



30 dBm IP3, 3 dB NF, 24 dBm Psat, 10 MHz to 20 GHz,
Low Noise Broadband Amplifier, 15 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A3272

The PE15A3272 low noise driver amplifier operates across a wide frequency range from 10 MHz to 20 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance includes 15 dB small signal gain, 3.0 dB noise figure, up to +24 dBm of output power at Psat and +30 dBm output IP3, while using a +12V single DC supply. The design exhibits a very flat gain response across a wide frequency band. Input/output ports are matched for 50 ohms and are DC blocked. The design also incorporates integrated bias sequencing circuitry and voltage regulators to allow for flexible biasing for positive voltage supply. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Features

- LNA Module
- Extremely wide frequency band
- GaAs PHEMT MMIC Technology
- Gain 15 dB
- High Output IP3 +30 dBm
- Output Psat up to +24 dBm typical
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Electrical Specifications (TA= 25°C, VDC1 = 12 Vdc)

| Description | Minimum | Typical | Maximum | Units |
|--|---------|---------|---------|-------|
| Frequency Range | 0.01 | | 20 | GHz |
| Gain | | 15 | | dB |
| Gain Flatness | | ±0.5 | | dB |
| Output at 1 dB Compression Point | | +22 | | dBm |
| Saturation Output Power | | +24 | | dBm |
| Output 3 rd Intercept Point | | +30 | | dBm |
| Noise Figure | | 3 | | dB |
| Operating DC Voltage 1 | | 12 | | Volts |
| Operating DC Current | | 195 | | mA |
| Operating Temperature Range (OTR) | -55 | | +85 | °C |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [30 dBm IP3, 3 dB NF, 24 dBm Psat, 10 MHz to 20 GHz, Low Noise Broadband Amplifier, 15 dB Gain, SMA PE15A3272](#)



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Performance by Frequency

| Description | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Units |
|--|-------------|------|------|------------|------|------|-------------|------|------|-------------|
| Frequency Range | 0.010 - 6.0 | | | 6.0 - 12.0 | | | 12.0 - 20.0 | | | GHz |
| Gain | 14 | 16 | | 13 | 15 | | 10 | 13 | | dB |
| Gain Flatness | ±0.5 | | | ±0.5 | | | ±1.0 | | | dB |
| Gain Variation Over Temperature | 0.012 | | | 0.02 | | | 0.012 | | | 0.02 dB/ °C |
| Noise Figure | 3 | | | 3 | | | 4 | | | dB |
| Input Return Loss | 19 | | | 17 | | | 10 | | | dB |
| Output Return Loss | 14 | | | 14 | | | 10 | | | dB |
| Output Power For 1 dB Compression (P1dB) | 20 | 23 | | 19 | 22 | | 17 | 20 | | dBm |
| Saturated Output Power (Psat) | 25 | | | 24 | | | 22 | | | dBm |
| Output Third Order Intercept (IP3) | 33 | | | 30 | | | 26 | | | dBm |
| Saturated Output Voltage | 10 | | | 10 | | | 8 | | | Vpk-pk |
| Group Delay | ±3 | | | ±3 | | | ±3 | | | ps |
| Spurious Response | -50 | | | -60 | | | -60 | | | dBc |
| Supply Current | 195 | | | 195 | | | 195 | | | mA |

Absolute Maximum Rating

| Parameter | Rating |
|--------------------------|--------------------|
| Bias Supply Voltage (Vs) | +11 Vdc to +13 Vdc |
| RF Input Power (RFIN) | +23 dBm |
| Storage Temperature | -65 to +150 °C |
| Operating Temperature | -55 to +85 °C |

Mechanical Specifications

| | |
|------------------|---------------------|
| Size | |
| Length | 0.86 in [21.84 mm] |
| Width | 0.7 in [17.78 mm] |
| Height | 0.29 in [7.37 mm] |
| Weight | 0.059 lbs [26.76 g] |
| Connector Option | Field Replaceable |
| Input Connector | SMA Female |
| Output Connector | SMA Female |

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Environmental Specifications

