PASTERNACK
an INFINITE brand

Input Protected Low Noise Amplifier, 20 MHz to 3000 MHz, 1 Watt RF Input Power, 25 dB Gain, 1.7 dB Noise Figure, 12V, SMA

TECHNICAL DATA SHEET PE15A63016

The PE15A63016 is an Input Protected Low Noise RF Amplifier operating across a broad octave bandwidth from 20 MHz to 3000 MHz and is rated up to 1 Watt RF input power handling. The 50 ohm design uses a PIN Diode limiter circuit on the input stage and 2 pHEMT transistor gain stages, along with series DC blocking capacitors on the input/output RF ports. Impressive typical performance includes 25 dB small signal gain with excellent gain flatness, 1.7 dB noise figure, and an output P1dB of +13 dBm. The amplifier requires a single +12 Vdc Supply, and has internal voltage regulation and low DC power consumption. The rugged Mil Grade aluminum package supports SMA female connectors, DC feedthru and ground pins, and has an operational temperature range of-40°C to +85°C.

Features

- Input Protected Low Noise Amplifier
- Frequency Range 20 MHz to 3000 MHz
- 1 Watt Input Power Handling
- PIN Diode Limiter and pHEMT Semiconductor Technology
- DC Blocking Capacitors on the Input/Output RF Ports
- Small Signal Gain 25 dB typ
- Noise Figure 1.7 dB typ
- Output P1dB +13 dBm typ
- Nominal DC Voltage +12Vdc
- DC Current 75 mA typ
- 50 Ohm Design
- -40°C to +85°C Operating Temperature
- SMA Female Connectors
- Rugged Mil Grade Aluminum Package Design

Applications

- Military & Commercial Communication Systems
- Microwave Radio Systems
- Radar Systems
- Test & Measurement
- Research & Development
- RF Wideband Front Ends

Electrical Specifications (TA = +25°C, DC Voltage = +12Vdc, DC Current = 75mA)

Description	Minimum	Typical	Maximum	Units
Frequency Range	0.02		3	GHz
Small Signal Gain	22.5	25	27	dB
Gain Flatness		±0.75	±1	dB
Gain Variance at OTR*		±1.25		dB
Output at 1 dB Compression Point	+12	+13		dBm
Output 3rd Intercept Point	+20	+23		dBm
Noise Figure		1.7	2	dB
Input VSWR		1.5:1	1.8:1	
Output VSWR		1.6:1	1.8:1	
Reverse Isolation	40	45		dB
Spurious			-70	dBc
Input Power (CW)			+30	dBm
Operating DC Voltage	+10	+12	+15	Volts
Operating DC Current	65	75	120	mA
Operating Temperature Range	-40		+85	°C

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Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
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*OTR= Base Plate Operating Temperature Range

Absolute Maximum Rating

Parameter	Rating	Units
Source Voltage	+15	Volts
RF input Power	+30	dBm
Operating Temperature	-40 - +85	°C
Storage Temperature	-55 - +125	°C

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

Mechanical Specifications

Size

Length	1.5 in [38.1 mm]
Width	0.85 in [21.59 mm]
Height	0.375 in [9.53 mm]
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +125 deg C

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level

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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.

