COAXIAL

High Power Amplifier ZHL-100W-63+

50Ω 100W 2500 to 6000 MHz

THE BIG DEAL

- Saturated Power 100W typ.
- Wide Bandwidth, 2500 to 6000 MHz
- High Gain, 58 dB typ.
- Unconditionally stable
- Self protected against excessive drive, high case temp., reverse polarity and shorting/unshorting
- Can withstand short and open circuit at output while delivering 50 watts

Generic photo used for illustration purposes only

Model No.	ZHL-100W-63+
Case Style	BT1834-3
Connectors	IN-SMA, OUT-N-TYPE

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

APPLICATIONS

- High Power Test Sets
- Burn-in set-ups
- Communications
- Radar

PRODUCT OVERVIEW

The ZHL-100W-63+ is a Class AB, high-power amplifier providing 100W saturated power over the 2500 to 6000 MHz band, ideal for a variety of high-power test setups as well as applications including communications, radar and more. The ruggedly-designed amplifier provides unconditional stability and built-in self-protection against reverse polarity and overheating. The amplifier's output stage is further protected in the event of a fault condition, allowing high power operation for up to 5 minutes into an OPEN or SHORT load (refer to the maximum input power specifications). Housed in a rugged aluminum alloy case measuring 6.0 x 9.1 x 1.2", the unit features SMA connectors and heat sink and fan attachment for cooling.

KEY FEATURES

Feature	Advantages
Wideband, usable from 2300 to 6200 MHz	Suitable for a broad range of high-power, wideband applications, including test setups, communications and defense applications.
High Gain, 58 dB typ.	Enables signal amplification to 100W output without the need for multiple gain stages.
Built-in self-protection	In instances of potentially-damaging overheating within the housing an automatic sensing feature signals the unit to power down.
Unconditional stability	Provides reliable performance independent of input and load conditions.

REV. D
ECO-017770
ZHL-100W-382-S+
MCL NY
230509

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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Min.	Typ.	Max.	Units
Frequency Range	2500	—	6000	MHz
Gain[1]	52	58	64	dB
Gain Flatness[1]	—	±2.0	±3.5	dB
Output Power at 1dB compression	—	+43[4]	—	dBm
Output Power at Saturation	+47.5	+50[4]	—	dBm
Noise Figure	—	12	19	dB
Output third order intercept point[2]	+44	+54	—	dBm
Input VSWR[1]	—	2.0	—	:1
Output VSWR[1]	—	1.2	—	:1
DC Supply Voltage	—	+30[3]	+32	V
Supply Current	—	8	22	A

1. Small signal input power -50 dBm typ.
2. Two tones, 26 dBm/tone, 1 MHz spacing.
3. Recommended Operating Voltage.
4. Power measured of fundamental tone only. Does not include power contribution of harmonic signals.

ABSOLUTE MAXIMUM RATINGS[5]

Parameter	Ratings
Operating Ambient Temperature (With Mini-Circuits' heatsink and fan)	0°C to +60°C
Storage Temperature	-55°C to +100°C
DC Voltage	+32V
Input RF Power (no damage)	+3 dBm[6] -15 dBm[7]

5. Specifications apply to CW signals only permanent damage may occur if any of these limits are exceeded.
6. Into 50 ohm load
7. Into open or short load, for up to 5 minutes.

