



Mini-Circuits

COAXIAL

High Power Amplifier

ZHL-100W-382+

50Ω 100W 3250 to 3850 MHz

THE BIG DEAL

- Output Power at Saturation 100W typ.
- Wide Bandwidth, 3250 to 3850 MHz
- High Gain, 47 dB typ.
- Good Gain Flatness, ± 1.0 dB typ.
- Unconditionally stable
- Self protected against high case temp., reverse polarity and shorting/unshorting
- Can withstand short and open circuit at output while delivering 100 watts

APPLICATIONS

- High Power Test Sets
- Burn-in Setups
- Communications
- Radar



Generic photo used for illustration purposes only

Model No.	ZHL-100W-382+
Case Style	BT1834
Connectors	IN-SMA, OUT-N-Type

+RoHS Compliant

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

PRODUCT OVERVIEW

The ZHL-100W-382+ is a Class AB, high-power amplifier providing 100W saturated power over the 3250 to 3850 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. It is capable of withstanding short and open circuits at output while continuously delivering 100W of power. Housed in a rugged aluminum alloy case measuring 5.6 x 8.8 x 1.2", the unit features SMA-N type connectors and heat sink and fan attachment for cooling.

KEY FEATURES

Feature	Advantages
Wideband, usable from 3100 to 4000 MHz	Suitable for a broad range of high-power, wideband applications, including test setups, communications and defense applications.
High Gain, 47 dB	Enables signal amplification to 100 W output without the need for multiple gain stages.
Good Gain Flatness, ± 1.0 dB	Provides consistent performance across frequency without the need for gain flattening using external components.
Built-in self-protection	In instances of potentially-damaging heat buildup within the housing, unshorting of DC supply, and short or open loads at the output, an automatic sensing feature signals the unit to power down.
Unconditional stability	Provides reliable performance independent of input and load conditions.

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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3250	—	3850	MHz
Gain ¹	3250-3850	44	47	56	dB
Gain Flatness ¹	3250-3850	—	±1.0	±2.0	dB
Output Power at 1dB Compression	3250-3850	+48	+50	—	dBm
Output Power at Saturation	3250-3850	+49	+51	—	dBm
Noise Figure	3250-3850	—	9.5	13	dB
Output third order intercept point ²	3250-3850	+49	+58	—	dBm
Input VSWR ¹	3250-3850	—	1.3	2.5	:1
Output VSWR ¹	3250-3850	—	1.3	2.5	:1
DC Supply Voltage		—	+28 ⁴	+30	V
Supply Current ³		—	18	20	A

1. Small signal input power -15 dBm typ.

2. Two tones, +40 dBm/tone, 1 MHz spacing.

3. Power supply should be capable of delivering 20A at start up; 18 A current measurement at 100 W output.

4. Recommended Operating Voltage.

MAXIMUM RATINGS

Parameter	Ratings
Operating Ambient Temperature (With Mini-Circuits' heatsink and fan)	-20°C to +45°C
Storage Temperature	-55°C to +100°C
DC Voltage	+30V
Input RF Power (no damage)	+7 dBm

Permanent damage may occur if any of these limits are exceeded.





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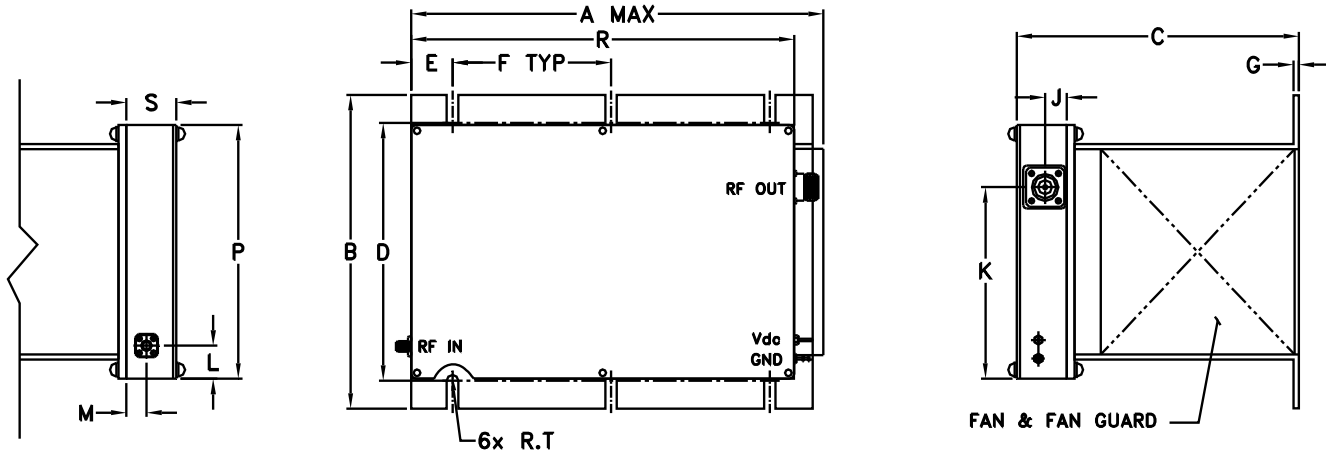
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OUTLINE DRAWING FOR MODELS WITH HEATSINK



