

MEDIUM POWER, HIGH GAIN

ZVE-453HP+ Wideband Amplifier zve-453HPX+

Mini-Circuits

50Ω 18 to 45 GHz

THE BIG DEAL

APPLICATIONS

 5G mmW SATCOM

- High gain 39 dB typ. over the entire operating band
- Excellent gain flatness, ±2.5 dB typ.
- Saturated output power = +31 dBm typ.
- Adjustable DC voltage, +10 to +15 V

Wideband Test and Instrumentation



Generic photo used for illustration purposes only

Model No.	ZVE-453HP+	ZVE-453HPX+	
Option	With heatsink & fan Without heatsink &		
Case Style	VN3071-4		
Connectors	2.4mm Female		

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

PRODUCT OVERVIEW

Wireless Infrastructure

Mini-Circuits' ZVE-453HP+ is a coaxial, 1 Watt wideband high gain amplifier, operating from 18 to 45 GHz. This model operates over a single positive supply range of +10 to +15 V, allowing users to choose their desired operating voltage. Internal DC-DC conversion circuitry maintains constant efficiency over the full input voltage range. The amplifier incorporates several DC-protection features, such as over-voltage, reverse voltage and in-rush current, that protect the amplifier from damage if mishandled during operation. The wideband operation combined with high output power makes this amplifier an ideal choice for testing and instrumentation applications.

KEY FEATURES

Feature	Advantages	
Wide-band amplifier, 18 to 45 GHz	A single amplifier serves the need for applications including 5G bands (24 to 39 GHz), SATCOM, Test & Instru- mentation, etc.	
Integrated fan assembly	Model ZVE-453HP+ utilizes two integrated fans, keeping the amplifier cool to the touch during normal operation at room temperature	
High gain Low VSWR Medium RF power	The amplifier provides 39 dB (typ.) of gain over the entire operating band, and is capable of delivering over 1 Watt of RF power	
Adjustable DC Supply Voltage	The device is capable of operating from +10 to +15 V with consistent DC power consumption	
DC Protection – Over-voltage Reverse voltage In-rush Current	The internal DC circuitry allows the amplifier to be protected from external mishandling, that could lead to cata- strophic failures in the field	

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ELECTRICAL SPECIFICATIONS AT 25 °C BASEPLATE

Parameter	Condition (MHz)	ZVE-453HP+ ³ ZVE-453HPX+ ⁴			Units
		Min.	Тур.	Max.	
Frequency Range		18000		45000	MHz
Gain	18000-30000	33.0	37		dB
Gain	30000-45000	35.0	40		
	18000 - 26000	25.0	29.0		dBm
Output Power at 1dB compression	26000 - 40000	29.0	30.5		
	40000 - 45000	25.5	28.5		
	18000 - 26000	28.0	30.5		dBm
Saturated Output Power	26000 - 40000	30.5	32.0		
	40000 - 45000	27.5	30.0		
Output IP3	18000 - 45000		41		dBm
Input VSWR	18000 - 45000		1.5	2.0	:1
Output VSWR ¹	18000 - 45000		1.5	2.0	:1
Operating DC Voltage		+10	_	+15	V
Device Operating Current at +15 V (ZVE-453HPX+ / ZVE-453HP+)			900 ⁴ / 1100 ³	1600 ⁴ / 1800 ³	mA
Device Operating Power at +15 V			19 ²		W

1. Open and short-circuit loads are not recommended at the amplifier output. Ensure proper 50 Ohm load before turning the amplifier "ON".

2. Device operating power is based on current when amplifier is in saturation. 3. For units with heatsink, limit ambient temperature to 50 °C.

4. For units without heatsink, limit the maximum baseplate temperature to 60 °C.

MAXIMUM RATINGS⁶

Parameter	Ratings			
Operating Temperature	ZVE-453HP+-40 °C to +50 °C AmbientZVE-453HPX+-40 °C to +60 °C Baseplate			
Storage Temperature	-40 °C to +85 °C			
Total Power Dissipation	20 W			
RF Input Power⁵ (CW)	+2 dBm			
DC Operating Voltage	+16 V			

5. Specified under matched load to 50 ohms.

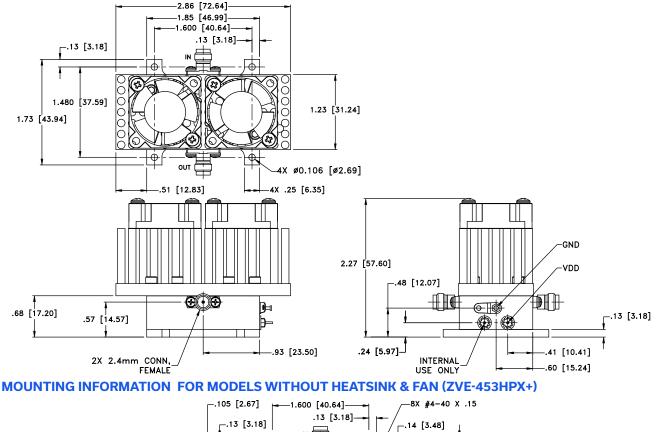
6. Continuous operation is not recommended at these extremes. Permanent damage may occur if any of these limits are exceeded.

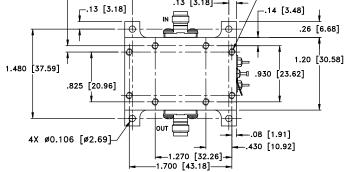
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Wideband Amplifier ZVE-453HP+ ZVE-453HPX+

OUTLINE DRAWING FOR MODELS WITH HEATSINK & FAN (ZVE-453HP+)





WT. GRAMS 160 grams; WITHOUT HEATSINK GRAMS 60 grams Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl.±.015