



## 3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

### TECHNICAL DATA SHEET

PE15A3254

PE15A3254 is a broadband GaAs PHEMT MMIC-based coaxial Low Noise Amplifier, operating in the 30 MHz to 20.0 GHz frequency range. The amplifier offers 3dB typical Noise Figure, 20 dBm of P1dB and 15dB small signal gain, with gain flatness of  $\pm 2.5$  dB. This amplifier requires only a single positive DC supply with internal voltage regulation, is unconditionally stable, operates over the temperature range of -20°C to 70°C, and characterized by a light weight (11 g) and small size (1.08" x 0.53" x 0.29"). The rugged package is designed to meet series of MIL-STD-202F environmental conditions including humidity, shock, vibration, and temperature cycle, and features field removable SMA connectors for drop mounting onto a PWB.

#### Features

- 0.03 to 20 GHz Frequency Range
- P1dB: 20 dBm
- Small Signal Gain: 15 dB
- Gain Flatness:  $\pm 2.5$  dB
- Noise Figure: 3 dB
- Output IP3: +29 dBm
- 50 Ohm Input and Output Matched
- -20 to +70°C Operating Temperature
- Unconditionally Stable
- Single DC Positive Supply
- Built-in DC Voltage Regulator
- Small Size & Light Weight
- Field Replaceable SMA Connectors

#### Applications

- Laboratory Applications
- R&D Labs
- Radar Systems
- Electronic Warfare
- Telecom Infrastructure
- Test Instrumentation
- Military & Space
- Communication Systems
- Satellite Communications
- Wireless Communications
- Unmanned Systems
- Microwave Radio Systems
- Power Amplifier
- Low Noise Amplifier
- General Purpose Amplification
- RF Front Ends

#### Electrical Specifications (TA= 25°C)

| Description                            | Minimum | Typical   | Maximum | Units |
|--|---------|-----------|---------|-------|
| Frequency Range                        | 0.03    |           | 20      | GHz   |
| Gain                                   |         | 15        |         | dB    |
| Gain Flatness                          |         | $\pm 2.5$ |         | dB    |
| Output at 1 dB Compression Point       |         | +20       |         | dBm   |
| Output 3 <sup>rd</sup> Intercept Point |         | +29       |         | dBm   |
| Noise Figure                           |         | 3         |         | dB    |
| Operating DC Voltage 1                 | 12      |           | 15      | Volts |
| Operating DC Current                   |         | 180       |         | mA    |
| Operating Temperature Range (OTR)      | -20     |           | +70     | °C    |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)



3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A3254

**Absolute Maximum Rating**

| Parameter                          | Rating      | Units |
|------------------------------------|-------------|-------|
| Source Voltage                     | +15         | Volts |
| RF input Power                     | +23         | dBm   |
| Operating Temperature (base-plate) | -20 to +70  | °C    |
| Storage Temperature                | -55 to +125 | °C    |



ESD Sensitive Material,  
Transport material in  
Approved ESD bags.  
Handle only in approved  
ESD Workstation.

**Mechanical Specifications**

**Size** \*Excluding Connectors\*

|                  |                      |
|------------------|----------------------|
| Length           | 1.08 in [27.43 mm]   |
| Width            | 0.36 in [9.14 mm]    |
| Height           | 0.18 in [4.57 mm]    |
| Weight           | 0.0368 lbs [16.69 g] |
| Connector Option | Field Replaceable    |
| Input Connector  | SMA Female           |
| Output Connector | SMA Female           |

**Environmental Specifications**

**Temperature**

|                 |                   |
|-----------------|-------------------|
| Operating Range | -20 to +70 deg C  |
| Storage Range   | -55 to +125 deg C |

**Humidity**

MIL-STD-202F, METHOD 103B COND B.

**Shock**

MIL-STD-202F, METHOD 213B COND B.

**Altitude**

MIL-STD-202F, METHOD 105C COND B.

**Temperature Cycling**

MIL-STD-202F, METHOD 107D COND A.