OUTLINE DIMENSIONS (Inch/mm)

A	B	C	D	E	F	G	J	K	L	M	P	R	S	T	wt
9.85	7.3	6.6	6.00	.98	3.75	.13	.51	4.46	.77	.47	5.91	9.06	1.18	.135 grams*	
250.19	185.42	167.64	152.40	24.89	95.25	3.30	12.95	113.28	19.56	11.94	150.11	230.12	29.97	3.43	5350
															*1670 grams without heatsink





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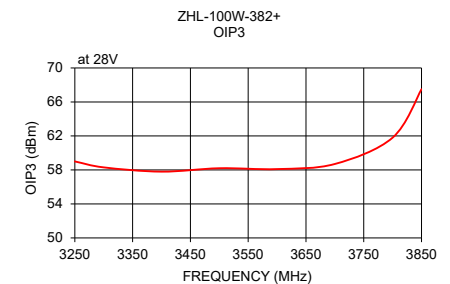
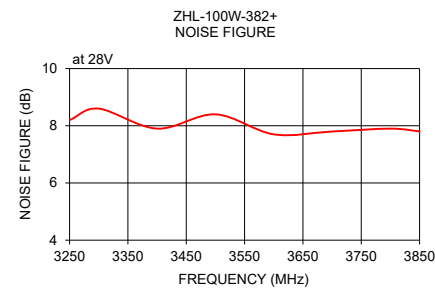
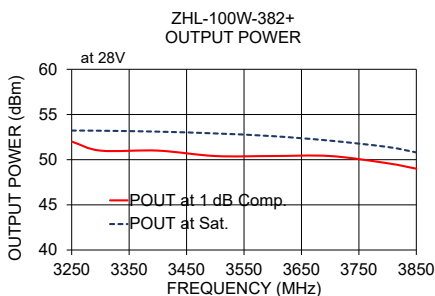
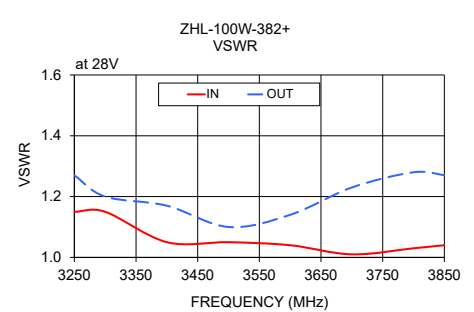
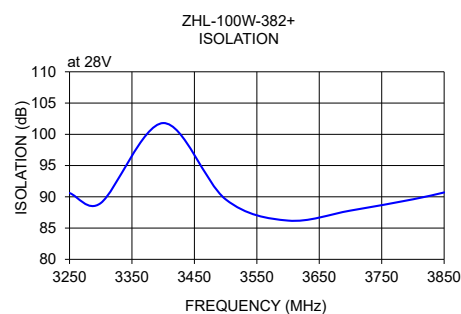
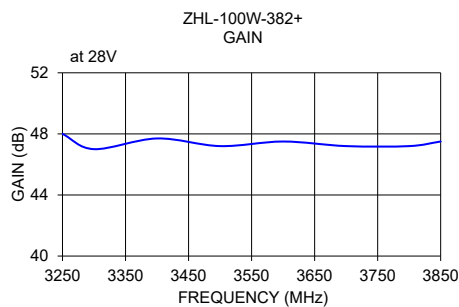
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TYPICAL PERFORMANCE DATA / GRAPHS

