Coaxial

High Power Amplifier

ZHL-100W-272+

50Ω 100W 700 to 2700 MHz

The Big Deal

- High output power, 100W typ.
- High gain, 48 dB typ.
- Excellent reverse isolation, 89 dB typ.
- Built-in over-temperature protection with temperature alarm

CASE STYLE: BT2247

Product Overview

The ZHL-100W-272+ is a high power amplifier module supply which can be used for a wide variety of laboratory testing applications. This rugged amplifier is capable of amplifying signals up to 100W output power over its entire operating frequency range of 700 – 2700 MHz. Built-in safety features include over-temperature protection and the ability to handle short/open mismatch at output while delivering up to 3dB compression output power, preventing amplifier damage and providing excellent reliability.

Key Features

Feature	Advantages
Wide frequency range	700 – 2700 MHz frequency range covers popular wireless communications, SATCOM and radar bands in a single instrument, useful for many test applications.
100W output power	Supports high power test applications such as EMI, max power handling, and reliability testing
High Gain	48 dB typical gain allows the ZHL-100W-272+ to be driven to full output power with nearly all commercially available signal generators
High Reverse Isolation	Isolates load reflections to protect sensitive signal sources from potential damage and performance variation due to load pulling
Built-in protection	The unit shuts OFF when the internal amplifier reaches a set temperature of 85±5°C, preventing damage to the amplifier and providing added reliability.

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Features

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- Built-in over-temperature protection

CASE STYLE: BT2247

Connectors	Model
IN SMA-F	ZHL-100W-272+
OUT N-TYPE-F	
D-SUB MALE	

+RoHS Compliant

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

Applications

- Laboratory test instrument
- RF Power stress test
- EMI and antenna testing
- Reliability testing

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		700	—	2700	MHz
Gain	700 - 2700	45	48	—	dB
Gain Flatness	700 - 2700	—	±1.7	±2.1	dB
Output Power at 1dB compression	700 - 2700	—	+49	—	dBm
Output Power at 3dB compression[1]	700 - 2700	+48	+50.6	—	dBm
Noise Figure	700 - 2700	—	8.2	10	dB
Output third order intercept point	700 - 2700	—	+50	—	dBm
Input VSWR	700 - 2700	—	1.5	—	:1
Output VSWR	700 - 2700	—	1.5	—	:1
DC Supply Voltage	DC	28	30	32	V
Supply Current	DC	—	12	16	A

1. Capable to operate into open or short load up to output power at 3 dB compression.

Maximum Ratings

Parameter	Ratings
Operating Ambient Temperature	0°C to +40°C
Storage Temperature	-20°C to +70°C
DC Voltage	32V
Input RF Power (no damage)	+7 dBm

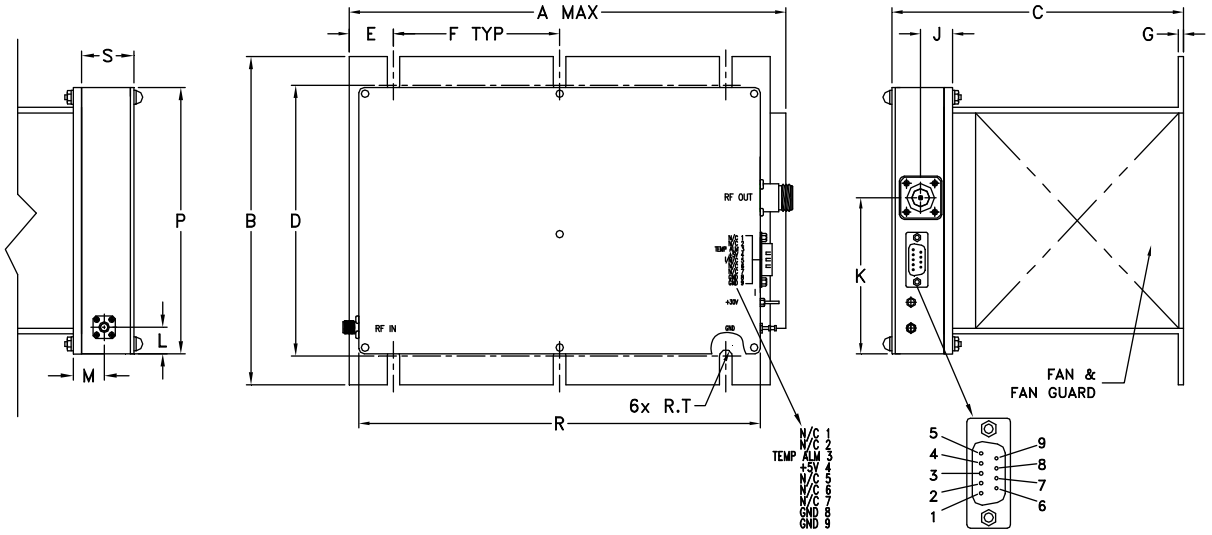
Permanent damage may occur if any of these limits are exceeded.

