



COAXIAL

Medium Power Amplifier

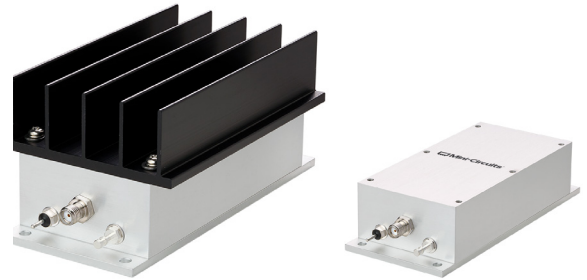
ZHL-10M1G01W1+
ZHL-10M1G01W1X+

Mini-Circuits

50Ω 10 to 1000 MHz Broadband 1.3W SMA-Female

KEY FEATURES

- Broadband, 10 to 1000 MHz
- High Gain, 34 dB typ.
- High P1dB, +31 dBm, typ.
- High OIP3, +45 dBm typ.

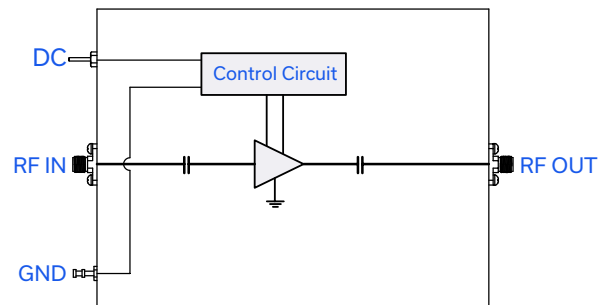


Generic photo used for illustration purposes only

APPLICATIONS

- Communication Systems
- R&D, Production, and Test Systems
- Test & Measurement Equipment
- General Laboratory Applications

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

The ZHL-10M1G01W1(X)+ is a medium power broadband amplifier providing more than 1W of output power with a typical small signal gain of 34dB over the 10 to 1000 MHz frequency band. The amplifier uses state-of-the-art semiconductor technology and can be used in a wide range of applications. A single supply voltage ensures ease of operation. The amplifier is made with a rugged aluminum housing and can be supplied with or without a heatsink.

ELECTRICAL SPECIFICATIONS AT $T_{\text{MOUNTING BASE}} = +25^{\circ}\text{C}$, $V_{\text{DS}} = +24\text{V}$

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Frequency Range	f		10		1000	MHz
Small Signal Gain	G_{SS}	$P_{\text{OUT}} = -25\text{dBm}$	31	34	39	dB
Small Signal Gain Flatness	$G_{\text{SS-FLAT}}$	$P_{\text{OUT}} = -25\text{dBm}$		± 0.2	± 1.3	dB
Output Power at 1dB compression	$P_{1\text{dB}}$	$P_{\text{OUT-REF}} = +15\text{dBm}$	+29	+31		dBm
Output Power at 3dB compression	$P_{3\text{dB}}$	$P_{\text{OUT-REF}} = +15\text{dBm}$	+31	+32		dBm
Noise Figure	NF			6.3		dB
Output Third Order Intercept Point	OIP3	$P_{\text{OUT}} = +20\text{dBm/ tone}$		+45		dBm
Input Return Loss	I-RL	$P_{\text{OUT}} = -25\text{dBm}$	9.5	26		dB
Output Return Loss	O-RL	$P_{\text{OUT}} = -25\text{dBm}$	9	21		dB
DC Supply Voltage	V_{DC}			24	25	V
Supply Current	I_{DC}	Without fan @ $P_{\text{OUT}} = +29\text{dBm}$		0.6	0.7	A
		With fan @ $P_{\text{OUT}} = +29\text{dBm}$		1.0	1.1	