FREQUENCY (MHz)	GAIN (dB)	ISOLATION (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at SAT (dBm)	NOISE FIGURE (dB)	OUTPUT IP3 (dBm)
	28V	28V	IN	OUT	28V	28V	28V	28V
3250	48.00	90.60	1.15	1.27	52.00	53.22	8.20	59.00
3300	47.00	89.00	1.15	1.20	51.00	53.20	8.60	58.30
3400	47.70	101.80	1.05	1.17	51.00	53.10	7.90	57.80
3500	47.20	89.60	1.05	1.10	50.40	52.90	8.40	58.20
3600	47.50	86.20	1.04	1.14	50.40	52.60	7.70	58.10
3700	47.20	87.80	1.01	1.23	50.40	52.10	7.80	58.70
3800	47.20	89.60	1.03	1.28	49.60	51.40	7.90	61.80
3850	47.50	90.70	1.04	1.27	49.00	50.80	7.80	67.50



NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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-382+

Typical Performance Data

FREQUENCY (MHz)	GAIN (dB) 28V	DIRECTIVITY (dB) 28V	VSWR (:1)		NOISE FIGURE (dB) 28V	POUT @ 1 dB COMPRESSION (dBm) 28V	POUT AT SATURATION (dBm) 28V	OUTPUT IP3 (dBm) 28V
			IN 28V	OUT 28V				
3000	47.85	41.34	1.10	1.89	9.40	51.46	52.08	58.53
3025	47.77	41.26	1.13	1.86	8.99	51.94	51.91	57.56
3050	47.95	53.15	1.14	1.77	8.46	52.09	52.18	57.58
3075	47.85	43.34	1.14	1.64	9.02	52.16	52.53	57.82
3100	47.83	46.23	1.13	1.53	8.23	52.21	52.73	58.06
3125	48.04	48.24	1.13	1.45	8.64	52.33	52.76	58.30
3150	48.02	54.27	1.14	1.39	8.55	52.32	53.04	58.75
3175	47.98	43.29	1.15	1.34	8.46	52.47	53.05	59.48
3200	48.05	62.39	1.15	1.31	8.41	52.25	53.12	59.85
3225	48.02	43.13	1.15	1.29	8.39	52.05	53.05	59.48
3250	48.00	42.61	1.15	1.28	8.20	51.97	53.22	58.99
3275	47.96	41.82	1.15	1.24	8.37	51.22	53.16	58.78
3300	47.93	41.09	1.15	1.19	8.58	51.05	53.19	58.32
3325	47.85	45.73	1.13	1.16	7.97	51.16	53.06	58.08
3350	47.88	45.95	1.09	1.18	8.25	51.04	53.19	57.83
3375	47.80	38.44	1.06	1.19	8.22	50.99	53.05	57.74
3400	47.74	54.03	1.05	1.17	7.92	51.05	53.06	57.75
3425	47.57	47.34	1.05	1.13	8.22	50.83	52.94	57.70
3450	47.40	37.19	1.06	1.13	8.45	50.64	53.00	57.88
3475	47.32	46.25	1.06	1.14	7.97	50.67	52.89	58.15
3500	47.24	42.36	1.05	1.12	8.41	50.45	52.87	58.21
3525	47.17	48.96	1.04	1.10	7.72	50.51	52.78	58.17
3550	47.29	45.98	1.04	1.10	7.97	50.20	52.75	58.15
3575	47.49	43.05	1.04	1.12	8.23	50.48	52.66	57.94
3600	47.48	38.77	1.04	1.14	7.71	50.39	52.56	58.08
3625	47.52	44.83	1.04	1.15	7.88	50.39	52.53	57.93
3650	47.56	51.52	1.03	1.16	7.76	50.40	52.44	58.15
3675	47.42	38.20	1.01	1.18	8.42	50.50	52.26	58.32
3700	47.22	40.56	1.01	1.23	7.76	50.35	52.13	58.74
3725	47.11	44.49	1.02	1.27	7.87	50.45	52.07	59.27
3750	47.09	49.64	1.03	1.28	7.98	50.39	51.85	59.63
3775	47.16	43.75	1.02	1.28	7.67	50.06	51.56	60.95
3800	47.18	42.45	1.03	1.28	7.92	49.65	51.38	61.76
3825	47.41	43.45	1.04	1.26	8.07	49.46	51.20	63.95
3850	47.47	45.22	1.04	1.27	7.79	48.97	50.82	67.53
3875	47.50	45.67	1.05	1.28	8.08	48.44	50.38	65.19
3900	47.63	42.83	1.05	1.24	7.69	47.82	49.98	61.51



