PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005

PE15A5005 is a broadband high IP3 8 W GaAs PHEMT MMIC-based coaxial power amplifier module designed to be used in a wide range of commercial and defense applications in the 1.5 to 3.5 GHz frequency range. The amplifier offers 19.5 dB small signal gain with the typical gain flatness of ±1.25 dB, along with high IP3 performance of 45 dBm. This performance is achieved through the use of advanced GaAs PHEMT MMIC circuitry. The amplifier requires manual voltage sequencing (see pages 4 & 5) and operates over the temperature range of -40°C to 85°C. This Innovative design is characterized by light weight (45 g) and small size (1.5"x1.2"x0.56"). An available finned heatsink (model PE15C5014) is recommended to maintain an optimum baseplate temperature during operation.

Features

- 1.5 GHz to 3.5 GHz Frequency Range
- P1dB Output Power: 38.5 dBm
- Psat: 39 dBm
- Small Signal Gain: 19.5 dB
- Gain Flatness: ±1.25 dB
- Power Added Efficiency @Psat: 32%
- 50 Ohm Input and Output Matched
- -40 to +85°C Operating Temperature
- Small Size & Light Weight
- Manual Voltage Sequencing
- Optional Heatsink Available: Model PE15C5014

Applications

- Telecom Infrastructure
- Fixed Microwave Backhaul
- Wireless Internent Access
- Wireless Local Loop
- GPS Applications
- WLAN Repeaters
- Microwave Radio Systems
- Military & Space
- Radar & Sensors
- Commercial 2-Way Radio
- Driver Amplifier
- High Power Output
- General Purpose Amplification

Electrical Specifications (TA = +25°CVdd1,2 = +14V, Iddq1 = 0.25A, Iddq2 = 1.05A, Vgs1,2= -1V)

Description	Minimum	Typical	Maximum	Units
Frequency Range	1.5		3.5	GHz
Small Signal Gain		19.5		dB
Gain Flatness		±1.25		dB
Pout at Sat.		+39		dBm
Efficiency Psat		32		%
Output Power at 1 dB Compression Point		+38.5		dBm
Output 3rd Order Intercept Point		+45		dBm
Noise Figure		10		dB
Impedance (Input)		50		Ohms
Impedance (Output)		50		Ohms
Input Return Loss		15		dB
Output Return Loss		8		dB
Operating DC Drain Source Voltage		14		Volts
Operating DC Gate Source Voltage		-1		Volts
Operating Temperature Range	-40		+85	°C
Thermal Resistance		6		°C/W

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005

Absolute Maximum Rating

Parameter	Rating	Units
Drain Source Voltage Vdd 1,2	+16	Volts
Gate Source Voltage Vgs 1,2	-5	Volts
Drain Source Current Iddq 1	0.38	A
Drain Source Current Iddq 2	1.5	A
Continuous Dissipation at +25C	32	W
Channel Temperature	175	deg C
Operating Temperature (base-plate)	-40 to +85	deg C
Storage Temperature	-55 to +135	deg C

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

Mechanical Specifications

Size

Length	1.2 in [30.48 mm]
Width	1.5 in [38.1 mm]
Height	0.56 in [14.22 mm]
Weight	0.103 lbs [46.72 g]
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +135 deg C

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.
- Heat Sink Required for Proper Operation, Unit is cooled by conduction to heat sink. The amplifier module has 4 screw slots for mounting to a heat sink.
- DO NOT apply Vds without proper negative voltage on Vgs pins.

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

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.) Preform 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: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