Temperature

Operating Range

-55 to +85 deg C

Storage Range

-65 to +150 deg C

Temperature Cycling

MIL-STD-883, Method 101C, Cond B

Hermetic Seal

Gross Leak MIL-STD-883 Method 1014C1/Fine Leak

MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc

ESD Sensitivity

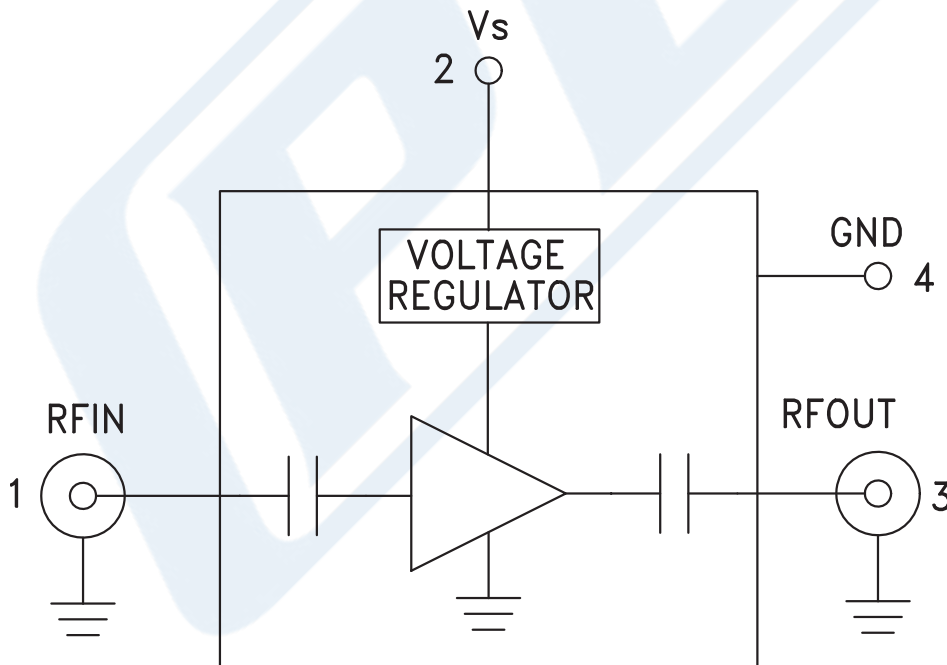
ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

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

Plotted and Other Data

Notes:

Functional Block Diagram



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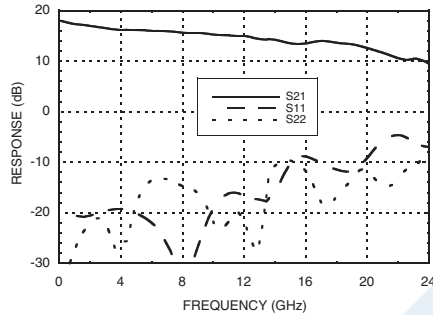
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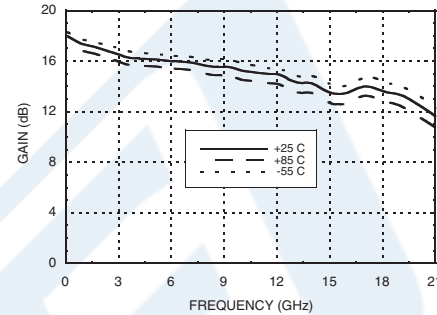
PE15A3272