D-Sub Male Connector Pin connections*

Pin #	Description
1,2,5,6,7	No Connection
3	TEMP. Alarm (TTL High)
4	+5V (max. 100mA)
8,9	Ground

*Each amplifier will come with additional D-sub female connectors for mating with amplifier.

Outline Drawing

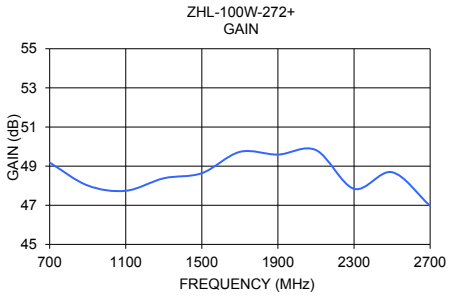


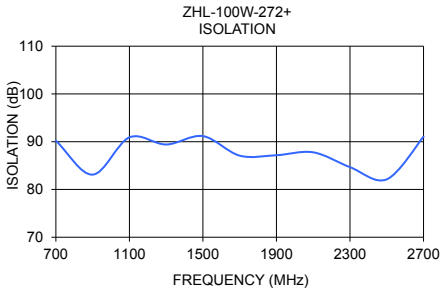
Outline Dimensions (inch / mm)

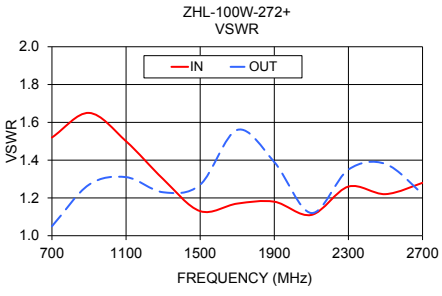
A	B	C	D	E	F	G	J	K	L	M	P	R	S	T	wt
9.85	7.3	6.6	6.00	.98	3.75	.13	.72	3.46	.59	.70	5.91	9.06	1.18	.135	grams
250.19	185.42	167.64	152.40	24.89	95.25	3.30	18.29	87.88	14.99	17.78	150.11	230.12	29.97	3.43	5350