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 REV. OR
 ECO-019297
 ZHL-10M1G01W1+
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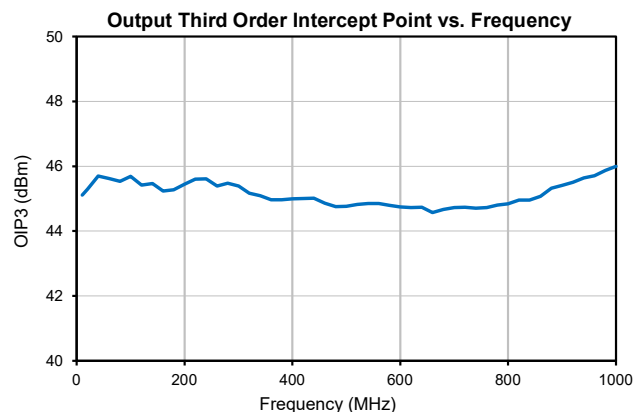
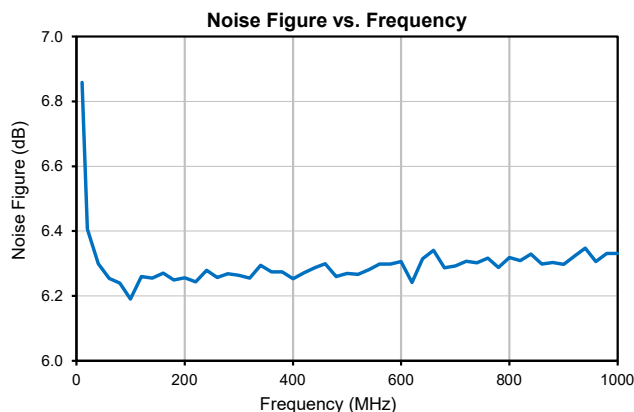
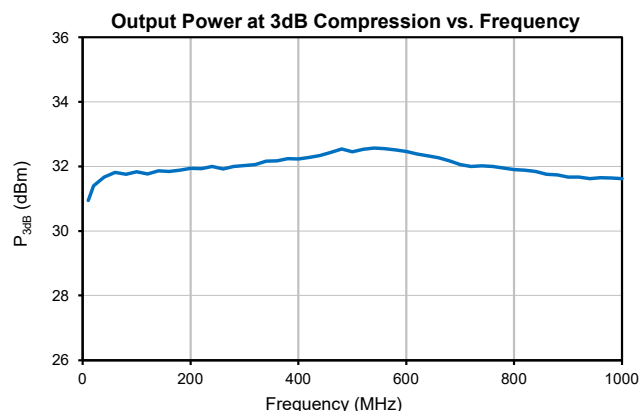
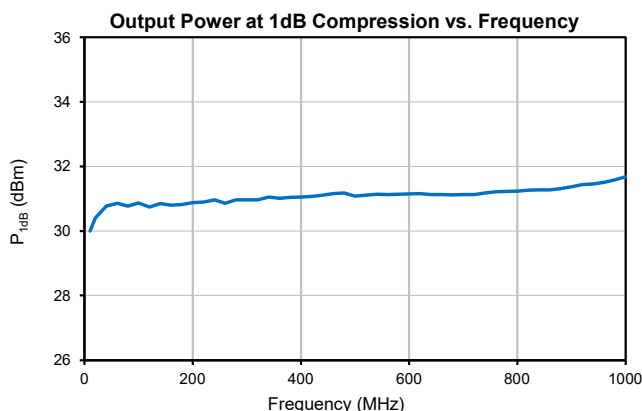
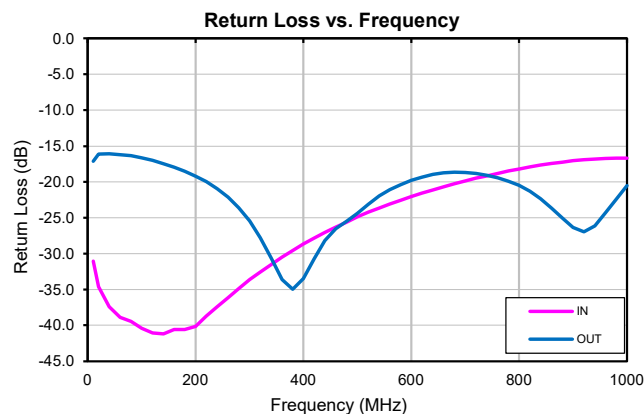
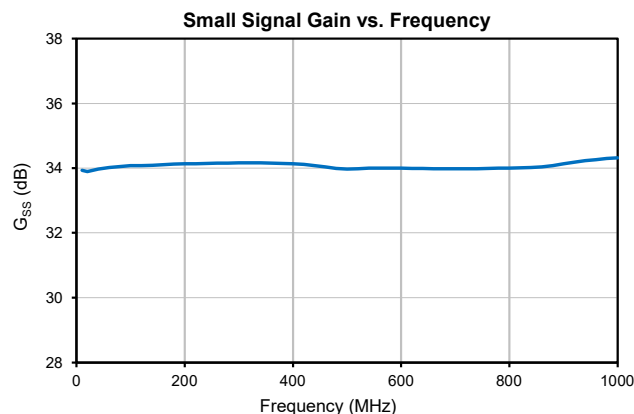
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ZHL-10M1G01W1X+

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TYPICAL PERFORMANCE DATA AT $T_{\text{MOUNTINGBASE}} = +25^{\circ}\text{C}$, $V_{\text{DC}} = +24\text{V}$, 50 OHM



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ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	ZHL-10M1G01W1+ T_{AMBIENT} : -20 °C to +60 °C
	ZHL-10M1G01W1X+ $T_{\text{MOUNTING BASE}}$: -20 °C to +85 °C
Storage Temperature	-55°C to +100°C
No damage with an open or short at $P_{\text{OUT}} = +28 \text{ dBm CW}$	
RF Input Power (no damage)	+5 dBm
DC Operating Voltage	± 25 V

