



1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054

PE15A4054 is a coaxial medium power amplifier, operating in the 2 to 8 GHz frequency range. The amplifier offers 1 Watt of P1dB minimum and 38 dB small signal gain minimum, with the gain flatness of ± 2.5 dB typical. This power amplifier requires only a single positive DC supply, is unconditionally stable, operates over the temperature range of 0°C to 50°C, and supports field replaceable SMA Female connectors.

Features

- 2 to 8 GHz Frequency Range
- P1dB 1 Watt min.
- Small Signal Gain: 38 dB min.
- Gain Flatness: ± 2.5 dB typ.
- Noise Figure 5.5 dB max.
- 50 Ohm Input and Output Matched
- 0 to 50°C Operating Temperature
- Unconditionally Stable
- Single DC Positive Supply
- Built-in DC Voltage Regulator
- Field Replaceable SMA Female connectors

Applications

- Electronic Warfare
- Electronic Countermeasures
- Radar Systems
- Telecom Infrastructure
- Test Instrumentation
- Communication Systems
- Satellite Communications
- Microwave Radio Systems
- Driver Amplifier
- High Power Output Amplifier

Electrical Specifications (TA = +25°C, DC Voltage = +12Volts, DC Current = 1.2A)

Description	Minimum	Typical	Maximum	Units
Frequency Range	2		8	GHz
Small Signal Gain	38			dB
Gain Flatness		± 2.5		dB
Output Power at 1 dB Compression Point	+30			dBm
Noise Figure			5.5	dB
Impedance (Input)*		50		Ohms
Impedance (Output)*		50		Ohms
Input VSWR			2:1	
Output VSWR			2:1	
Operating DC Voltage		+12		Volts
Operating DC Current		1.2		A

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](#)



1 Watt P1dB, 2 GHz to 8 GHz, Medium Power
Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054

Mechanical Specifications

Size

Length	1.82 in [46.23 mm]
Width	0.93 in [23.62 mm]
Height	0.35 in [8.89 mm]
Weight	0.079 lbs [35.83 g]
Input Connector	SMA Female
Output Connector	SMA Female
Bias Connector	Solder Pin

Environmental Specifications

Temperature

Operating Range	0 to +50 deg C
Storage Range	-40 to +100 deg C
Humidity	MIL-STD-202F, Method 103B, Condition B
Shock	MIL-STD-202F, Method 213B, Condition B
Vibration	MIL-STD-202F, Method 204D, Condition B

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level
- Heatsink Required for Proper Operation

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](#)



1 Watt P1dB, 2 GHz to 8 GHz, Medium Power
Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054

Amplifier Power-up Precautions

- 1.) Confirm that proper ESD precautions and controls are always in place before handling any Amplifier module.
- 2.) Confirm adequate thermal management is in place to effectively dissipate heat away from the Amplifier package. The Amplifier operational baseplate temperature must be within the operational temperature range stated in the Amplifier datasheet. Depending on the design and thermal requirements, using a heatsink with cooling fan is always recommended for safe reliable operation. A heat sink without a cooling fan may also be used. Damage caused from overheating will void the warranty.
- 3.) Confirm adequate system grounding is established. The DC power supply and Amplifier must have a common ground in order to operate properly.
- 4.) Power Amplifiers may require additional DC Current when initially powered-up. Depending on the design, the input current draw could range from an additional 10% to 100% above the maximum rated DC current of the Amplifier. This varies based on product part number.
- 5.) Confirm the DC power supply, if limited, is set to allow for additional start-up current that's rated for the Power Amplifier.
- 6.) Confirm the system is designed and calibrated for 50 ohms. Any impedance mismatch may cause performance issues.
- 7.) Perform a CALIBRATION (if required) with the loads before connecting the Amplifier to the Network Analyzer to ensure proper performance.
- 8.) Use a fixed attenuator between the signal source and input port of the Amplifier to optimize the input VSWR match.
- 9.) Confirm the input power level at the input port of the amplifier does not exceed the maximum rated limit for input power (as stated in the Amplifier datasheet).
 P_{in} for Small Signal Gain = P1dB-SSG-10 dB
 P_{in} for P1dB = P1dB-SSG+1 dB
- 10.) Confirm the Network Analyzer is always connected to the Amplifier first before DC power is applied to the Amplifier.
- 11.) As long as the input and output ports of the amplifier are connected to a 50Ohm load and RF signal power is applied, the Amplifier can be powered up with DC voltage.
- 12.) Confirm the Amplifier output load is matched for a 50 Ohm impedance and will not exceed the maximum rated VSWR or Return Loss limit for the Amplifier. Exceeding the maximum rated VSWR or Return Loss limit will result in reflected signal power that could damage the Amplifier and void the warranty.
- 13.) **Power Amplifier connected to an Antenna for signal transmission** - It's strongly recommended to use a high power fixed attenuator pad or an Isolator between the output port of the Amplifier and input port to the antenna. Any reflected signal power due to impedance mismatch will likely damage the Amplifier and void the warranty.
- 14.) The attenuator or isolator used at the output port of the Amplifier must be rated to handle the output power level and operational frequency band of the amplifier.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](#)