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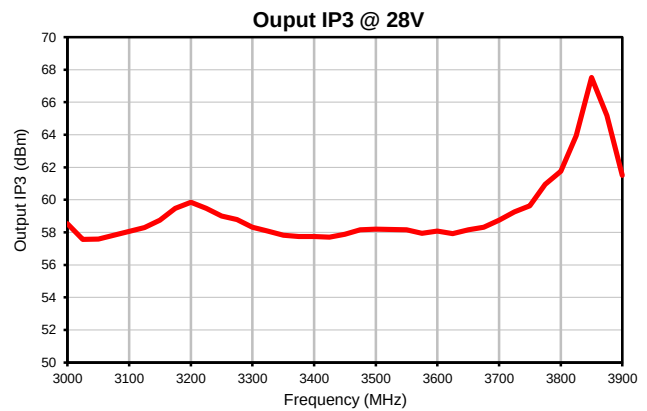
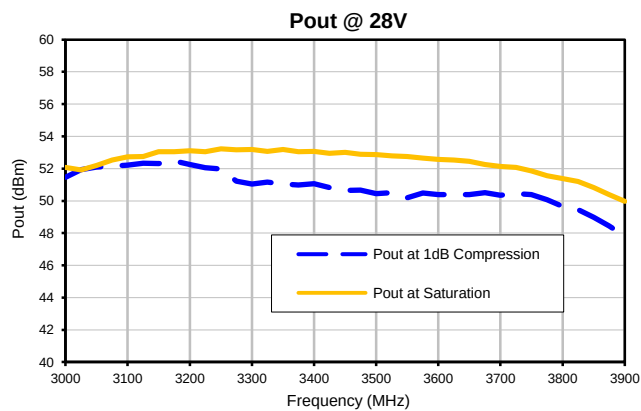
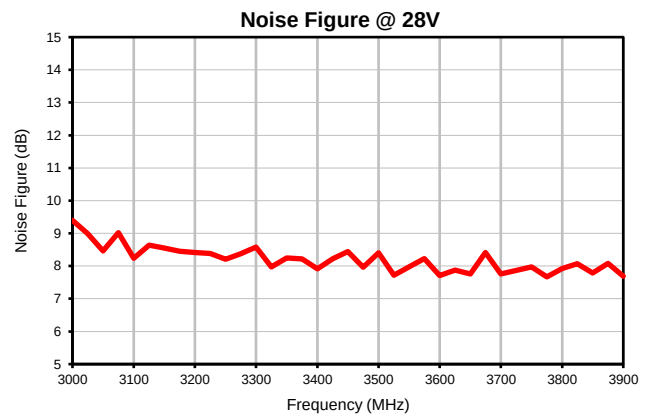
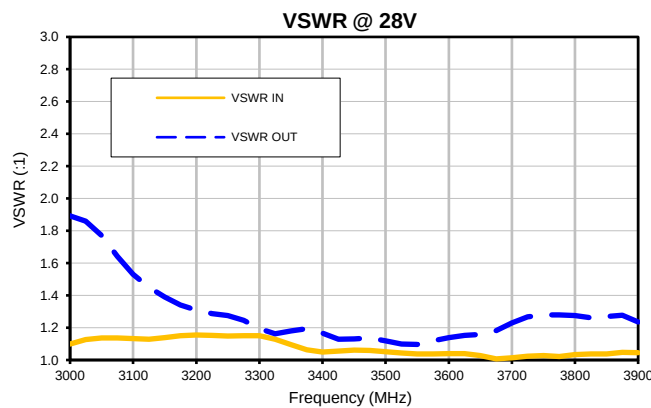
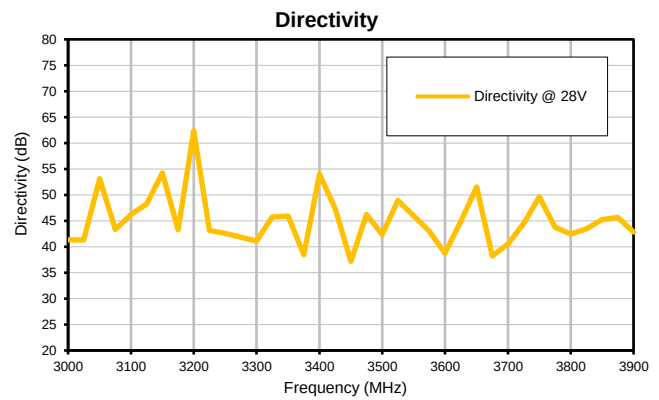
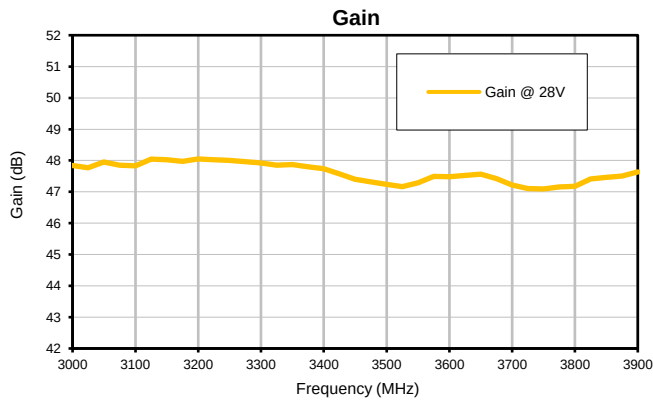
IF/RF MICROWAVE COMPONENTS