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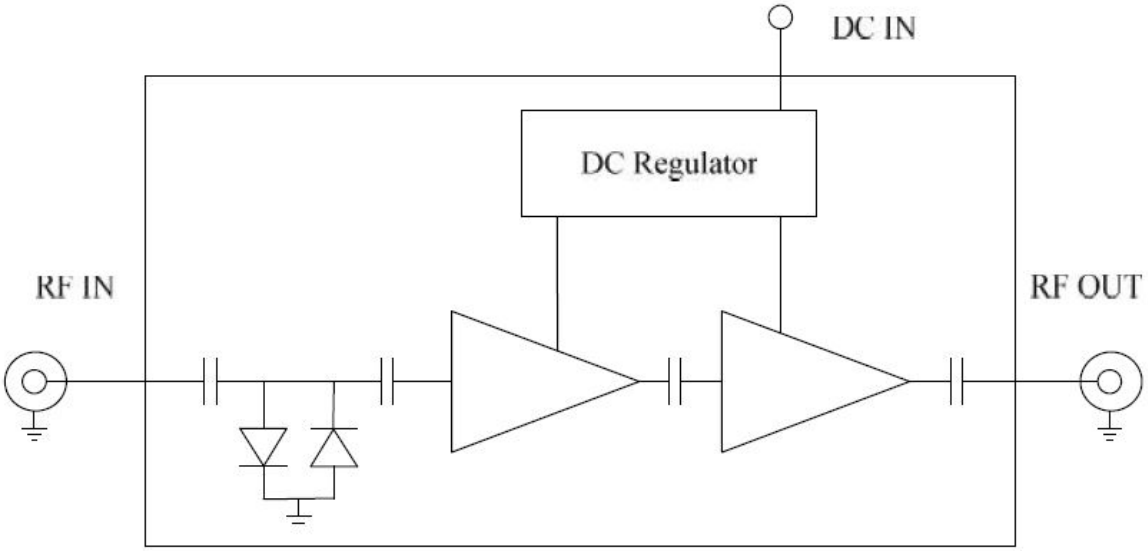
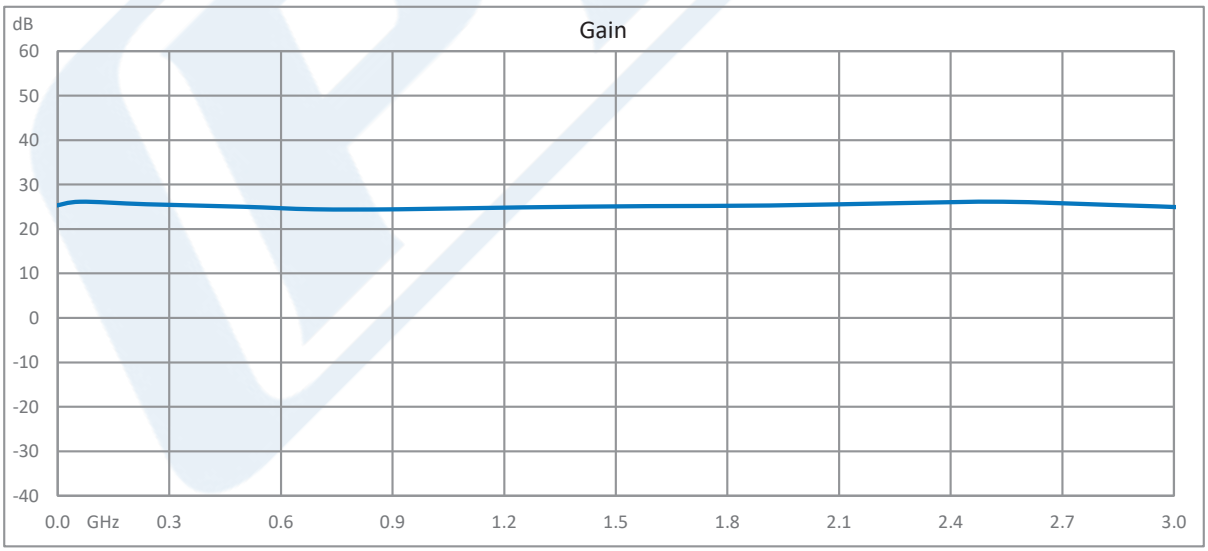
Functional Block Diagram