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

**Plotted and Other Data**

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)



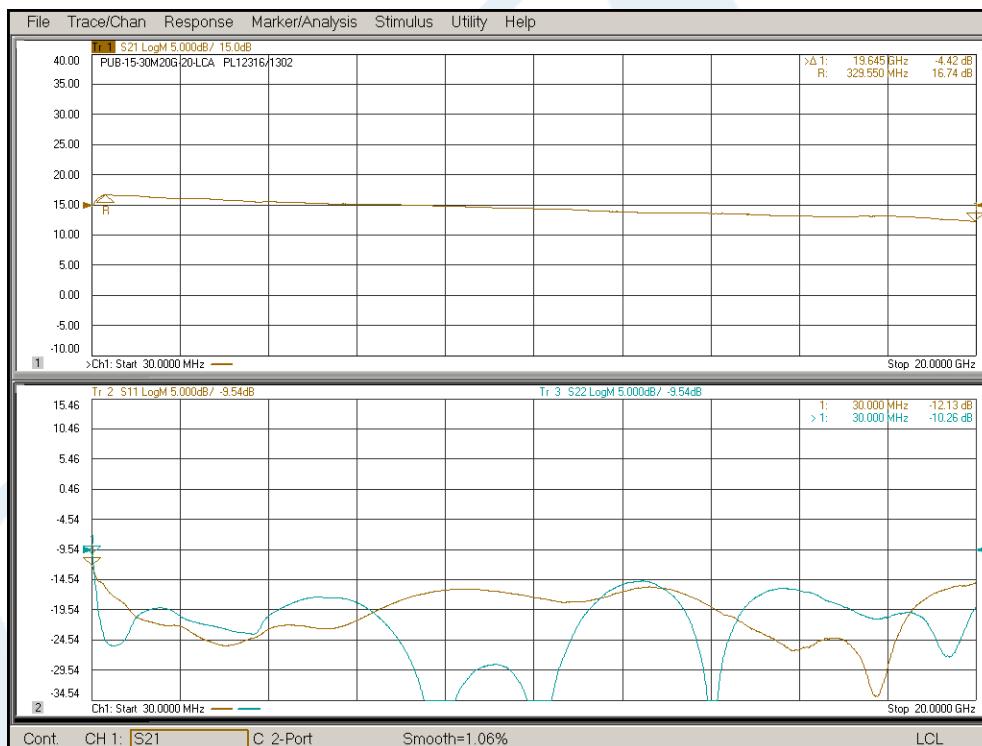
3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A3254

Typical Performance Data

Gain & Return Loss



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)