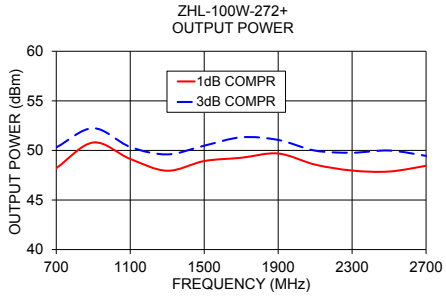
Typical Performance Data

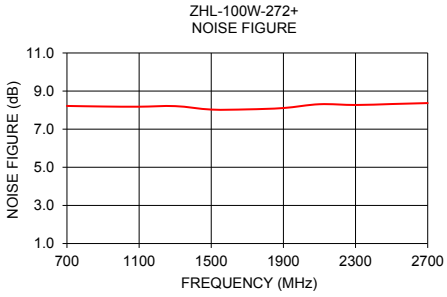
FREQUENCY (MHz)	GAIN (dB)	ISOLATION (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at 3 dB COMPR. (dBm)	NOISE FIGURE (dB)	IP3 (dBm)
			IN	OUT				
700	49.2	90.2	1.5	1.1	48.2	50.3	8.2	55.8
900	48.0	83.1	1.7	1.3	50.8	52.2	8.2	48.9
1100	47.7	90.9	1.5	1.3	49.1	50.4	8.2	60.4
1300	48.4	89.4	1.3	1.2	48.0	49.6	8.2	53.6
1500	48.6	91.2	1.1	1.3	48.9	50.5	8.0	55.5
1700	49.7	87.1	1.2	1.6	49.3	51.3	8.0	49.0
1900	49.6	87.2	1.2	1.4	49.7	51.1	8.1	48.3
2100	49.8	87.8	1.1	1.1	48.6	50.0	8.3	48.8
2300	47.8	84.7	1.3	1.4	48.0	49.8	8.3	53.6
2500	48.7	82.1	1.2	1.4	47.9	50.0	8.3	50.2
2700	47.0	91.1	1.3	1.2	48.5	49.5	8.4	50.9