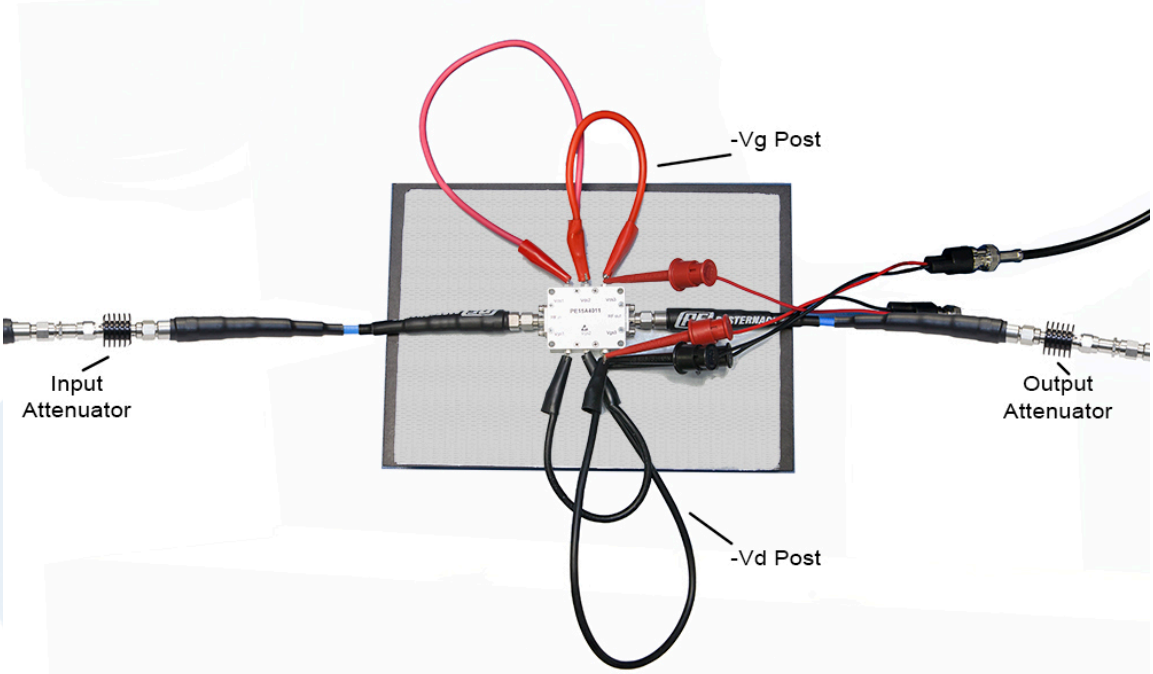
Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

- GaAs PHEMT MMIC-Based Power up sequence

GaAs PHEMT MMIC-Based Power up sequence

1. Connect common ports
   a. Connect single GND lead
   b. Connect all –Vg ports together
   c. Connect all +Vd ports together
2. Connect the load, attenuator to protect the VNA.
3. Connect the input port, may have an attenuator at the input (perform the CAL with the loads before connecting the amplifier to the VNA).

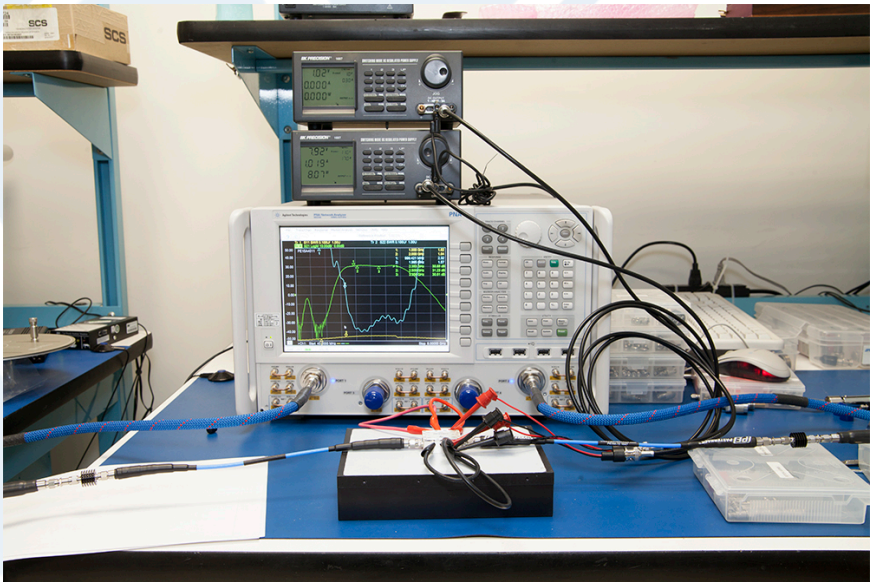


4. Apply the –Vg voltage -1.0 Volts (Always apply –Vg first).
5. Apply the +Vd voltage +14 Volts (Then apply +Vd second).

