COAXIAL

High Power Amplifier ZHL-100W-352+

50Ω 100W 3000 to 3500 MHz

THE BIG DEAL

- Saturated Power 100W typ.
- Wide bandwidth, usable 2800 to 3600 MHz
- High Gain, 50 dB typ.
- Good Gain Flatness, ±1.5dB typ.
- Unconditionally stable
- Self protected against excessive drive, high case temperature, reverse polarity and shorting/unshorting
- Can withstand short and open circuit at output while delivering 100 watts

Generic photo used for illustration purposes only

Model No.	ZHL-100W-352+
Case Style	BT1834
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-352+ is a Class AB, high-power amplifier providing 100W saturated power over the 3000 to 3500 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, excessive drive 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 connectors and an optional heat sink and fan attachment for cooling.

KEY FEATURES

Feature	Advantages
Wideband, usable from 2800 to 3600 MHz	Suitable for a broad range of high-power, wideband applications, including test setups, communications and defense applications.
High Gain, 50 dB	Enables signal amplification to 100W output without the need for multiple gain stages.
Good Gain Flatness, ±1.5 dB	Provides consistent performance across frequency without the need for gain flattening using external components.
Built-in self-protection	In instances of potentially-damaging excessive drive current, 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.

REV. C
ECO-017723
ZHL-100W-352+
ED16105
MCL NY
230503

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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3000	—	3500	MHz
Gain[1]	3000-3500	45	50	57	dB
Gain Flatness[1]	3000-3500	—	±1.5	±2.0	dB
Output Power at 1dB compression	3000-3500	+48	+50	—	dBm
Output Power at 3dB compression	3000-3500	+49	+51	—	dBm
Noise Figure	3000-3500	—	7.3	10	dB
Output third order intercept point[2]	3000-3500	+53	+55	—	dBm
Input VSWR[1]	3000-3500	—	1.35	2.0	:1
Output VSWR[1]	3000-3500	—	1.5	2.0	: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.

ABSOLUTE 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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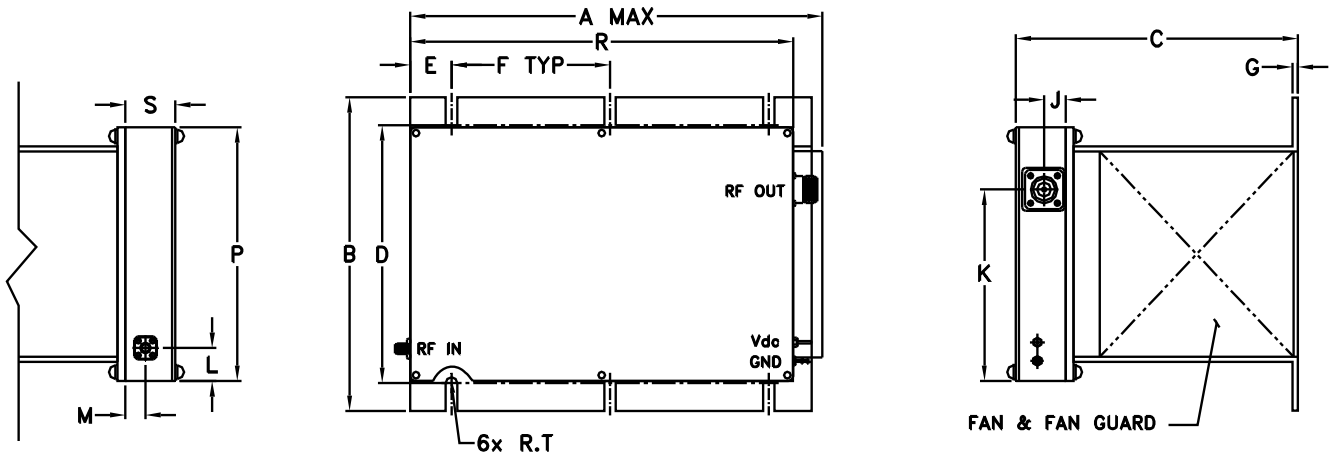
OUTLINE DRAWING FOR MODELS WITH HEATSINK