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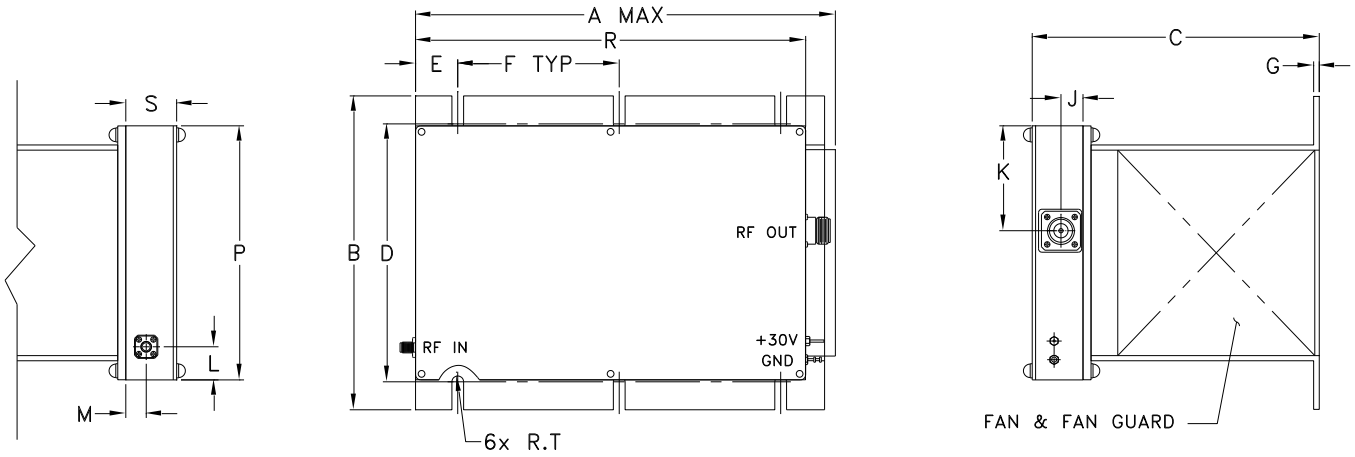
OUTLINE DRAWING FOR MODELS WITH HEATSINK



OUTLINE DIMENSIONS (Inch / mm)

A	B	C	D	E	F	G	J	K	L	M	P	R	S	T	wt
9.85	7.30	6.60	6.00	0.98	3.75	0.13	0.51	2.44	0.59	0.47	5.91	9.06	1.18	0.14	grams*
250.19	185.42	167.64	152.4	24.89	95.25	3.30	13.0	62.1	15.0	12.0	150.0	230.0	30.0	3.43	5350

*1670 grams without heatsink

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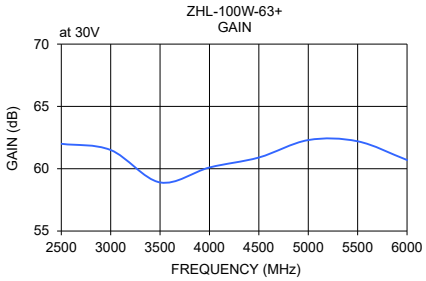
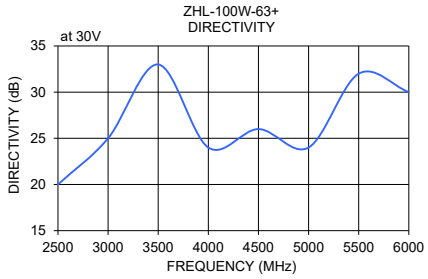
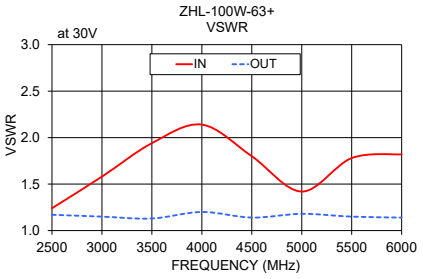
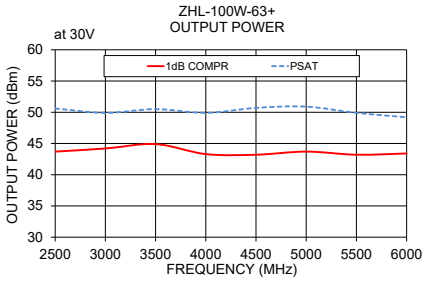
TYPICAL PERFORMANCE DATA / GRAPHS