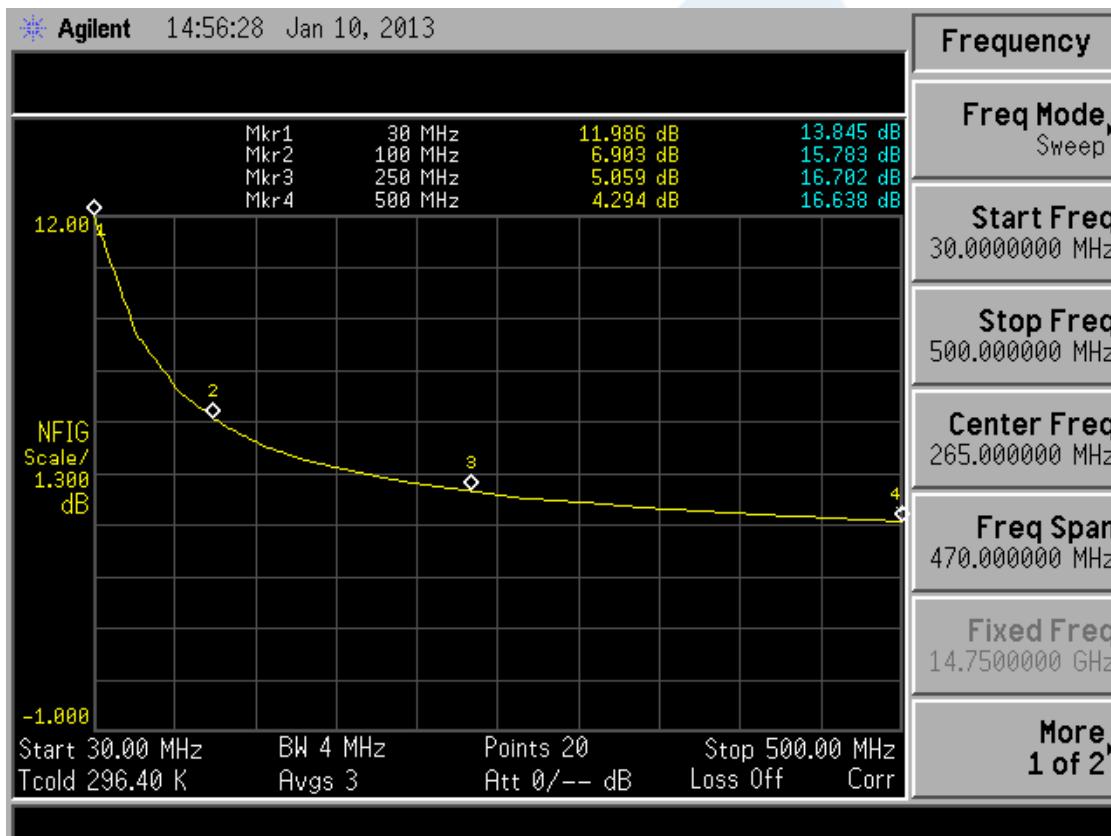


3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

## TECHNICAL DATA SHEET

PE15A3254

### Low Frequency Noise Figure Plot (30 to 500MHz)



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)