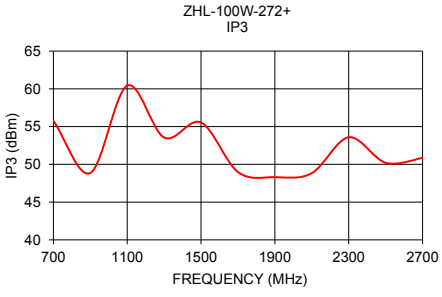










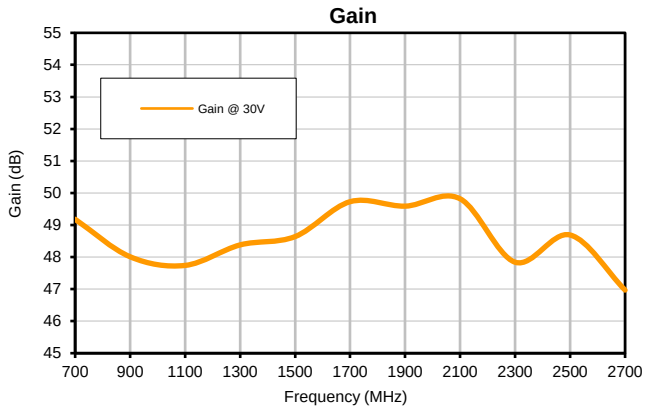


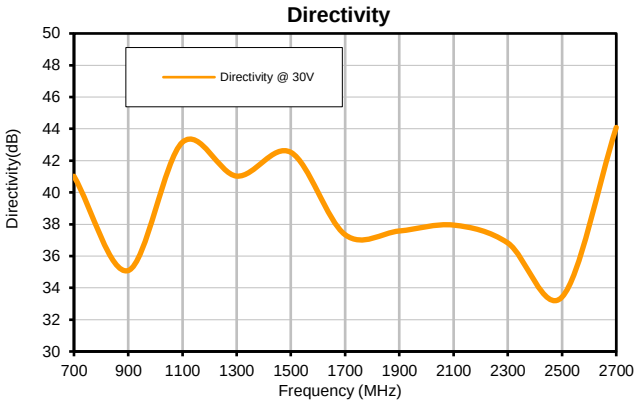
High Power Amplifier ZHL-100W-272+

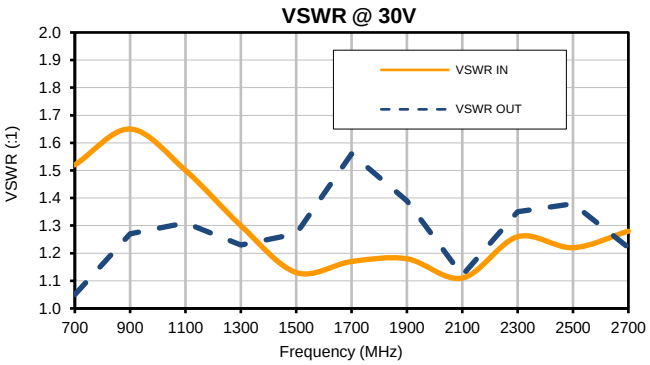
Typical Performance Data

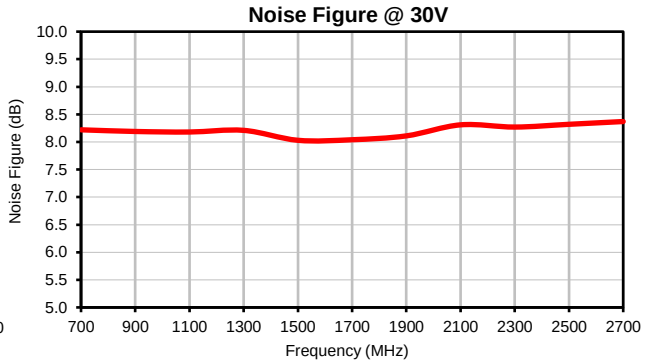
Frequency (MHz)	Gain (dB) 30V	Directivity (dB) 30V	VSWR In (:1) 30V	VSWR Out (:1) 30V	Noise Figure (dB) 30V	Pout at 1dB Compression (dBm) 30V	Pout at 3dB Compression (dBm) 30V	Output IP3 (dBm) 30V
700	49.18	41.02	1.52	1.05	8.22	48.22	50.31	55.77
900	48.01	35.09	1.65	1.27	8.19	50.80	52.24	48.86
1100	47.74	43.16	1.50	1.31	8.18	49.14	50.35	60.43
1300	48.38	41.03	1.30	1.23	8.21	47.95	49.60	53.55
1500	48.64	42.52	1.13	1.27	8.03	48.93	50.48	55.54
1700	49.73	37.34	1.17	1.56	8.04	49.26	51.32	48.98
1900	49.59	37.58	1.18	1.39	8.11	49.69	51.06	48.31
2100	49.82	37.95	1.11	1.12	8.31	48.57	49.98	48.83
2300	47.84	36.82	1.26	1.35	8.27	47.97	49.77	53.59
2500	48.69	33.43	1.22	1.38	8.32	47.87	49.99	50.20
2700	46.97	44.09	1.28	1.22	8.37	48.45	49.45	50.86