Typical Performance Data

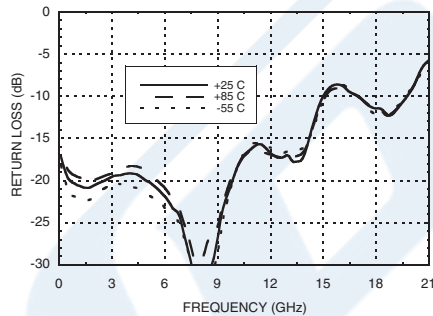
Gain & Return Loss



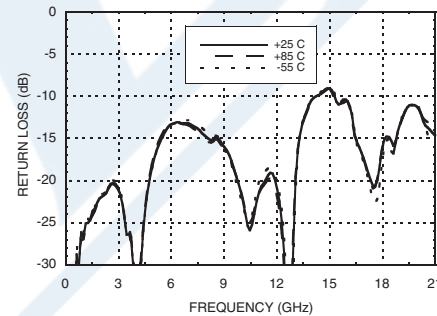
Gain vs. Temperature



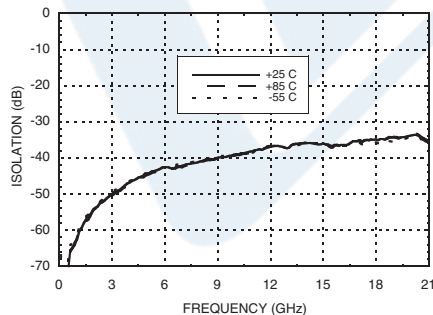
Input Return Loss vs. Temperature



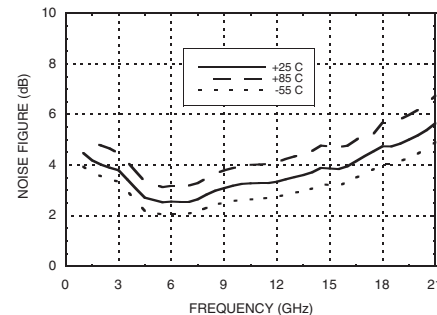
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



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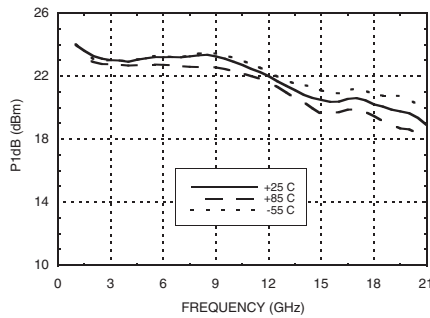


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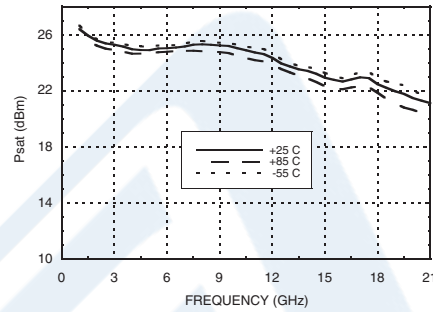
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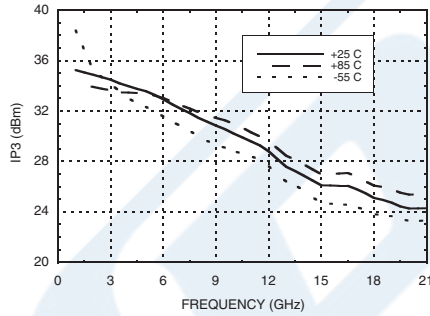
P1dB vs. Temperature