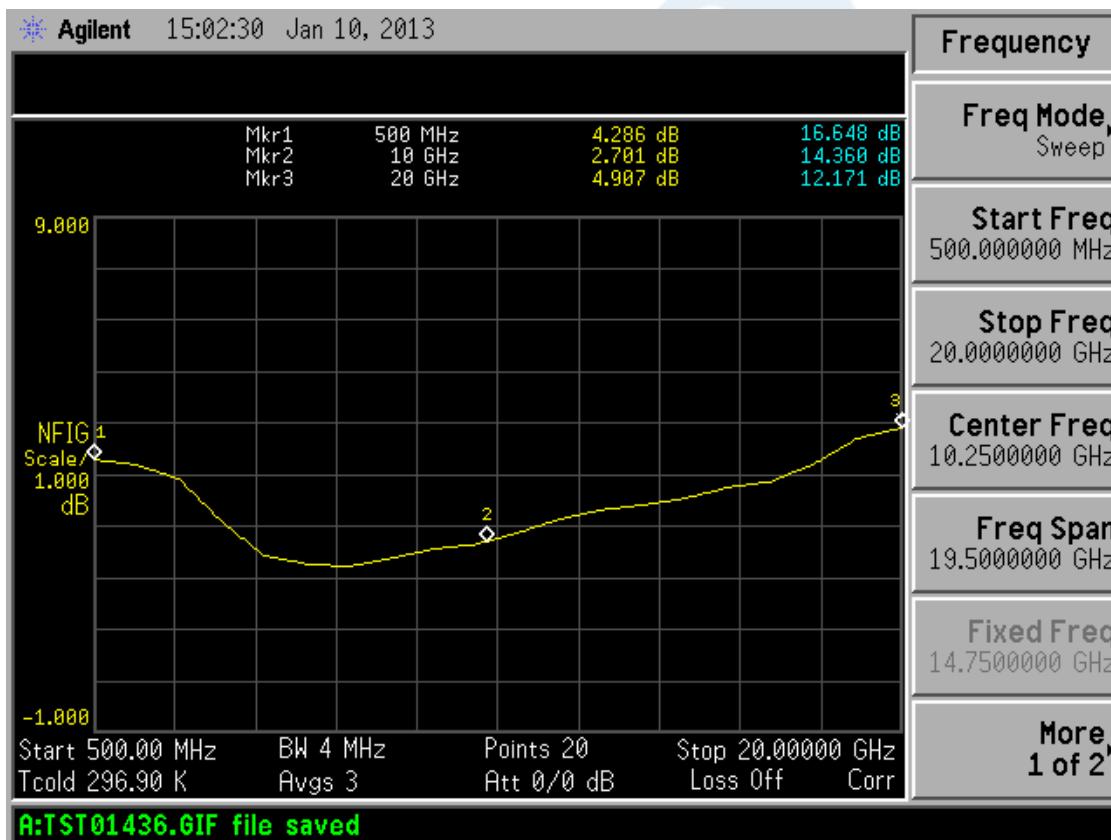


3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

## TECHNICAL DATA SHEET

PE15A3254

### Noise Figure Plot (500MHz to 20GHz)



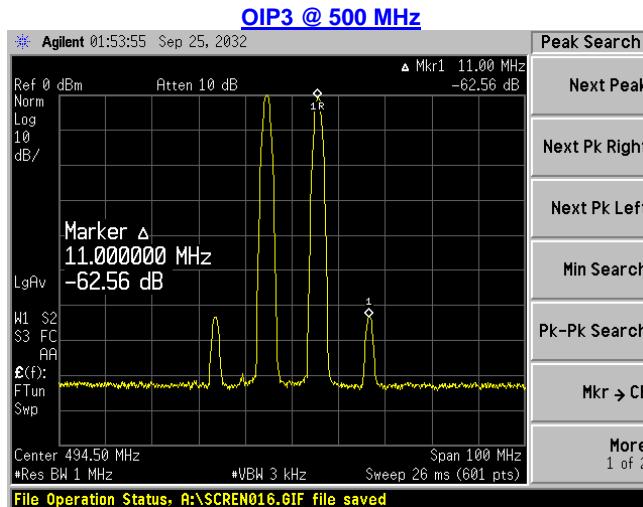
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)



3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

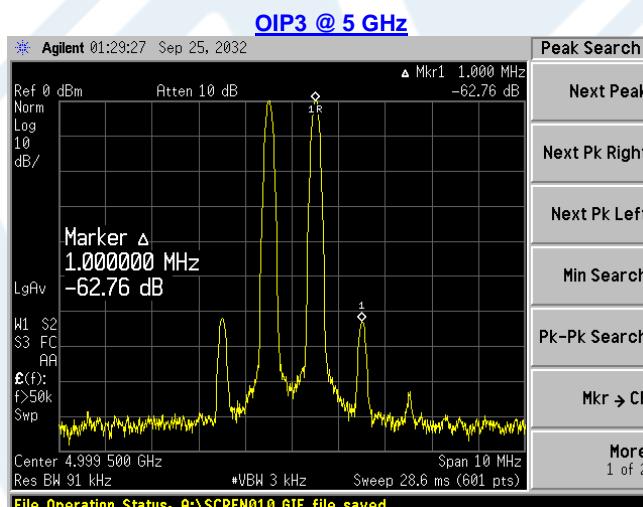
TECHNICAL DATA SHEET

PE15A3254



$$\text{OIP3} = \text{Pout} + \text{dBc}/2$$

$$+31.28\text{dBm} = 0 + (62.56/2)$$



$$\text{OIP3} = \text{Pout} + \text{dBc}/2$$

$$+31.38\text{dBm} = 0 + (62.76/2)$$

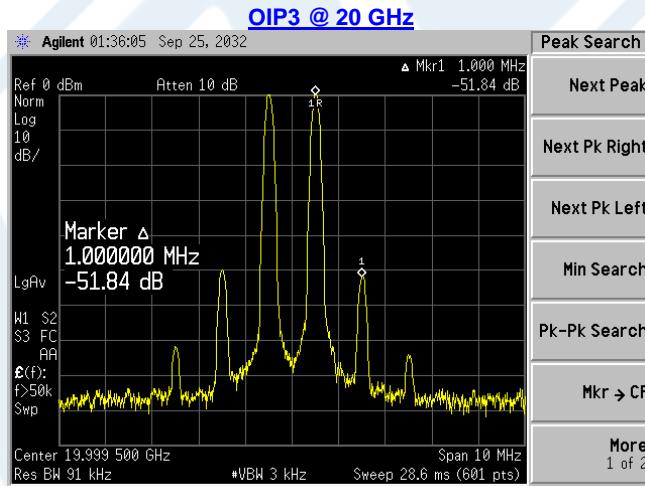
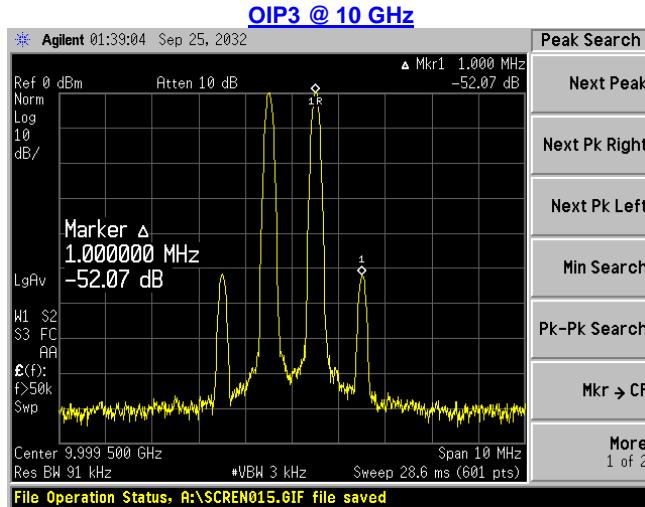
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)