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF



6. Observe the gain and power output

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005

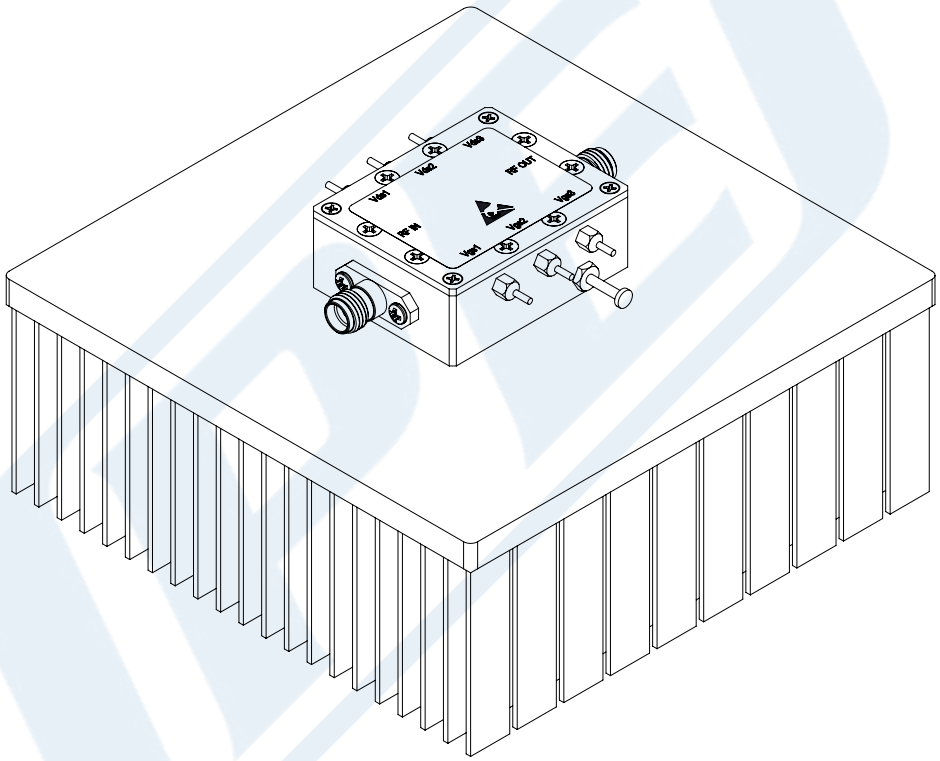


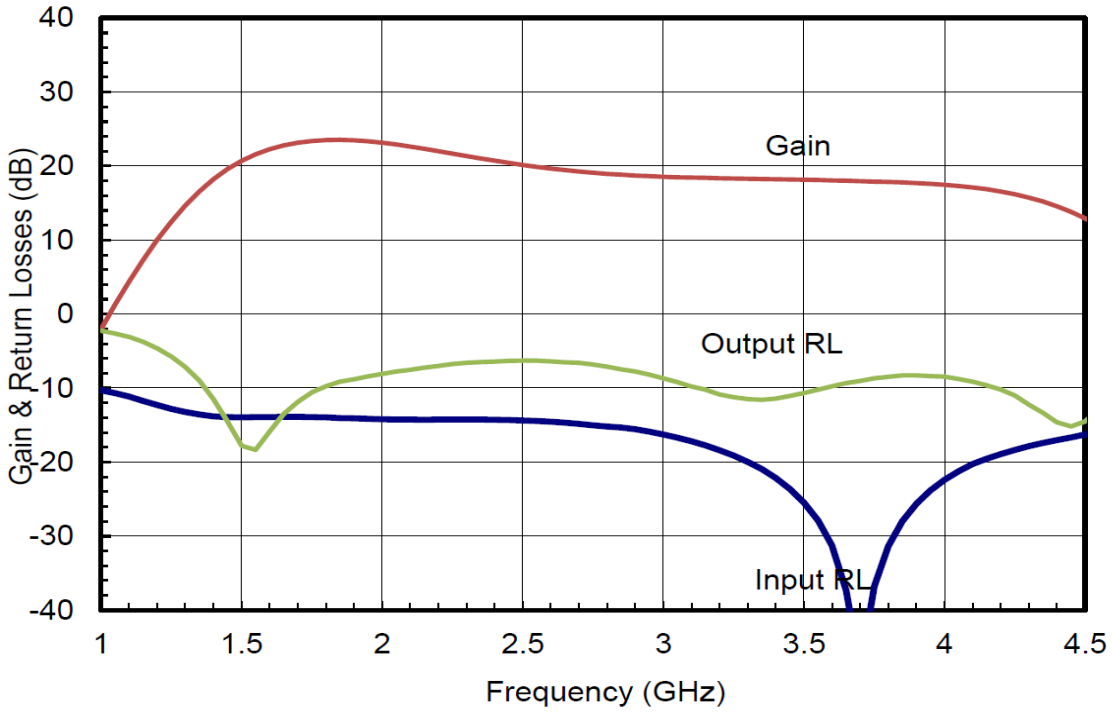
illustration of Amplifier mounted on Heatsink.
Heatsink model PE15C5014 sold separately.
(Picture shown for Reference Only)

Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

Typical Performance Data



* Data shown is for $V_{dd1,2}$=+14V, I_{ddq1}=0.25A, I_{ddq2}=1.05A, $V_{gs1,2}$=-0.97V.