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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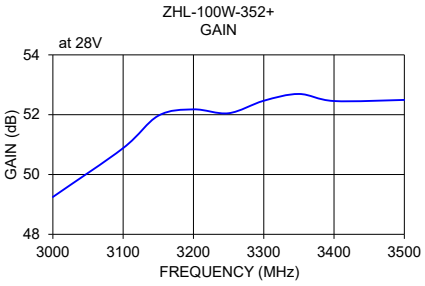
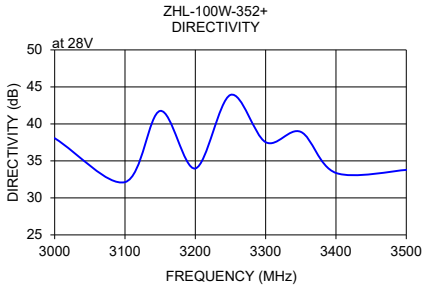
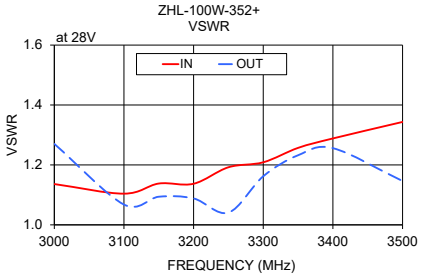
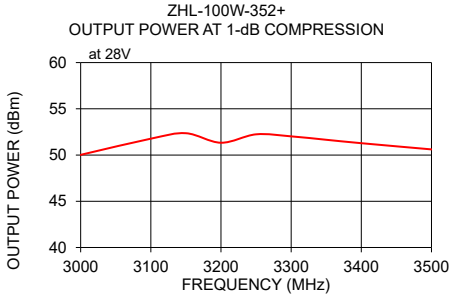
TYPICAL PERFORMANCE DATA / GRAPHS

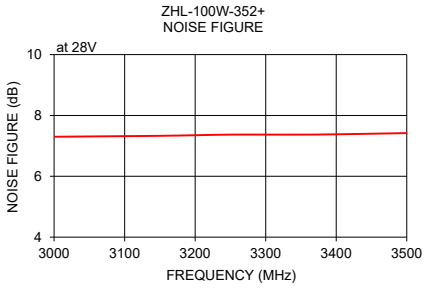
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	NOISE FIGURE (dB)	OIP3 (dBm)
	28V	28V	IN	OUT	28V	28V	28V
3000	49.25	38.07	1.14	1.27	50.02	7.30	54.89
3100	50.88	32.13	1.10	1.07	51.77	7.32	55.05
3150	51.97	41.75	1.14	1.09	52.36	7.33	55.23
3200	52.18	33.98	1.14	1.09	51.33	7.35	55.05
3250	52.05	43.92	1.19	1.04	52.24	7.37	54.79
3300	52.47	37.53	1.21	1.16	52.02	7.37	54.75
3350	52.69	38.92	1.26	1.23	51.65	7.37	54.81
3400	52.46	33.37	1.29	1.26	51.28	7.38	54.85
3500	52.49	33.78	1.34	1.15	50.61	7.42	54.84