3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A3254



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)



## 3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA

### TECHNICAL DATA SHEET

PE15A3254

3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA 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: [3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3254](#)

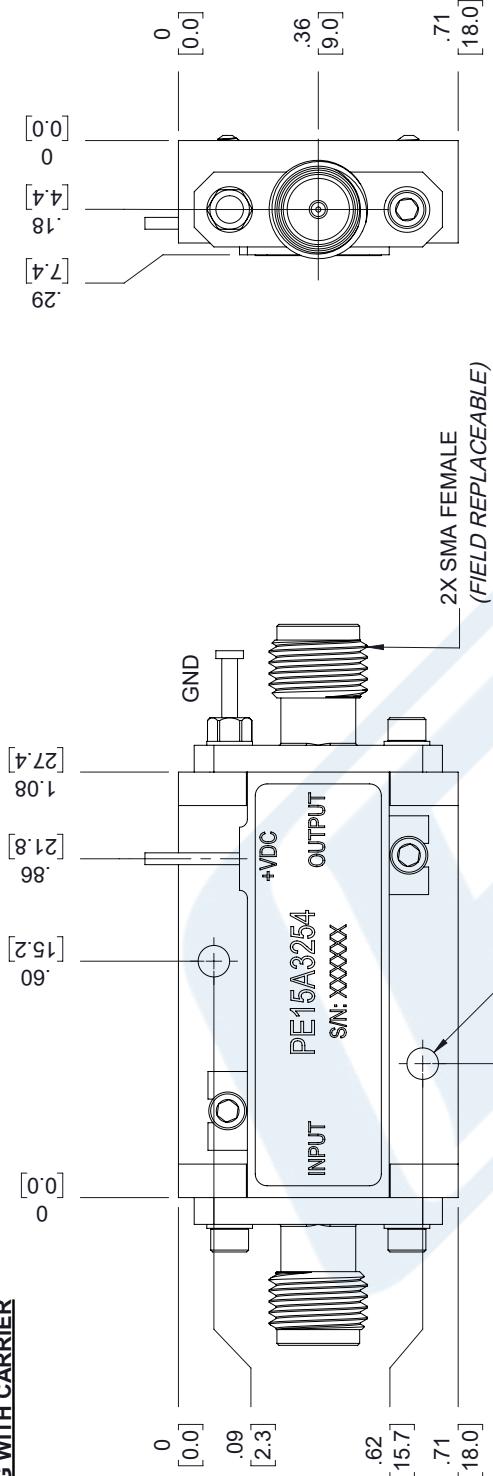
URL: <https://www.pasternack.com/3-db-20-ghz-low-noise-broadband-amplifier-15-db-gain-sma-pe15a3254-p.aspx>

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.