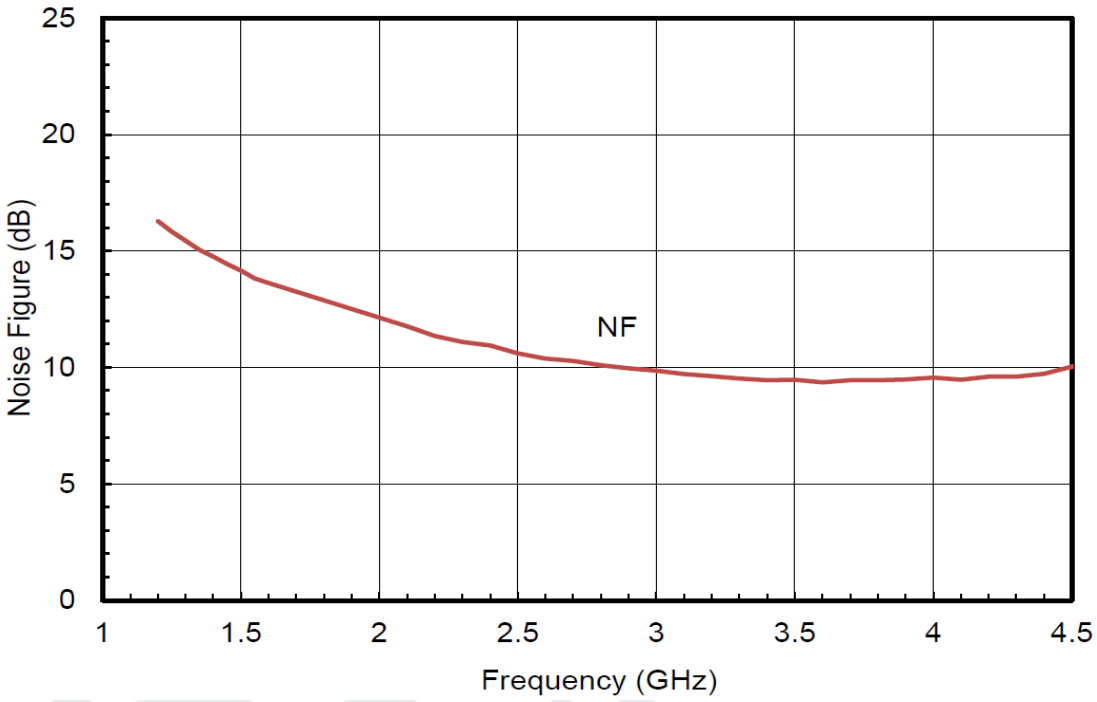
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005



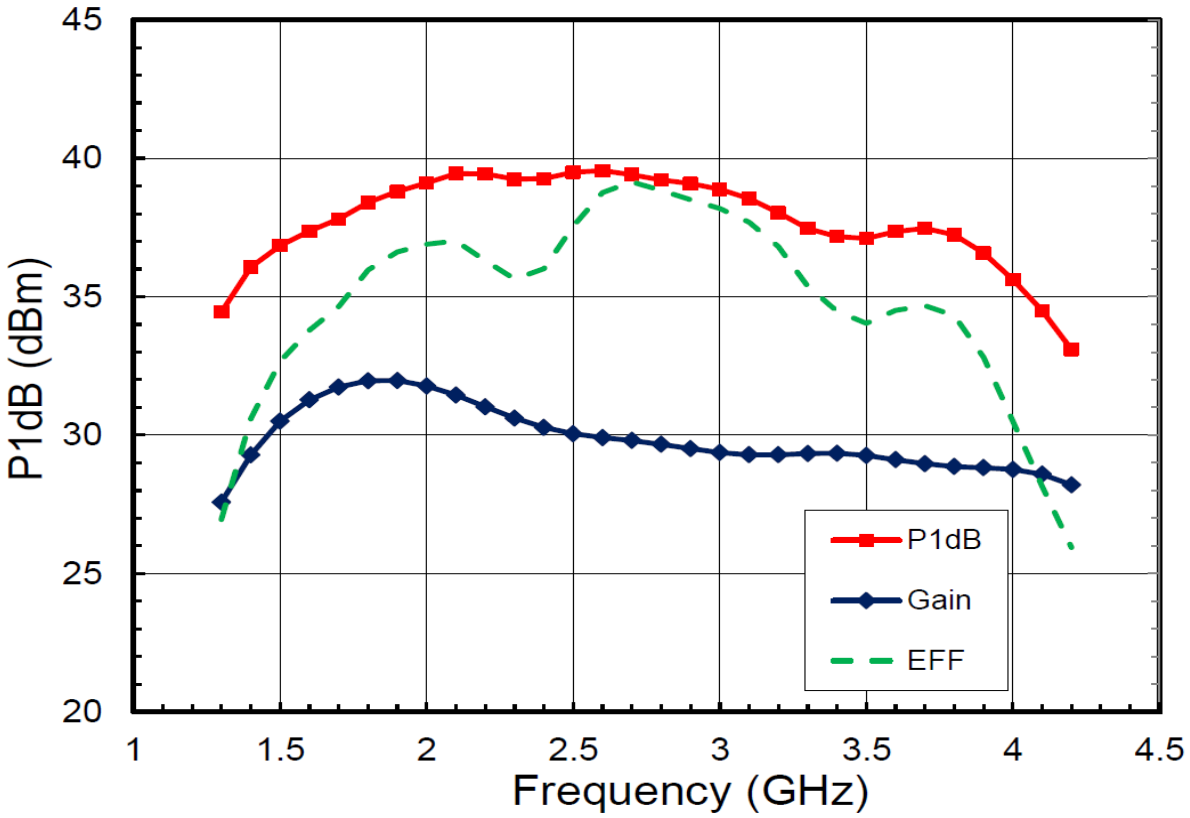
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005