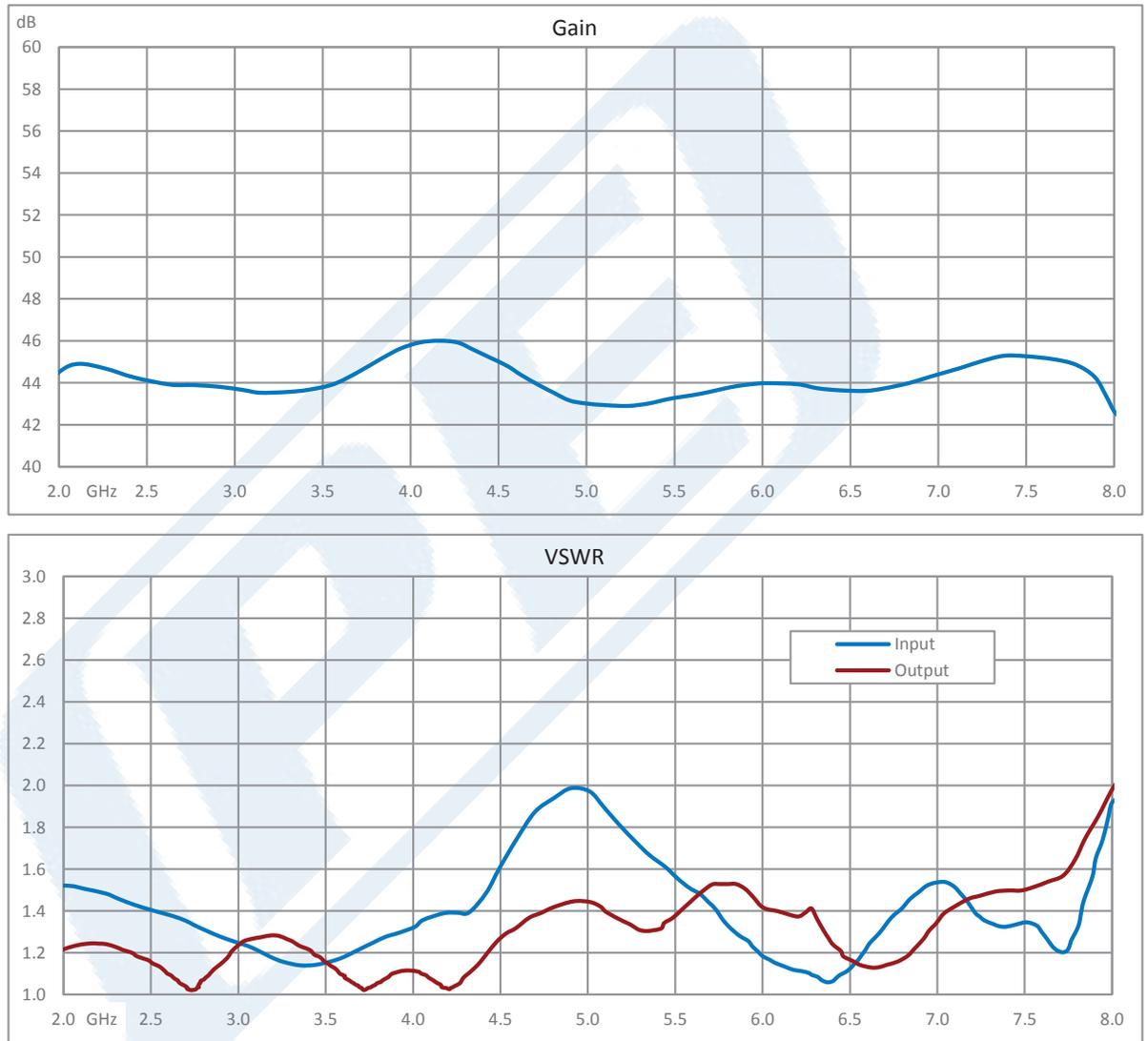


1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054

Typical Performance Data