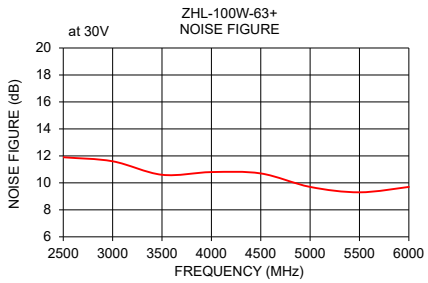
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at Saturation (dBm)	NOISE FIGURE (dB)	OIP3 (dBm)
	30V	30V	IN	OUT	30V	30V	30V	30V
2500	62.0	20	1.24	1.17	43.7	50.6	11.9	56.7
3000	61.5	25	1.58	1.15	44.2	49.9	11.6	53.9
3500	58.9	33	1.94	1.13	44.9	50.5	10.6	54.3
4000	60.1	24	2.14	1.20	43.3	49.9	10.8	54.6
4500	60.9	26	1.80	1.14	43.2	50.7	10.7	56.8
5000	62.3	24	1.42	1.18	43.7	50.9	9.7	55.9
5500	62.2	32	1.78	1.15	43.2	49.9	9.3	54.9
6000	60.7	30	1.82	1.14	43.4	49.2	9.7	53.9

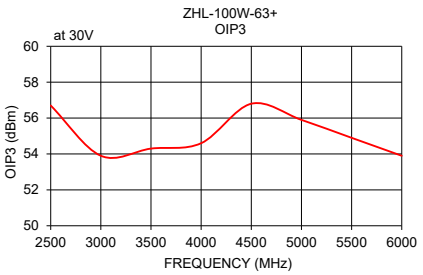












NOTES

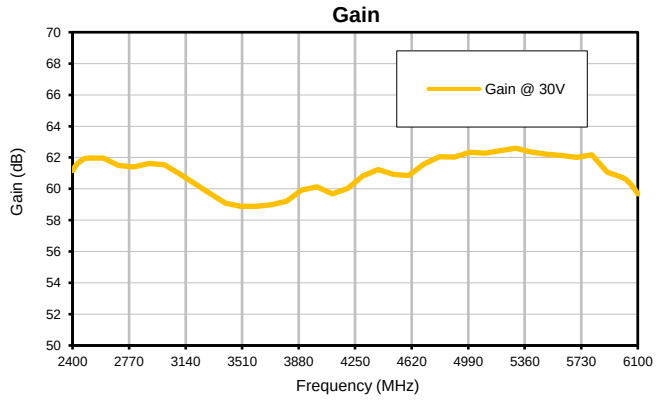
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