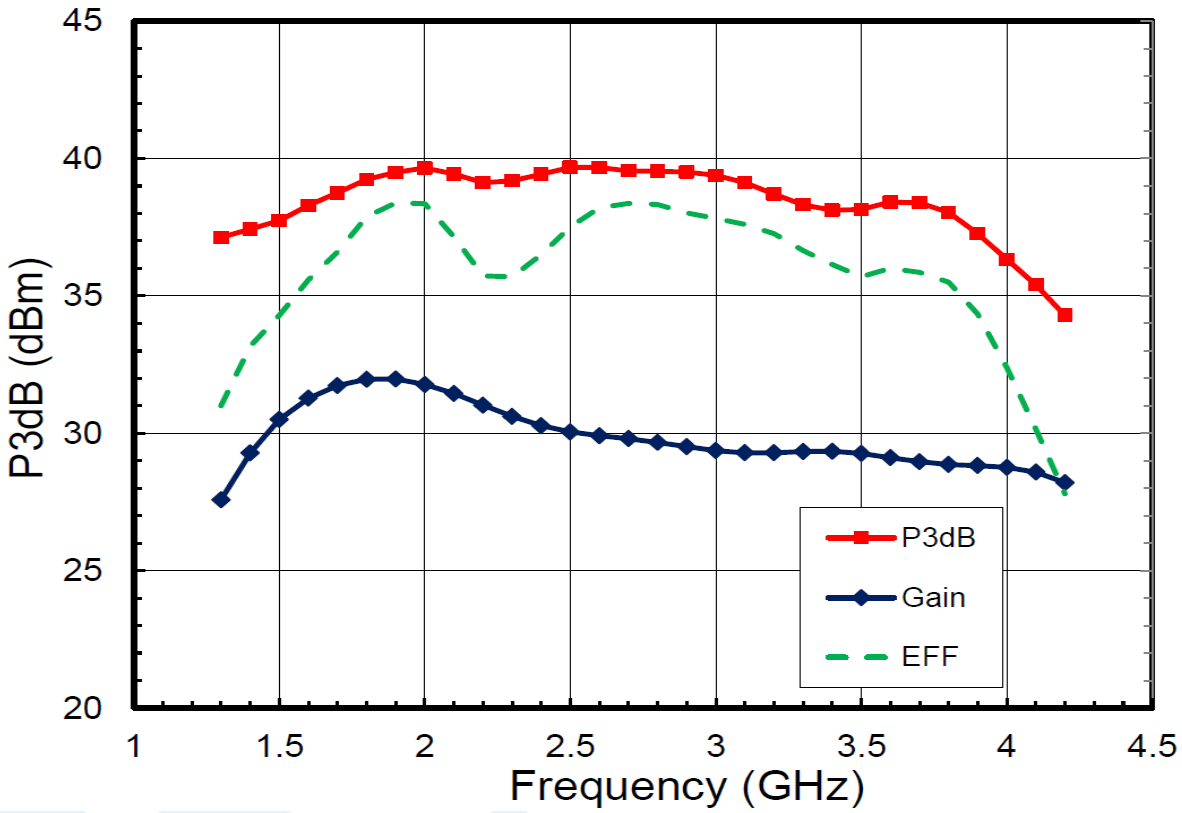
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005