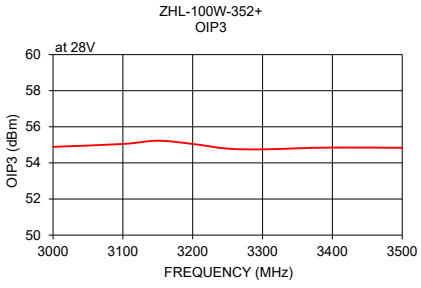












NOTES

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

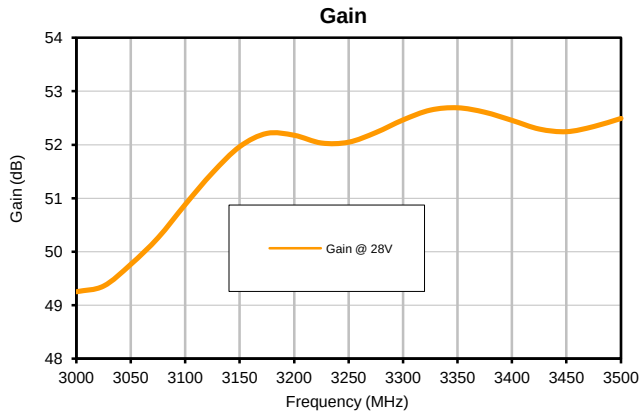
High Power Amplifier ZHL-100W-352+

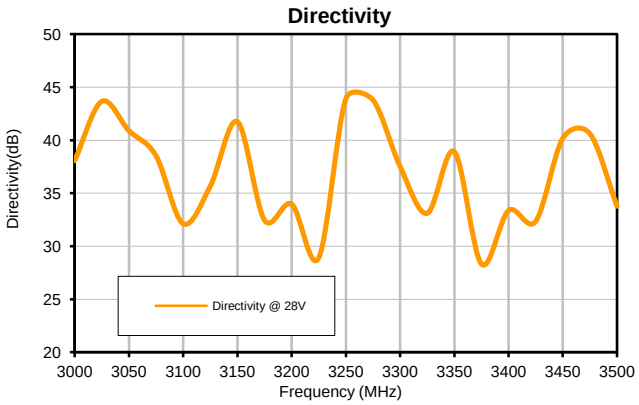
Typical Performance Data

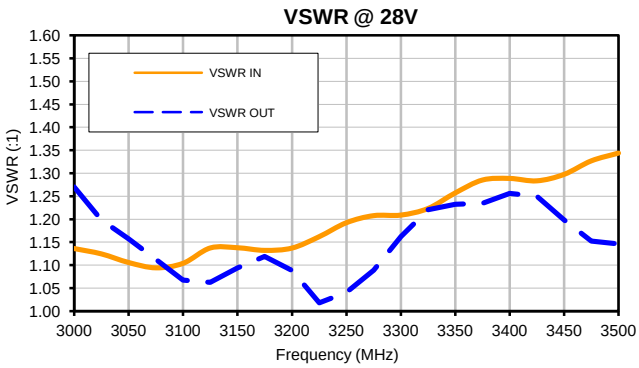
Frequency (MHz)	Gain (dB) 28V	Directivity (dB) 28V	VSWR In (:1) 28V	VSWR Out (:1) 28V	Noise Figure (dB) 28V	Pout at 1dB Compression (dBm) 28V	Output IP3 (dBm) 28V
3000.0	49.25	38.07	1.14	1.27	7.30	50.02	54.89
3025.0	49.36	43.67	1.12	1.20	7.31	50.55	54.89
3050.0	49.76	40.91	1.11	1.16	7.32	51.91	54.91
3075.0	50.26	38.54	1.09	1.11	7.32	52.31	54.96
3100.0	50.88	32.13	1.10	1.07	7.32	51.77	55.05
3125.0	51.48	35.66	1.14	1.06	7.32	51.53	55.27
3150.0	51.97	41.75	1.14	1.09	7.33	52.36	55.23
3175.0	52.21	32.46	1.13	1.12	7.34	52.25	55.17
3200.0	52.18	33.98	1.14	1.09	7.35	51.33	55.05
3225.0	52.03	28.91	1.16	1.02	7.35	51.58	54.90
3250.0	52.05	43.92	1.19	1.04	7.37	52.24	54.79
3275.0	52.23	43.81	1.21	1.09	7.33	52.01	54.77
3300.0	52.47	37.53	1.21	1.16	7.37	52.02	54.75
3325.0	52.65	33.11	1.22	1.22	7.38	51.68	54.77
3350.0	52.69	38.92	1.26	1.23	7.37	51.65	54.81
3375.0	52.61	28.32	1.28	1.23	7.37	50.94	54.82
3400.0	52.46	33.37	1.29	1.26	7.38	51.28	54.85
3425.0	52.29	32.35	1.28	1.25	7.38	51.21	54.82
3450.0	52.25	40.19	1.30	1.20	7.39	51.73	54.79
3475.0	52.34	40.62	1.33	1.15	7.39	51.36	54.77
3500.0	52.49	33.78	1.34	1.15	7.42	50.61	54.84