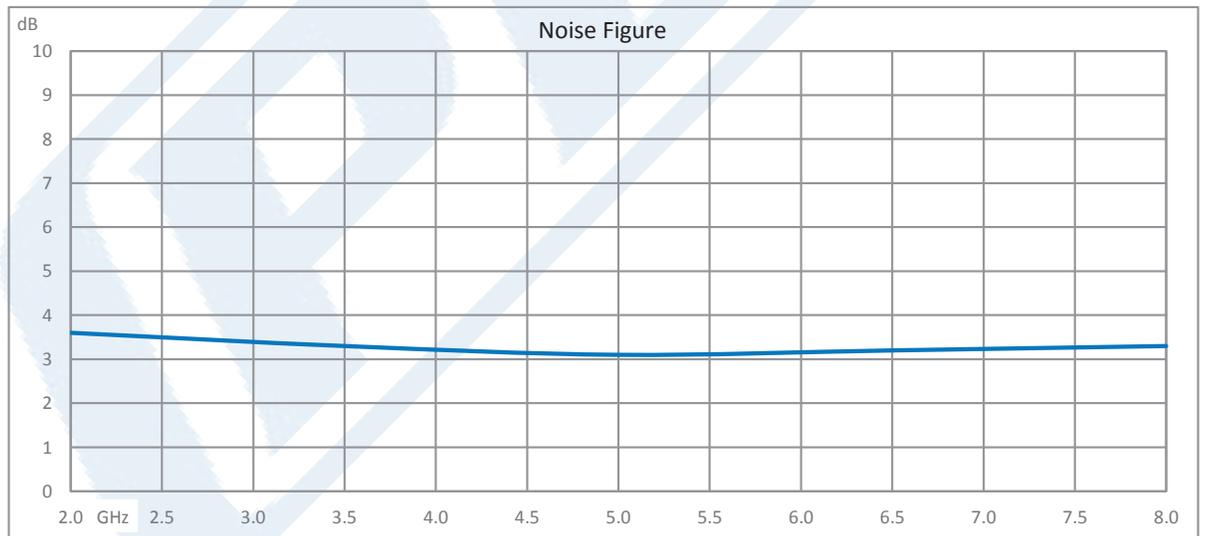
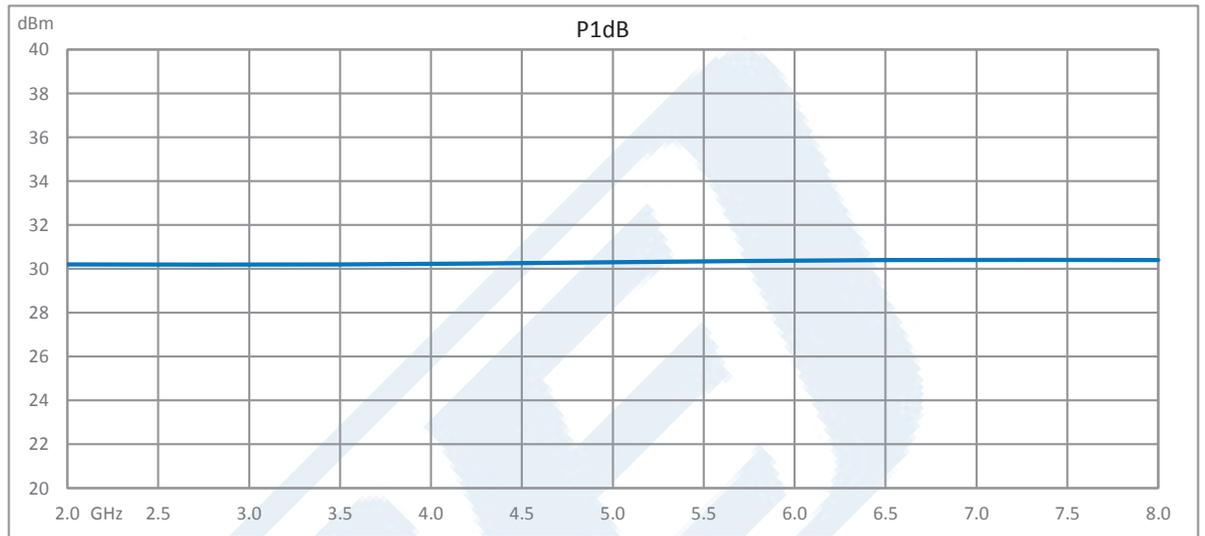
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](#)