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

DETERMINING MAXIMUM THERMAL RESISTANCE OF USERS' EXTERNAL HEAT SINK

$\text{MAXIMUM THERMAL RESISTANCE} = \frac{\text{MAXIMUM OPERATING CASE TEMP} - \text{MAXIMUM USER AMBIENT TEMP}}{\text{POWER DISSIPATION}}$
Example: MAXIMUM MOUNTING BASE TEMP = +85 °C (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) MAXIMUM USER AMBIENT TEMP = +60 °C (USER DEFINED) POWER DISSIPATION = 16.2 WATTS (CHECK MAXIMUM RATINGS TABLE FOR THIS VALUE) THEN MAXIMUM ALLOWABLE THERMAL RESISTANCE = 1.54 °C/W

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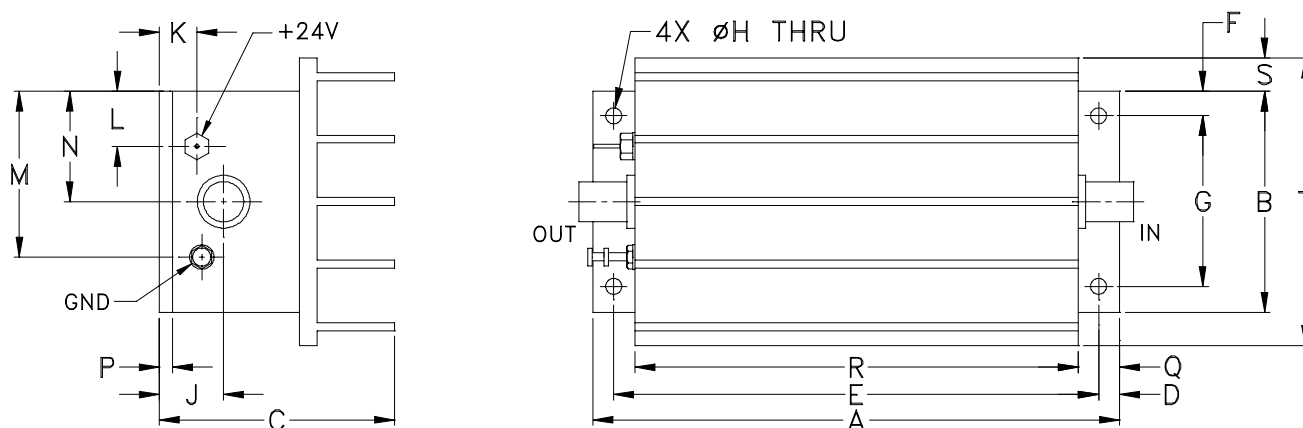
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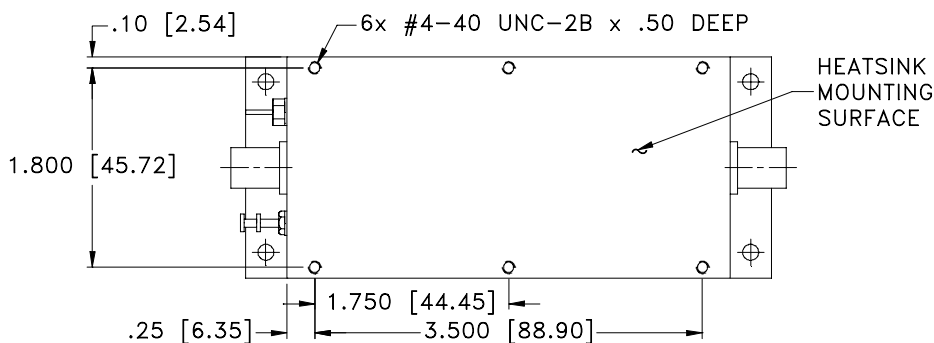
COAXIAL CONNECTIONS

IN (RF IN)	SMA-Female
OUT (RF OUT)	SMA-Female

CASE STYLE DRAWING WITH HEATSINK (ZHL-10M1G01W1+)



CASE STYLE DRAWING WITHOUT HEATSINK (ZHL-10M1G01W1X+)

OUTLINE DIMENSIONS (Inch
mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt
4.75	2.00	2.12	.19	4.375	.23	1.540	.144	.58	.34	.50	1.50	1.00	.12	.38	4.00	.30	2.60	grams*
120.65	50.80	53.85	4.83	111.13	5.84	39.12	3.66	14.73	8.64	12.70	38.10	25.40	3.05	9.65	101.60	7.62	66.04	440.0

*325 grams without heatsink

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ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD.

Performance Data	Table
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
RoHS Status	Compliant
Environmental Ratings	ENV23T15

ORDERING INFORMATION

Model No. Links	ZHL-10M1G01W1+	ZHL-10M1G01W1X+
Option	With heatsink	Without heatsink
Product Marking	ZHL-10M1G01W1+	ZHL-10M1G01W1X+
Case Style	T34	
Connector	IN (SMA-Female) / OUT (SMA-Female)	

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