Typical Performance Data



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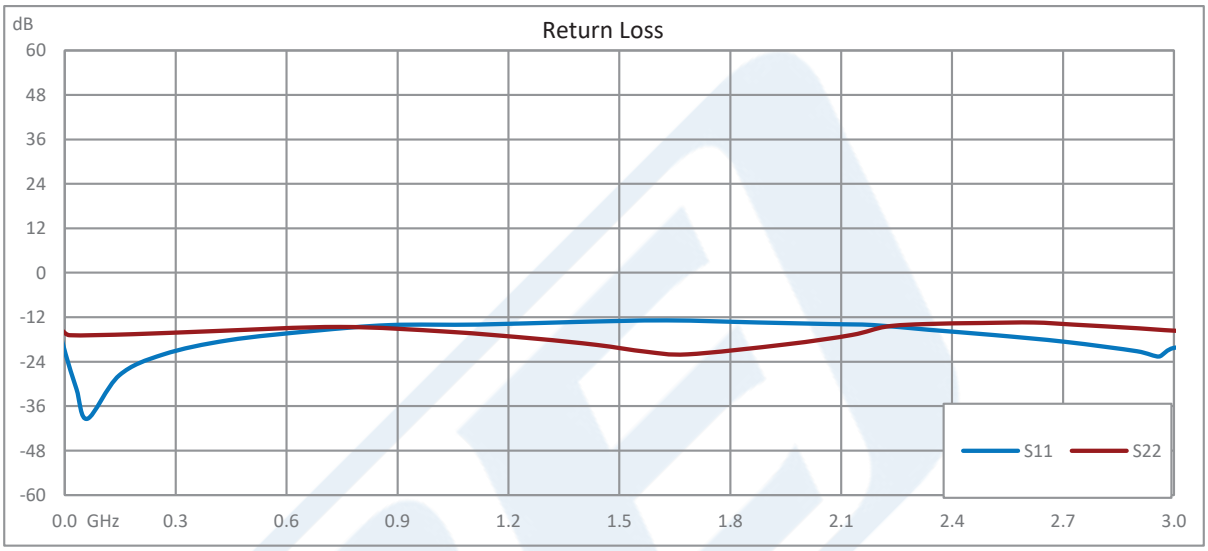

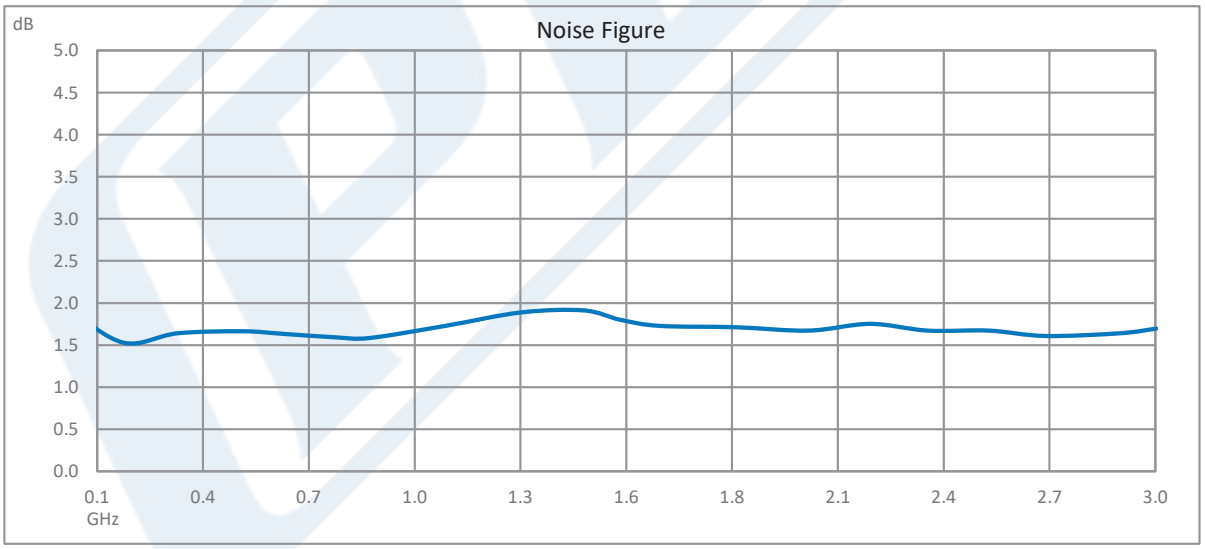

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URL: https://www.pasternack.com/1.7-db-3-ghz-low-noise-amplifier-25-db-gain-sma-pe15a63016-p.aspx