1 Watt P1dB, 2 GHz to 8 GHz, Medium Power
Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](#)



1 Watt P1dB, 2 GHz to 8 GHz, Medium Power
Amplifier, SMA, 38 dB Gain, 5.5 dB NF

TECHNICAL DATA SHEET

PE15A4054

1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

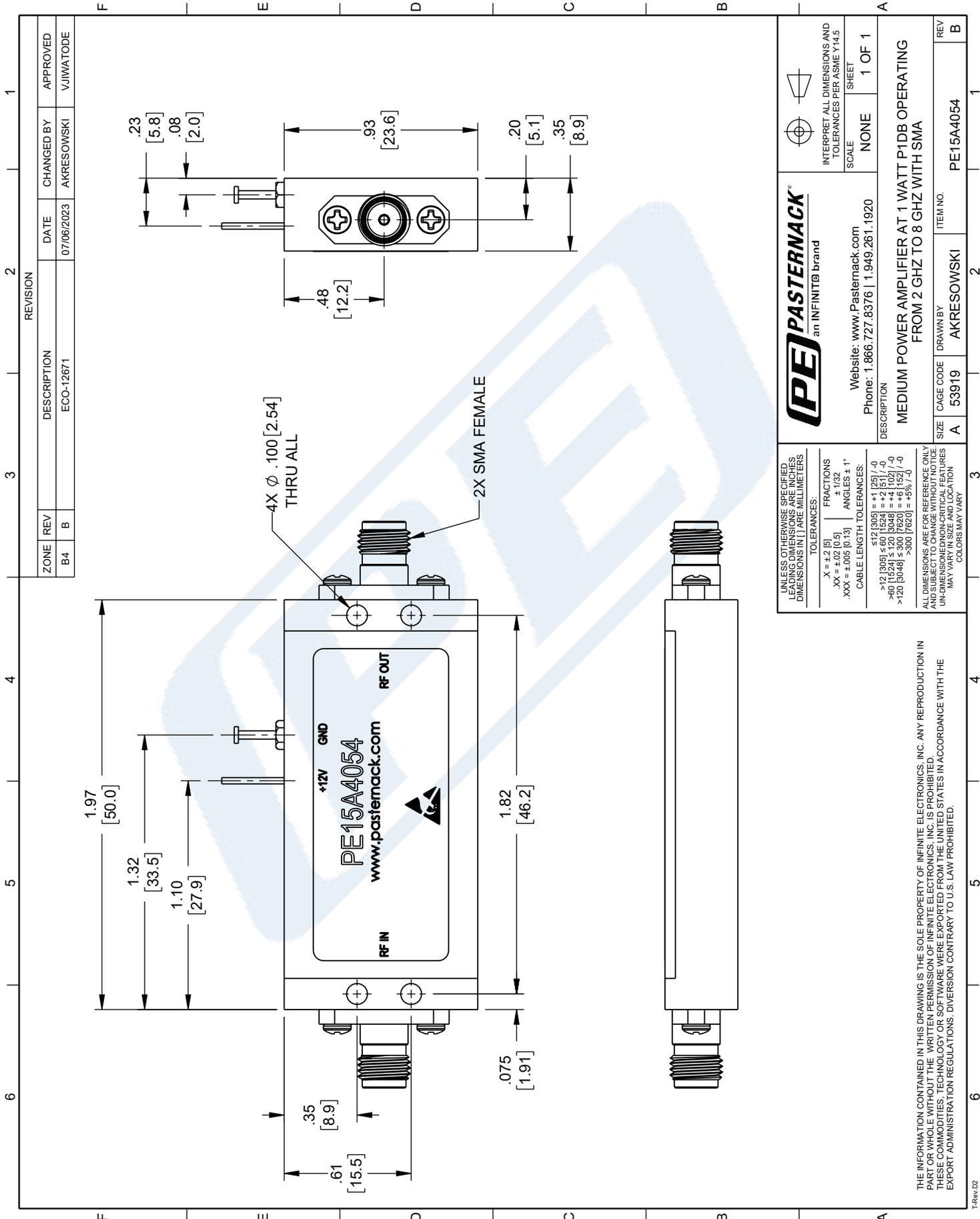
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF PE15A4054](https://www.pasternack.com/8-ghz-medium-power-amplifier-38-db-gain-sma-pe15a4054-p.aspx)

URL: <https://www.pasternack.com/8-ghz-medium-power-amplifier-38-db-gain-sma-pe15a4054-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

PE15A4054 CAD Drawing

1 Watt P1dB, 2 GHz to 8 GHz, Medium Power Amplifier, SMA, 38 dB Gain, 5.5 dB NF



ZONE		REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
B4	B		ECO-12671	07/06/2023	AKRESOWSKI	VJIWATODE

REVISION	
1	
2	
3	
4	
5	
6	

PE PASTERNAK
an INFINIT@ brand

Website: www.Pasternack.com
Phone: 1.866.727.8376 | 1.949.261.1920

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE NONE SHEET 1 OF 1

DESCRIPTION
MEDIUM POWER AMPLIFIER AT 1 WATT P1DB OPERATING FROM 2 GHz TO 8 GHz WITH SMA

SIZE A 53919 DRAWN BY AKRESOWSKI ITEM NO. PE15A4054 REV B

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE MILLIMETERS.

TOLERANCES:
X = ±.2 [5] FRACTIONS ± 1/32
.XX = ±.02 [0.5] ANGLES ± 1°
.XXX = ±.005 [0.13] CABLE LENGTH TOLERANCES:
≤12 [305] ±.1 [25] / -0
>12 [305] ≤60 [1524] = ±.2 [5.1] / -0
>60 [1524] ≤120 [3048] = ±.4 [102] / -0
>120 [3048] ≤300 [7620] = ±.6 [152] / -0
>300 [7620] = ±.8% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE. UNDIMENSIONED NON-CRITICAL FEATURES MAY VARY.
COLORS MAY VARY.

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF INFINITE ELECTRONICS, INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF INFINITE ELECTRONICS, INC. IS PROHIBITED. THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.