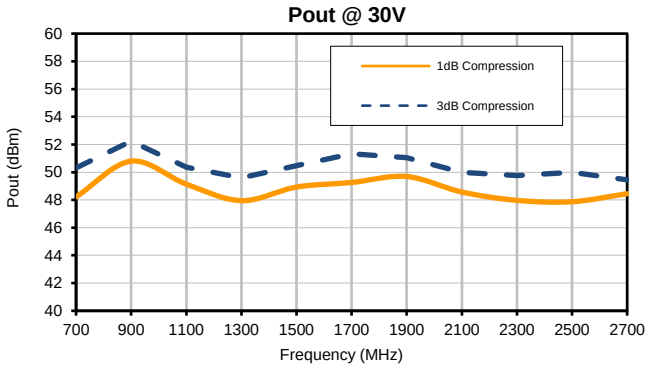
Typical Performance Curves

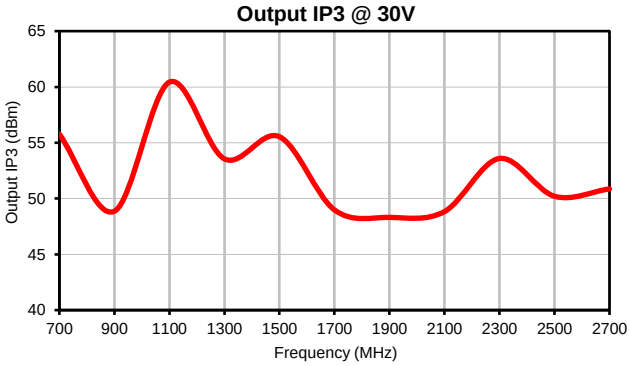








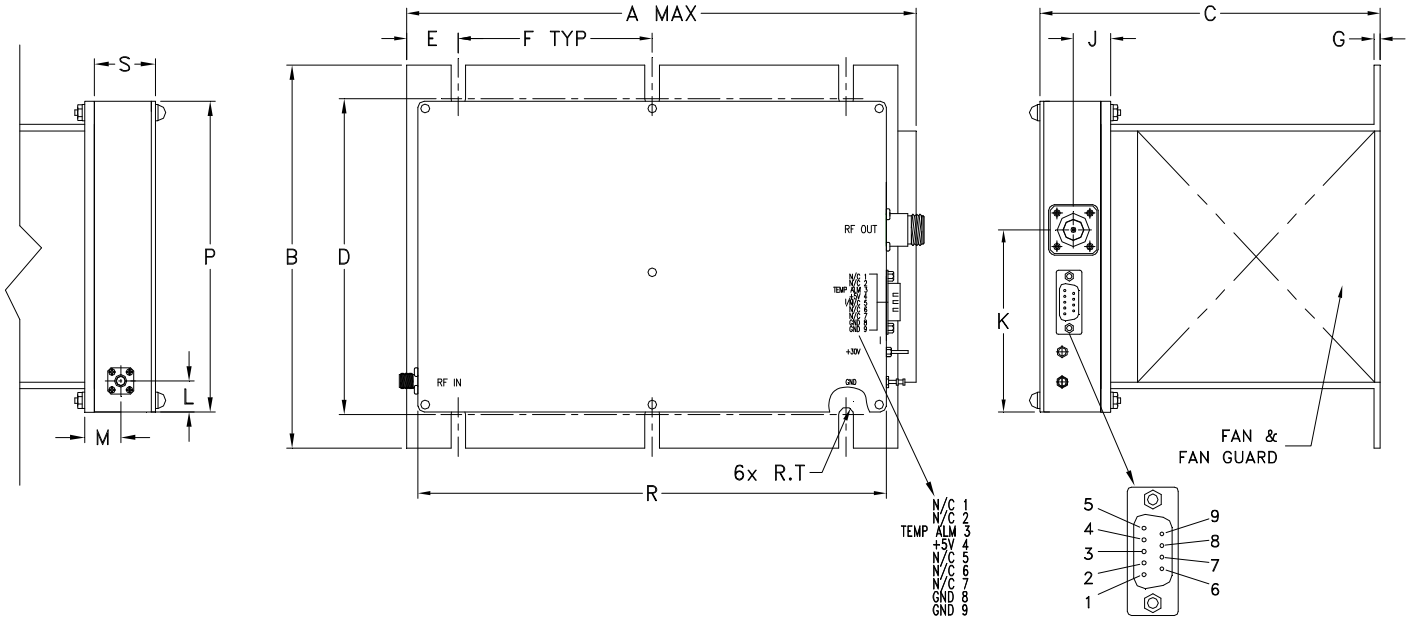




Case Style BT

Outline Dimensions

BT2247



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
BT2247	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)	- -	.72 (18.24)	3.46 (88.00)	.59 (15.00)	.70 (17.75)	- -

CASE#	P	Q	R	S	T	U	WT, GRAM	WT WITHOUT HEATSINK, GRAM
BT2247	5.91 (150.00)	- -	9.06 (230.00)	1.18 (30.00)	.135 (3.43)	- -	5350	1820

Dimensions in inches. Tolerances: 2 Pl. ± .03; 3Pl. ± .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 screw for mounting model without heatsink on 3/32" thick sheet: #6-32, 1.50" Length.

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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