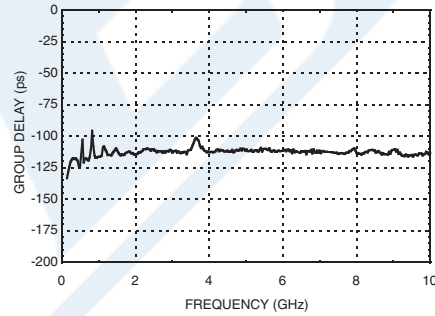
Psat vs. Temperature



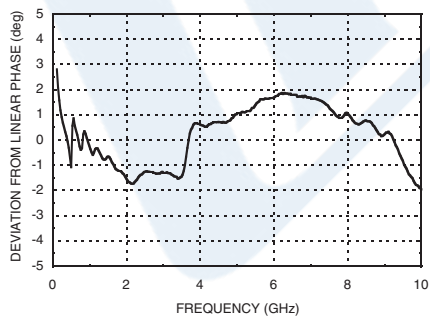
Output IP3 vs. Temperature



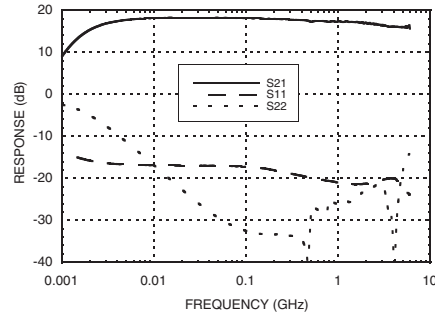
Group Delay



Deviation from Linear Phase



Low Frequency Gain and Return Loss



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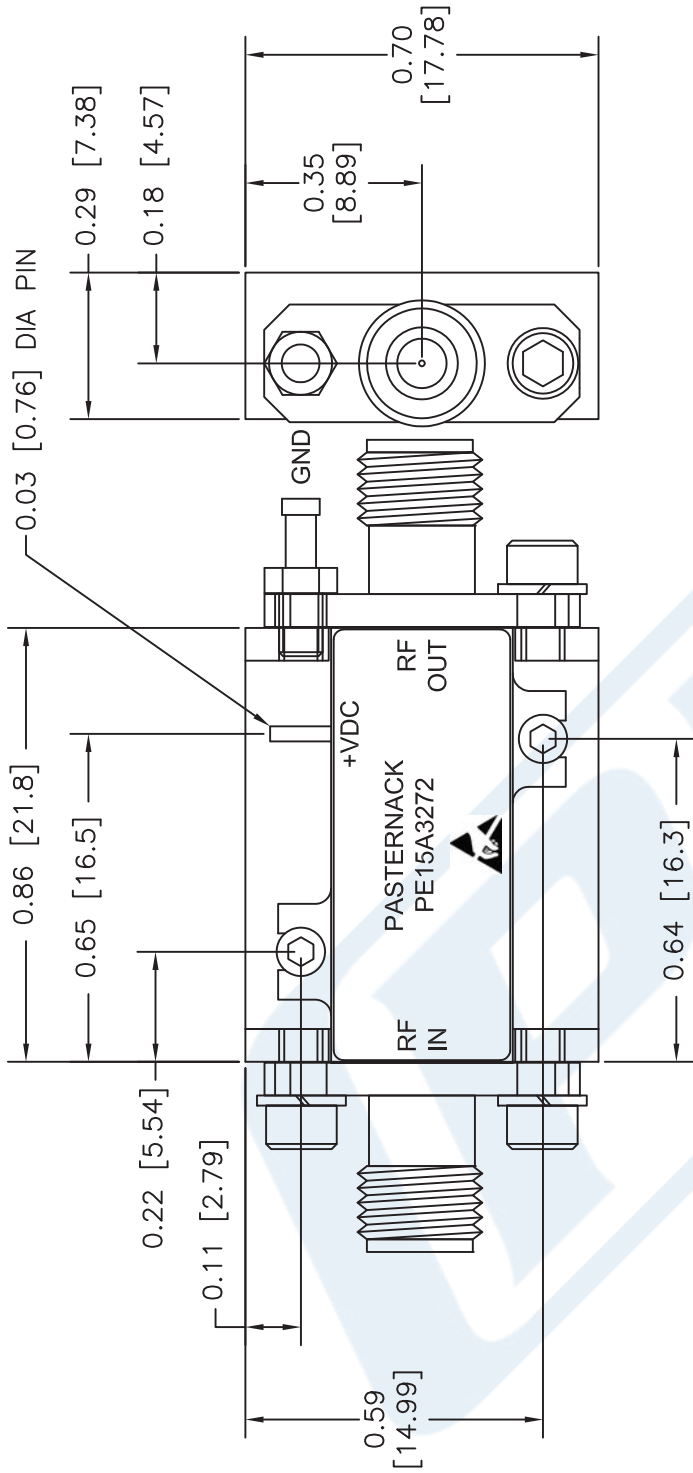
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URL: <https://www.pasternack.com/3-dB-20-GHz-Low-Noise-Broadband-Amplifier-15-dB-Gain-SMA-PE15A3272-p.aspx>

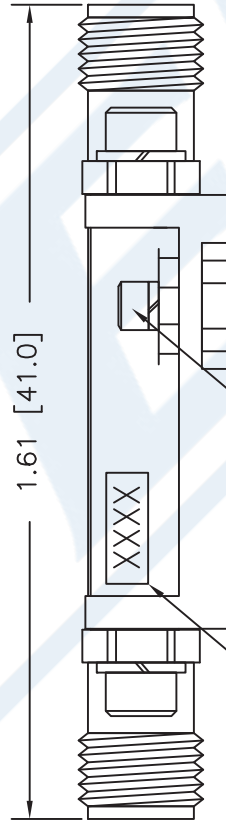
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PE15A3272 CAD Drawing

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SMA FEMALE
(Field Replaceable)
TYP.



Lot No. _____
#0-80 HARDWARE THRU
0.074 [1.88] DIA THRU
(REMOVE HARDWARE TO
MOUNT ASSEMBLY)

NOTE:
HEAT SINK REQUIRED FOR PROPER OPERATION,
UNIT IS COOLED BY CONDUCTING TO HEAT SINK.

DWG TITLE

PE15A3272

NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].

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FSCM NO. 53919

CAD FILE 071916

SCALE N/A

SIZE A

2233