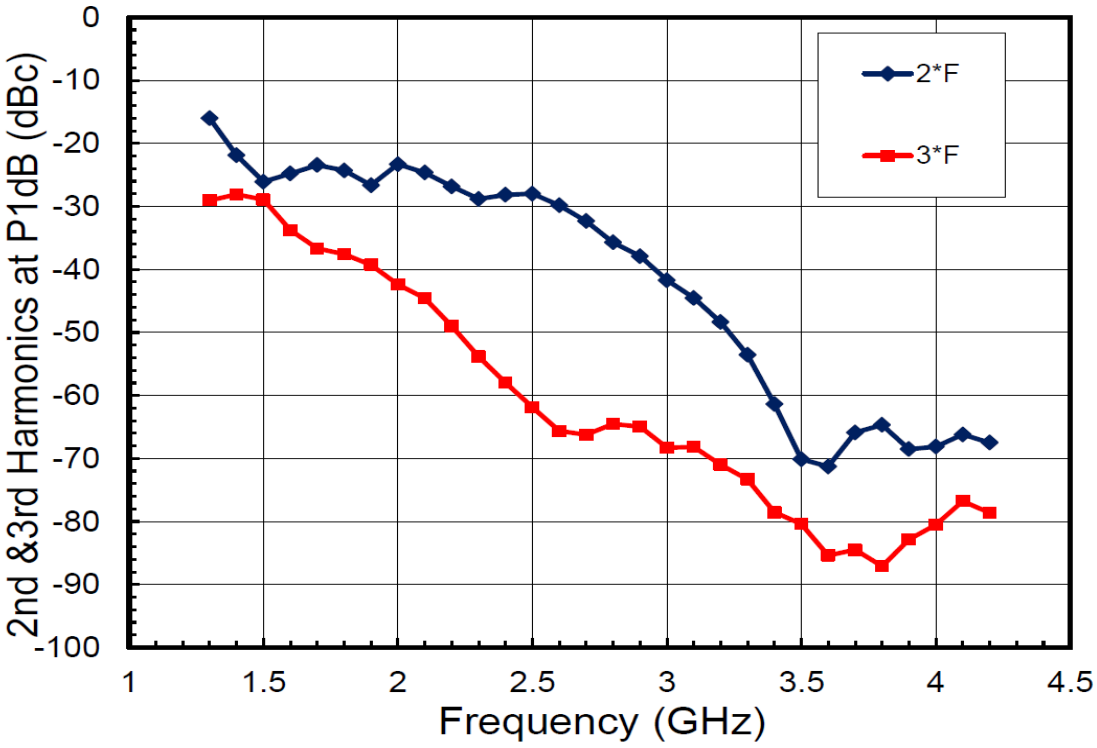


Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005

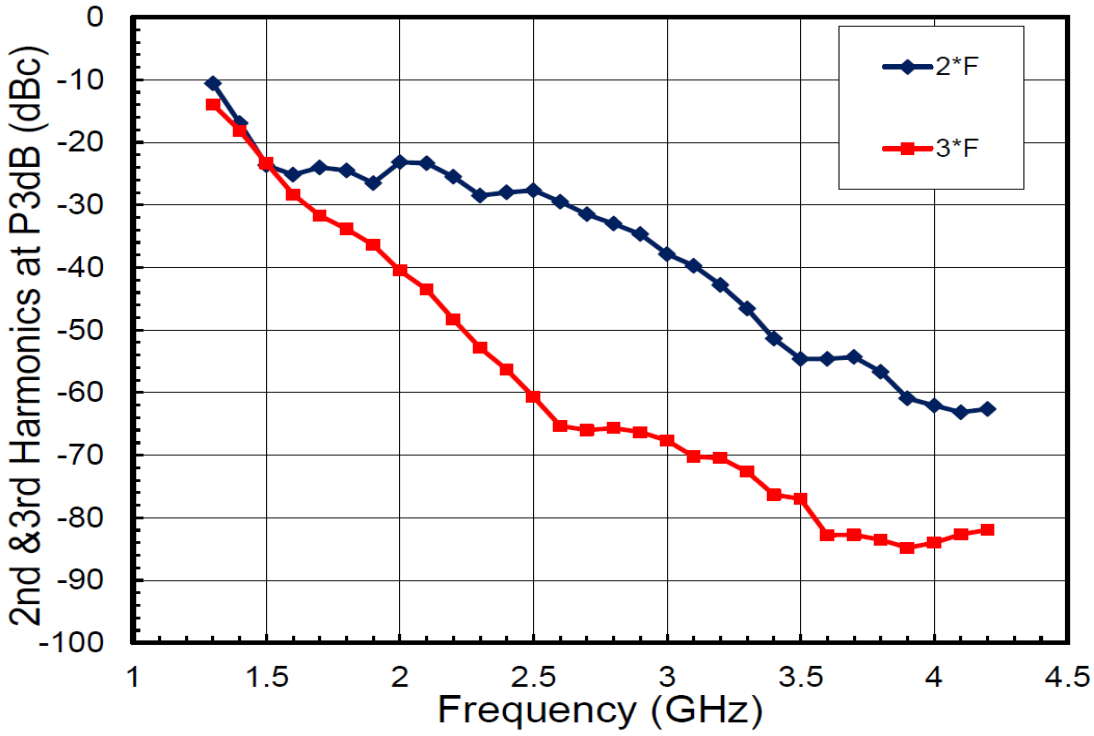


Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005



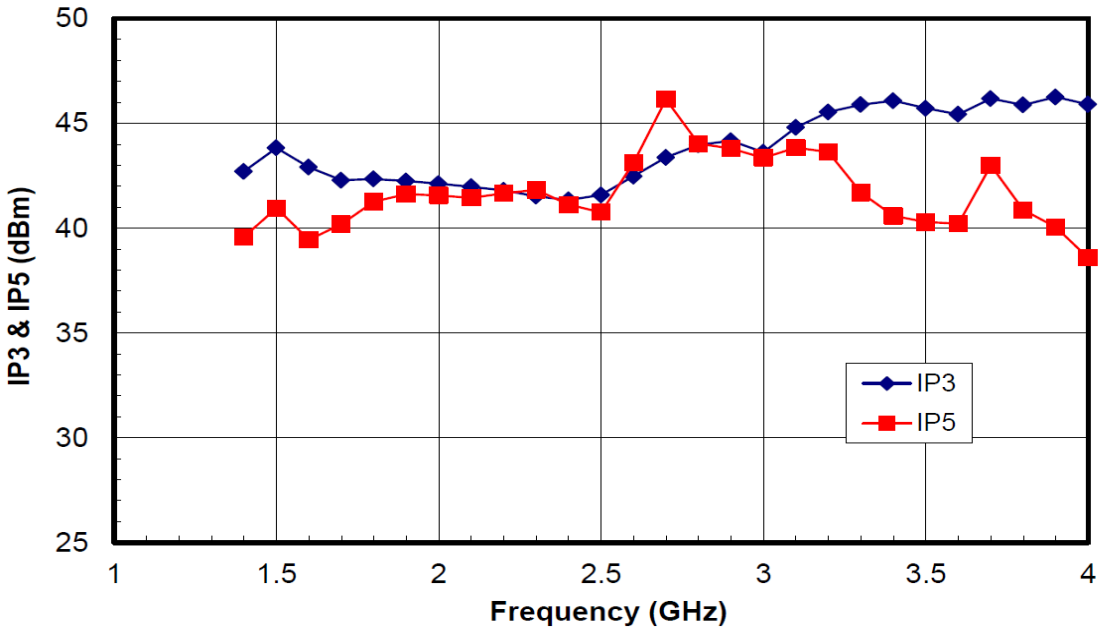
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PASTERNACK
an INFINITE brand

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF

TECHNICAL DATA SHEET PE15A5005



* Data shown is for $V_{dd1,2}$=+14V, I_{ddq1}=0.25A, I_{ddq2}=1.05A, $V_{gs1,2}$=-0.97V.

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 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.