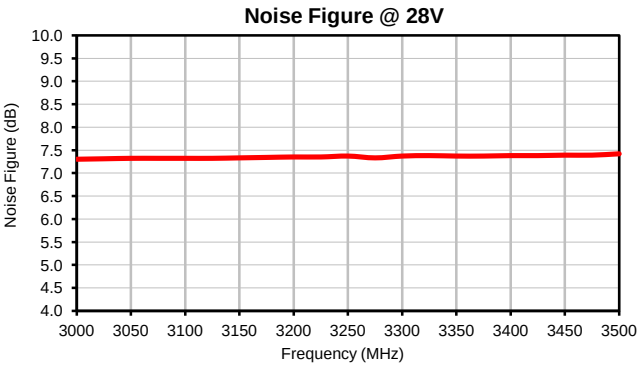
High Power Amplifier ZHL-100W-352+

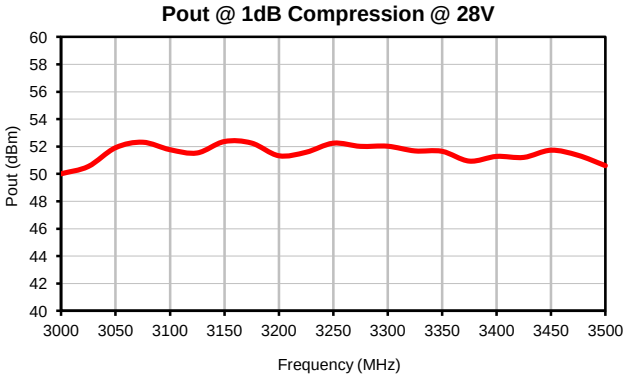
Typical Performance Curves

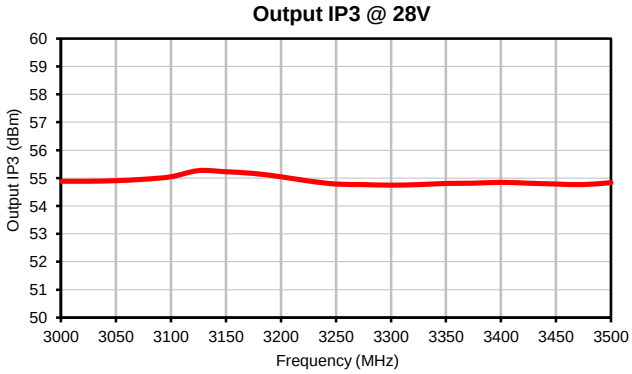








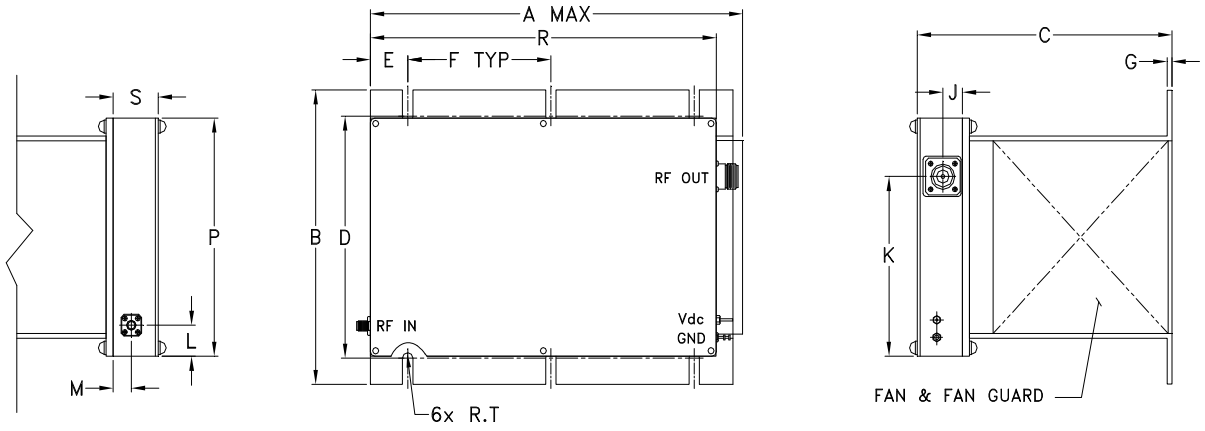




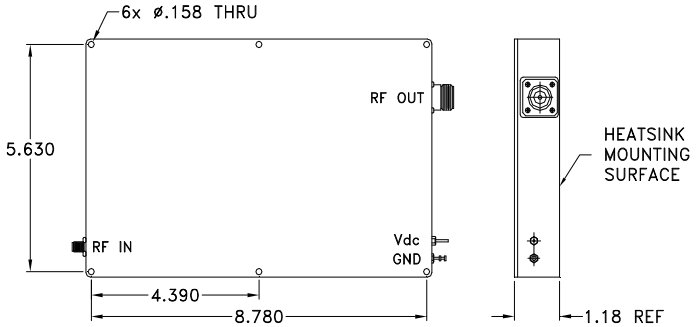
Case Style BT

BT1834

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. ± .1; 2Pl. ± .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