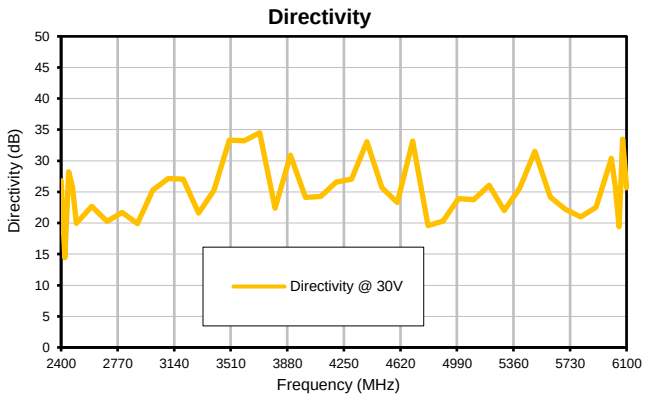
High Power Amplifier ZHL-100W-63+

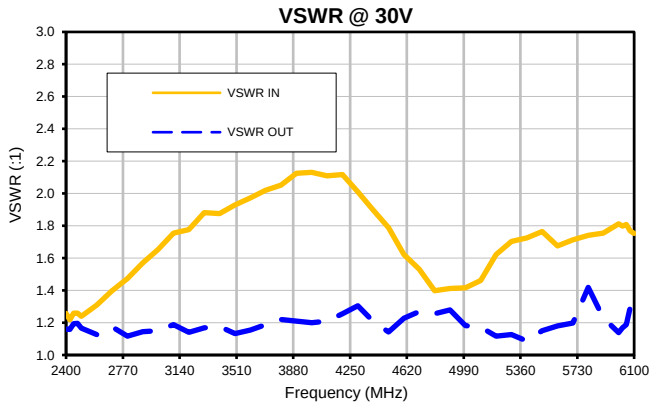
Typical Performance Data

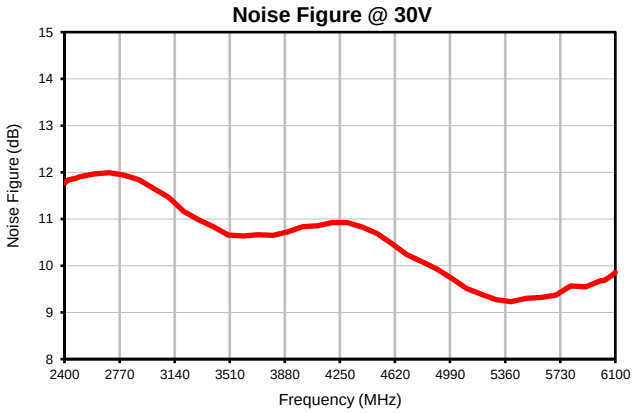
FREQUENCY (MHz)	GAIN (dB) 30V	DIRECTIVITY (dB) 30V	VSWR (:1) IN 30V	VSWR (:1) OUT 30V	NOISE FIGURE (dB) 30V	POUT @ 1 dB COMPRESSION (dBm) 30V	POUT AT SATURATION (dBm) 30V	OUTPUT IP3 (dBm) 30V
2400	61.16	26.80	1.26	1.16	11.77	43.32	49.40	57.69
2425	61.53	14.41	1.22	1.16	11.83	43.41	49.74	57.89
2450	61.76	28.24	1.26	1.19	11.85	43.57	50.17	57.62
2475	61.92	25.79	1.26	1.19	11.87	43.51	50.39	58.72
2500	61.96	19.98	1.24	1.17	11.90	43.74	50.65	60.78
2600	61.97	22.69	1.31	1.13	11.97	44.14	51.06	60.95
2700	61.49	20.26	1.40	1.18	11.99	44.26	50.64	56.93
2800	61.39	21.68	1.47	1.12	11.94	44.29	50.39	56.50
2900	61.62	19.91	1.57	1.14	11.85	44.10	50.01	55.05
3000	61.53	25.31	1.65	1.15	11.65	44.21	49.93	55.05
3100	60.96	27.17	1.75	1.19	11.47	44.43	50.01	55.52
3200	60.34	27.06	1.78	1.14	11.16	44.73	50.05	58.65
3300	59.69	21.59	1.88	1.17	10.98	44.87	50.49	56.86
3400	59.09	25.27	1.88	1.18	10.84	44.86	50.63	56.14
3500	58.89	33.32	1.93	1.13	10.65	44.88	50.48	55.17
3600	58.89	33.23	1.97	1.16	10.63	44.61	50.25	54.61
3700	58.98	34.52	2.02	1.19	10.66	44.41	50.12	54.47
3800	59.20	22.36	2.05	1.22	10.65	44.08	49.93	54.15
3900	59.92	30.89	2.12	1.21	10.73	43.58	49.82	54.36
4000	60.13	24.11	2.13	1.20	10.83	43.29	49.87	54.75
4100	59.67	24.26	2.11	1.21	10.85	42.95	49.73	55.38
4200	60.02	26.61	2.12	1.26	10.92	43.01	49.93	55.23
4300	60.83	27.07	2.01	1.31	10.92	42.94	50.14	55.32
4400	61.22	33.09	1.90	1.21	10.83	43.01	50.41	56.18
4500	60.92	25.66	1.79	1.14	10.69	43.16	50.66	55.96
4600	60.84	23.32	1.62	1.23	10.47	43.36	50.87	56.30
4700	61.57	33.17	1.53	1.27	10.24	43.63	51.04	56.25
4800	62.05	19.59	1.40	1.26	10.09	43.72	51.05	55.77
4900	62.04	20.29	1.41	1.28	9.93	43.67	50.91	55.73
5000	62.34	23.90	1.42	1.18	9.73	43.74	50.91	55.38
5100	62.26	23.77	1.46	1.17	9.51	43.76	50.83	54.98
5200	62.43	26.09	1.62	1.12	9.39	43.68	50.51	54.66
5300	62.60	22.04	1.70	1.13	9.27	43.56	50.28	54.82
5400	62.35	25.55	1.72	1.09	9.23	43.41	50.15	54.74
5500	62.20	31.51	1.76	1.15	9.30	43.17	49.86	55.61
5600	62.14	24.16	1.68	1.18	9.32	43.34	49.83	55.38
5700	62.01	22.19	1.71	1.20	9.37	43.49	49.72	55.29
5800	62.18	20.99	1.74	1.42	9.57	43.37	49.63	54.80
5900	61.07	22.53	1.76	1.23	9.55	43.45	49.58	54.58
6000	60.72	30.40	1.81	1.14	9.67	43.37	49.23	53.96
6025	60.59	25.92	1.80	1.17	9.69	43.40	49.07	54.33
6050	60.33	19.41	1.81	1.19	9.73	43.33	48.80	53.70
6075	60.03	33.49	1.77	1.29	9.78	43.52	48.91	53.60
6100	59.68	25.65	1.75	1.34	9.85	43.29	48.62	53.17