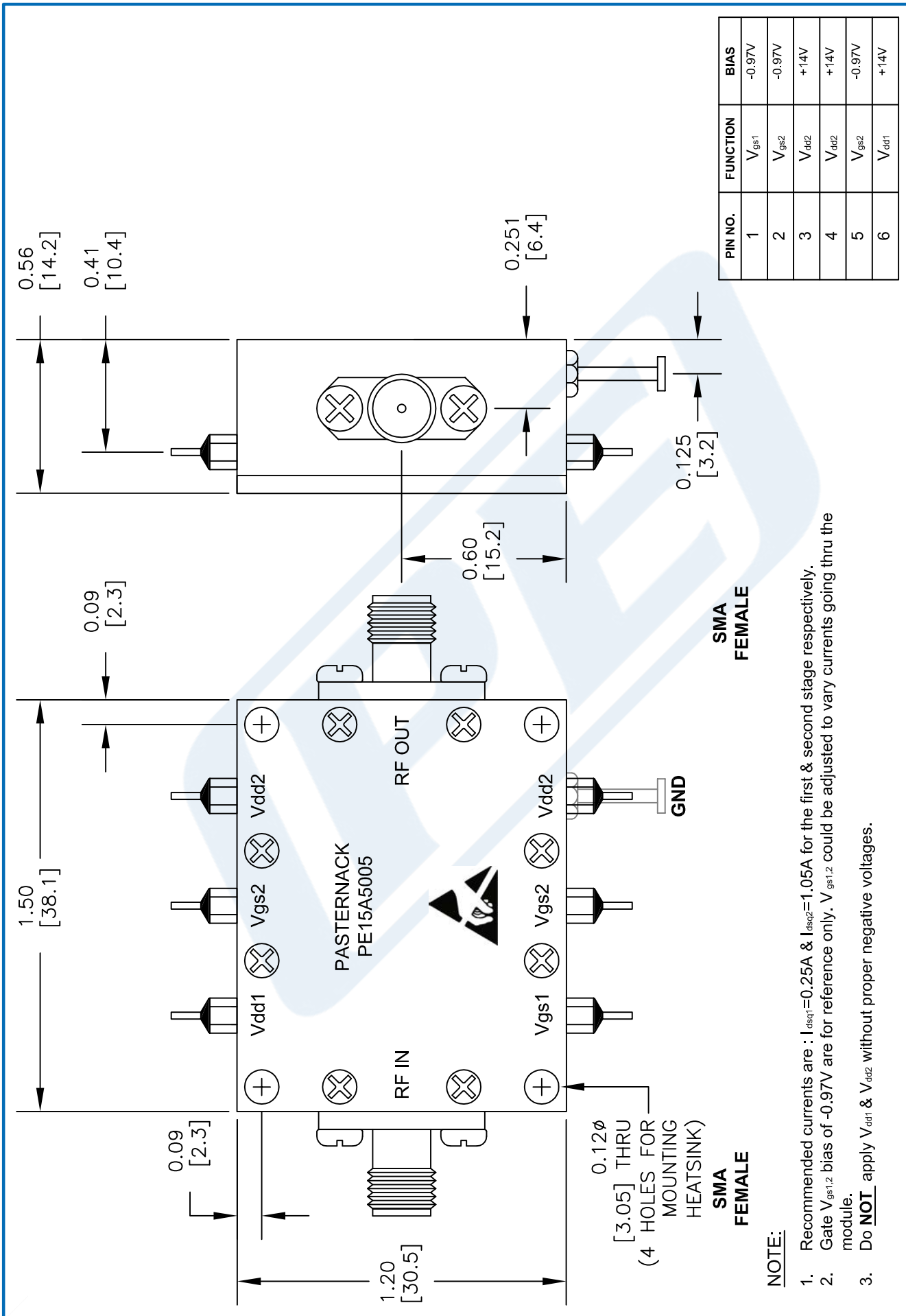
Click the following link (or enter part number in “SEARCH” on website) to obtain additional part information including price, inventory and certifications: 7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier, SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF PE15A5005

URL: https://www.pasternack.com/3.5-ghz-high-power-amplifier-19.5-db-gain-45-dbm-ip3-10-db-sma-pe15a5005-p.aspx

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

PE15A5005 CAD Drawing

7.9 Watt Psat, 1.5 GHz to 3.5 GHz, High Power GaAs Amplifier,
SMA, 19.5 dB Gain, 45 dBm IP3, 10 dB NF



PIN NO.	FUNCTION	BIAS
1	V_{gs1}	-0.97V
2	V_{gs2}	-0.97V
3	V_{dd2}	+14V
4	V_{dd2}	+14V
5	V_{gs2}	-0.97V
6	V_{dd1}	+14V

NOTE:

1. Recommended currents are : I_{dsq1}=0.25A & I_{dsq2}=1.05A for the first & second stage respectively.
2. Gate $V_{gs1,2}$ bias of -0.97V are for reference only. $V_{gs1,2}$ could be adjusted to vary currents going thru the module.
3. Do **NOT** apply V_{dd1} & V_{dd2} without proper negative voltages.

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].

DWG TITLE **PE15A5005**

FSCM NO. 53919 | CAD FILE 073014 | SCALE N/A | SIZE A | 150

PASTERNACK® THE ENGINEER'S RF SOURCE
Pasternack Enterprises, Inc.
P.O. Box 16759 | Irvine | CA | 92623
Phone: (949) 261-1920 | **Fax:** (949) 261-7451
Website: www.pasternack.com | **E-Mail:** sales@pasternack.com

单击下面可查看定价，库存，交付和生命周期等信息

>>PASTERNACK