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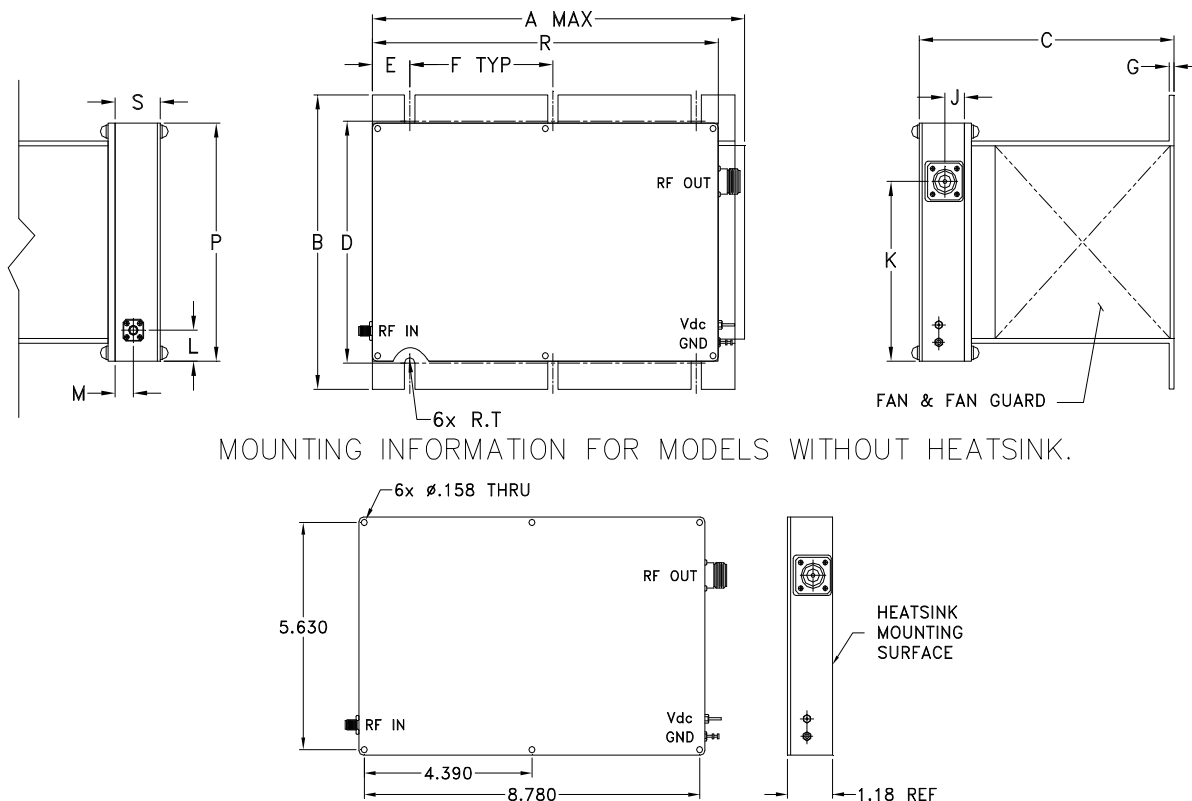
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Typical Performance Curves

ZHL-100W-382+



Outline Dimensions



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK.

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
BT1834	9.85 (250.19)	7.3 (185.42)	6.6 (167.64)	6.00 (152.40)	.98 (24.89)	3.75 (95.25)	.13 (3.30)	- -	.51 (13.00)	4.46 (113.20)	.77 (19.60)	.47 (12.00)	- -

CASE#	P	Q	R	S	T	WT, GRAM	WT WITHOUT HEATSINK, GRAM
BT1834	5.91 (150.00)	- -	9.06 (230.00)	1.18 (30.00)	.135 (3.43)	5350	1670

Dimensions in inches (mm). Tolerances: 1 Pl. $\pm .1$; 2Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

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



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RF/IF MICROWAVE COMPONENTS



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