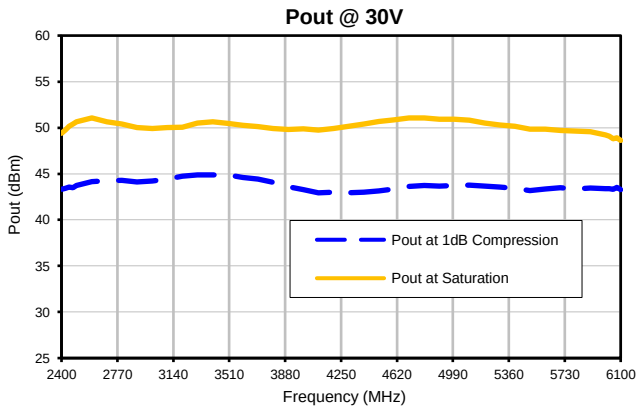
Typical Performance Curves

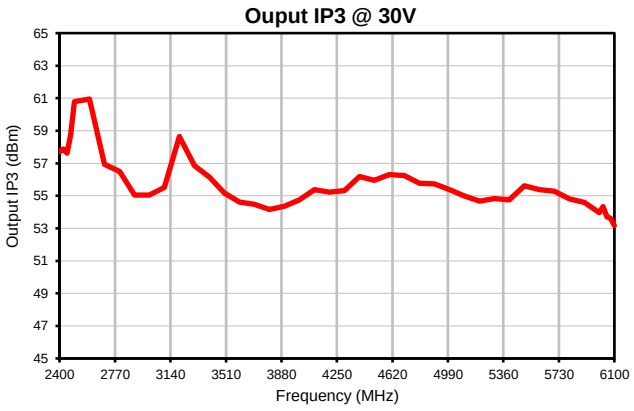






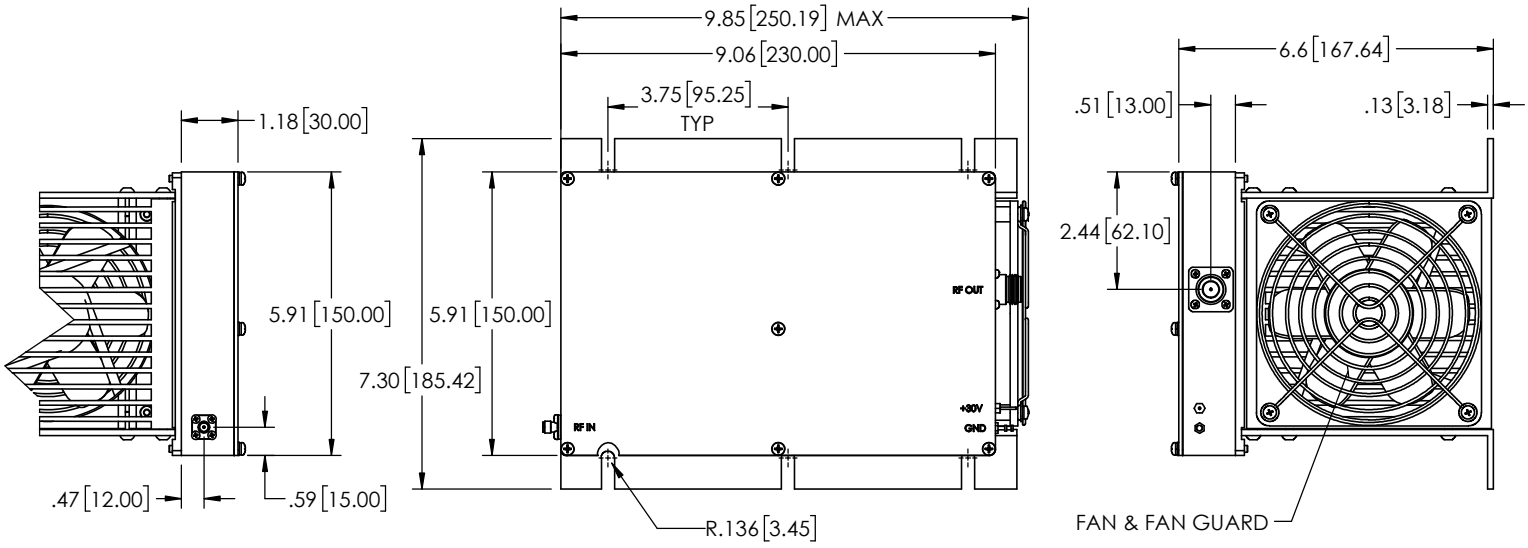




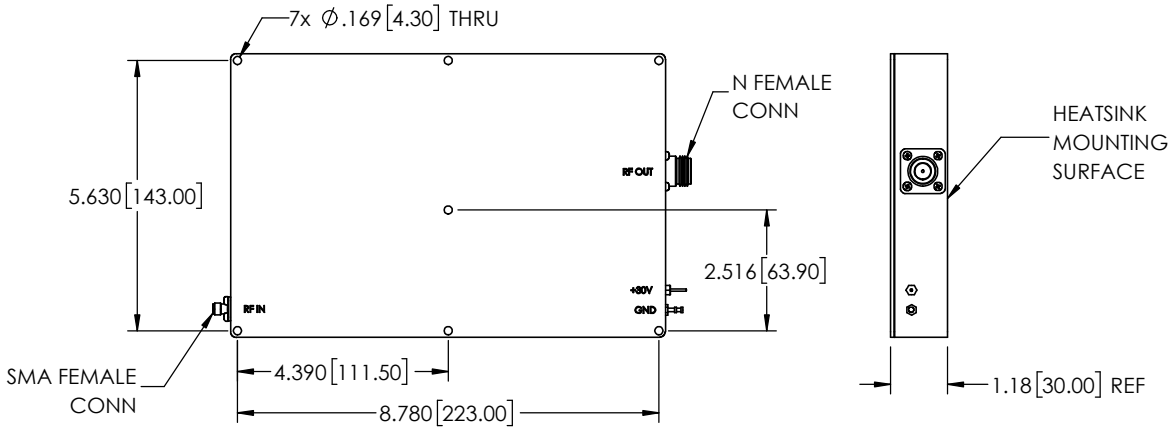


Case Style BT

BT1834-3



MOUNTING INFORMATION OF MODEL WITHOUT HEATSINK



Weight: 5350 grams; Weight without Heatsink: 1670 grams.

Dimensions are in inches [mm]. Tolerances: 1 Pl. ±.1; 2 Pl. ±.03; 3 Pl. ±.015

Notes:

1. Case material: Aluminum alloy.
2. Finish:
   For RoHS Case Styles: Clear Chemical conversion coating, non-chrome or trivalent chrome based.
3. Heatsink finish: Black anodize.
4. Refer to the individual model data sheet for the type of connectors available.
5. Recommended screws for mounting model without heat sink on 3/32" thick sheet: #6-32, 1.50" Length.

Mini-Circuits

Environmental Specifications **ENV23T19**

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	-20° to 45°C Ambient Environment	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 60° C base plate Temperature	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C