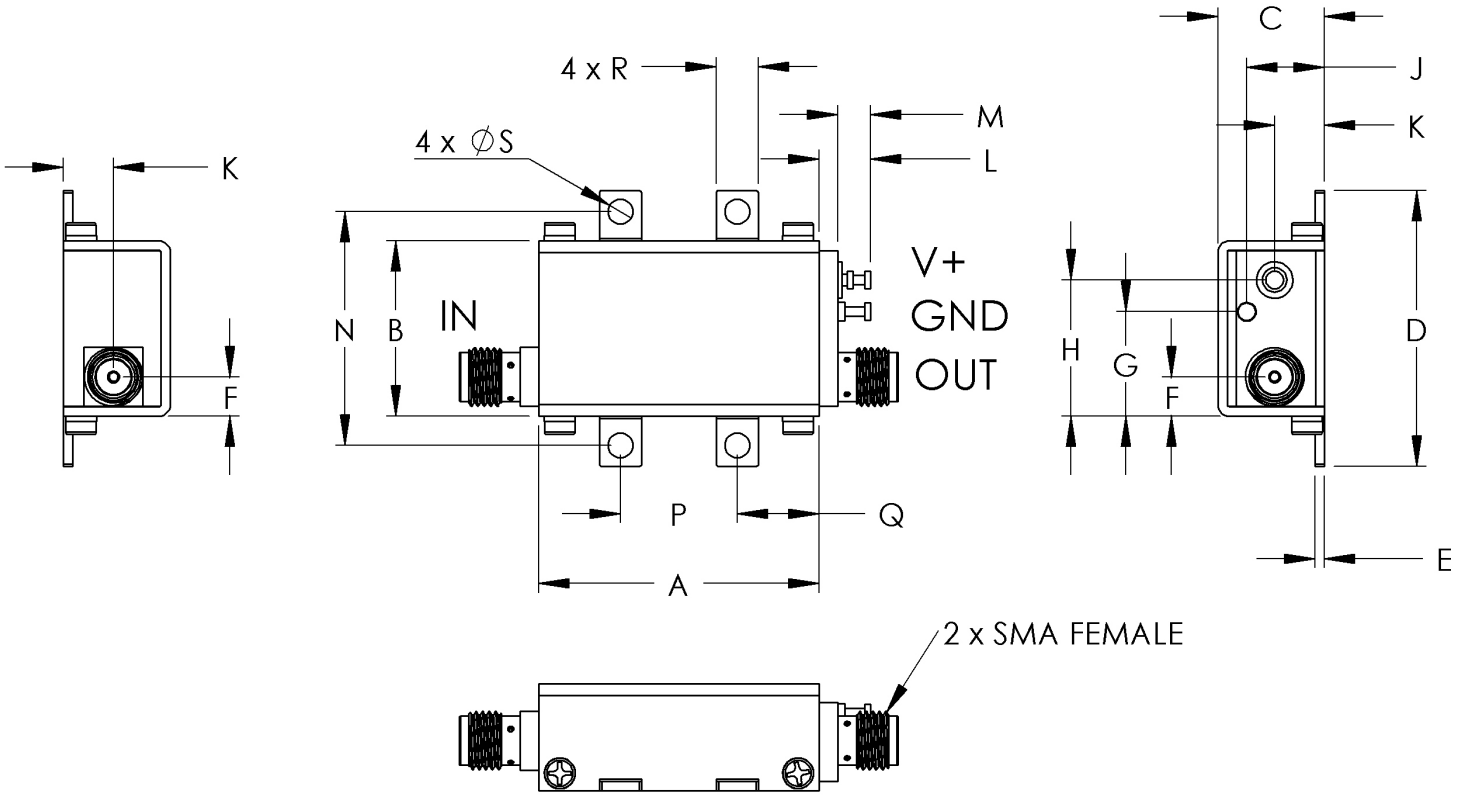
ZX60-2534MA+
IP3



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

Mini-Circuits®
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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