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PE15A63016 CAD Drawing

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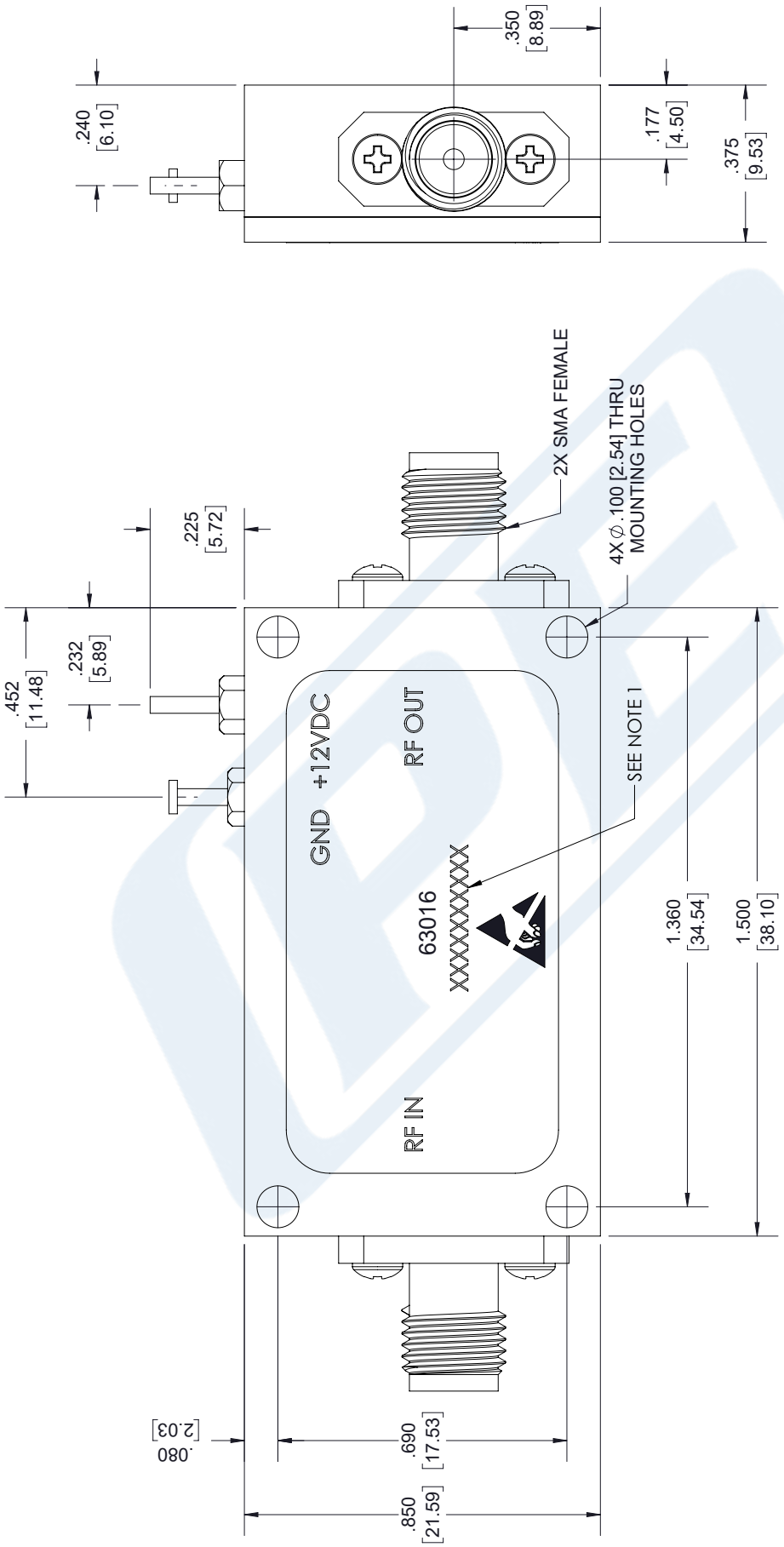

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	07/12/2021	TGALLA

NOTES:

1. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 202008280001.

THIRD-ANGLE PROJECTION

SHEET 1 OF 1 | SCALE N/A | REV A

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SIZE A | CAGE CODE 53919 | DRAWN BY MVEERAPPAN | ITEM NO. PE15A63016

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

TOLERANCES:

.X = ± .2	[5.08]	FRACTIONS	± 1/32
.XX = ± .02	[.51]	ANGLES	± 1°
.XXX = ± .005	[.13]		

CABLE LENGTH (L) TOLERANCES:

L ≤ 12 [305] = +1 [25] / -0
12 [305] < L ≤ 60 [1524] = +2 [51] / -0
60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
300 [7620] < L = +5%L / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

T-Rev.D

单击下面可查看定价，库存，交付和生命周期等信息

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