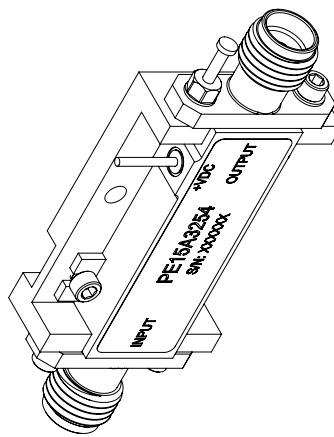
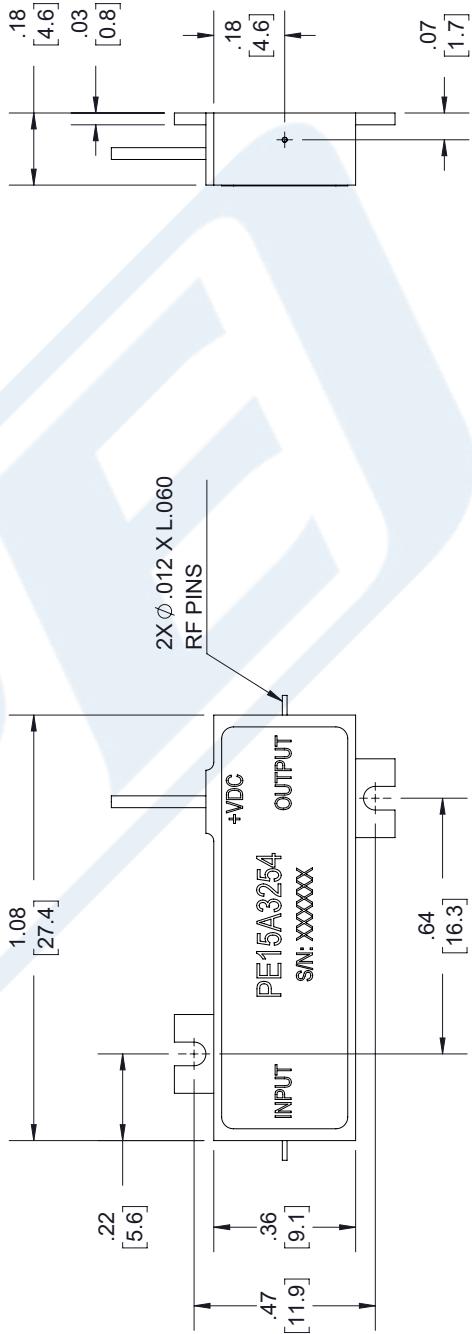
PE15A3254 CAD Drawing

3 dB NF, 20 dBm P1dB, 30 MHz to 20 GHz, Low Noise  
Broadband Amplifier, 15 dB Gain, SMA

| REVISIONS |                 |          |          |
|-----------|-----------------|----------|----------|
| REV.      | DESCRIPTION     | DATE     | APPROVED |
| A         | INITIAL RELEASE | 11/06/19 | T.GALLA  |



## AMPLIFIER HOUSING WITHOUT CARRIER



UNLESS OTHERWISE SPECIFIED  
LEADING DIMENSIONS ARE INCHES  
DIMENSIONS IN [ ] ARE MILLIMETERS  
TOLERANCES.

|  |  |   |                                  |                                  |  |
|--|--|---|----------------------------------|----------------------------------|--|
|  <b>an INFINI-E brand</b>   |  | <small>THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF PASTERACK CORPORATION. ALL RIGHTS RESERVED.</small>   |                                  |                                  |  |
|  |  | <small>SHEET 1 OF 1</small>   |                                  |                                  |  |
| <b>FRACTIONS</b><br>$X = \pm 2$ [5.08]<br>$XX = \pm 02$ [51]<br>$XXX = \pm 005$ [13]   |  | <b>PASTERACK Enterprises, Inc.</b><br>P.O. Box 16759, Irvine, CA 92623,<br>Phone: 1.949.261.1920   1.866.727.8376<br>Fax: 1.949.261.7451<br>Website: <a href="http://www.pasterack.com">www.pasterack.com</a><br>E-mail: <a href="mailto:sales@pasterack.com">sales@pasterack.com</a> |                                  | <b>REV A</b>                     |  |
| <b>CABLE LENGTH (L) TOLERANCES:</b><br>$L \leq 12 [305] = +1 [-0]$<br>$12 [305] < L \leq 60 [1524] = +2 [-1]$<br>$60 [1524] < L \leq 120 [3048] = +4 [-1]$<br>$120 [3048] < L \leq 300 [7620] = +6 [-1]$<br>$300 [7620] < L = +8 [-1]$ |  | <b>SIZE</b><br><b>A</b>   | <b>CAGE CODE</b><br><b>53919</b> | <b>DRAWN BY</b><br><b>K.DANG</b> | <b>PART NUMBER</b><br><b>PE15A3254</b> |
| <small>ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.</small>  |  |   |                                  |                                  |  |

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.

单击下面可查看定价, 库存, 交付和生命周期等信息

[\*\*>>PASTERNACK\*\*](#)