



17 dBm P1dB, 10 MHz to 20 GHz, Medium Power
Broadband Amplifier, 13 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A4029

The PE15A4029 distributed amplifier operates across a wide frequency band from 10 MHz to 20 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance at 10 GHz includes 13 dB of small signal gain, 3 dB noise figure, +29 dBm output IP3, and +17 dBm of P1dB. The design exhibits a very flat gain response across the entire 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 both the negative and positive voltage supplies. The drop-in package is hermetically sealed with field replaceable SMA connectors. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Features

- Driver Amplifier
- Extremely wide frequency band
- GaAs PHEMT MMIC Technology
- Gain 13 dB @ 10 GHz
- High Output IP3 +29 dBm @ 10 GHz
- P1dB +17 dBm
- 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
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Electrical Specifications (TA = +25°C)

Description	Minimum	Typical	Maximum	Units
Frequency Range	0.01		20	GHz
Gain		13		dB
Output at 1 dB Compression Point	+17			dBm
Operating Temperature Range (OTR)	-55		+85	°C

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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		±0.75		±0.75			±1.0			dB
Gain Variation Over Temperature		0.018	0.025		0.018	0.025		0.018	0.025	dB/ °C
Noise Figure		3.5		3			4			dB
Input Return Loss		19		17			10			dB
Output Return Loss		14		14			12			dB
Output Power For 1 dB Compression (P1dB)	20	24		19	23		17	20		dBm
Saturated Output Power (Psat)		26		25			22			dBm
Output Third Order Intercept (IP3)		33		30			25			dBm
Saturated Output Voltage		10		10			8			Vpk-pk
Group Delay		±3		±3			±3			ps
Positive Supply Current (+Idc)		225		225			225			mA
Negative Supply Current (-Idc)		1.6		1.6			1.6			mA

Mechanical Specifications

Weight	0.06 lbs [27.22 g]
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature	
Operating Range	-55 to +85 deg C
Storage Range	-65 to +150 deg C

Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant

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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.



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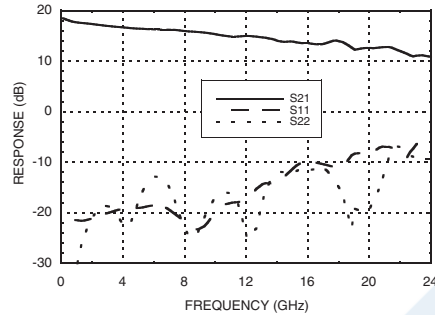
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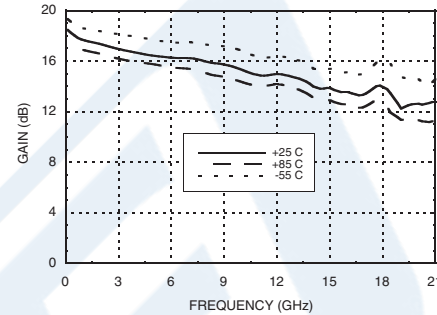
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Typical Performance Data

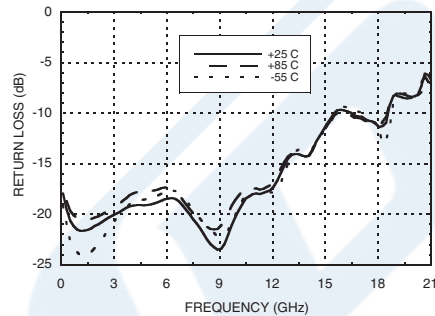
Gain & Return Loss



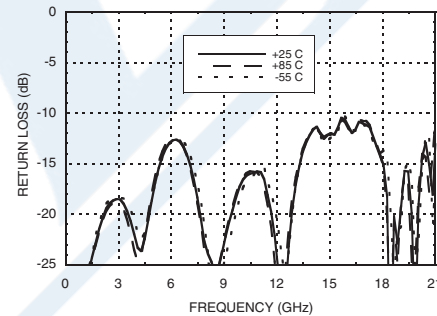
Gain vs. Temperature



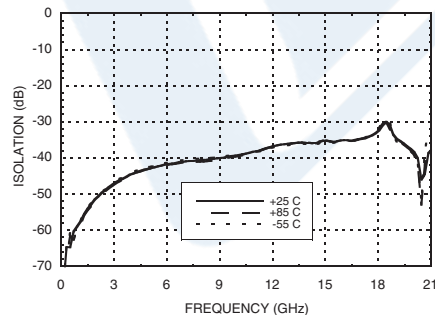
Input Return Loss vs. Temperature



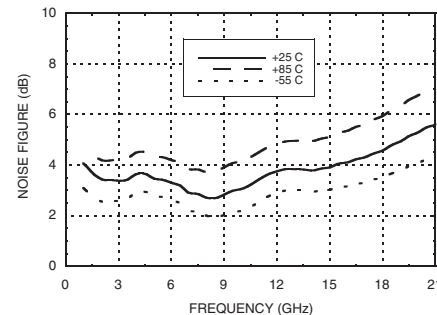
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



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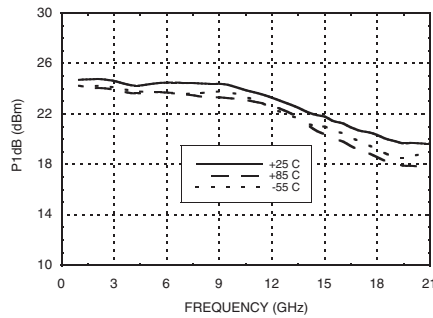


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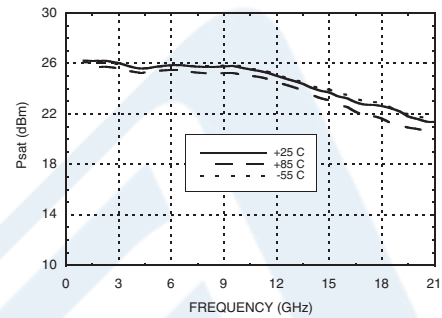
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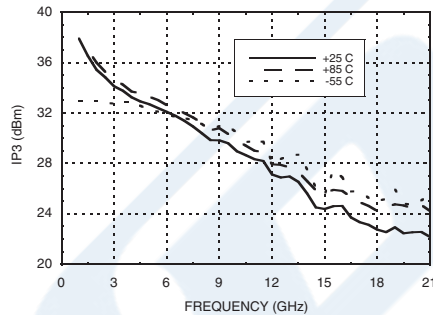
P1dB vs. Temperature



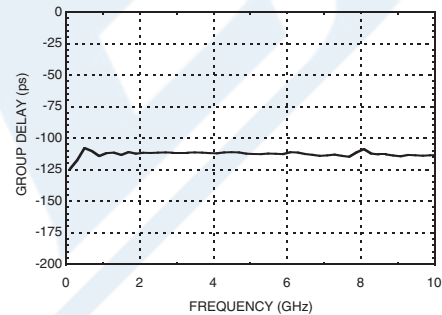
Psat vs. Temperature



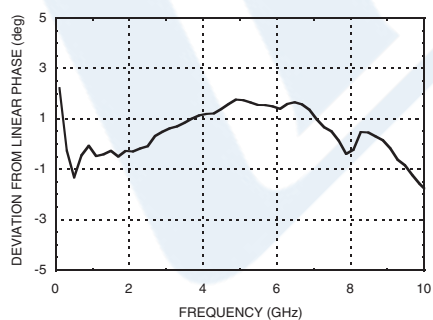
Output IP3 vs. Temperature



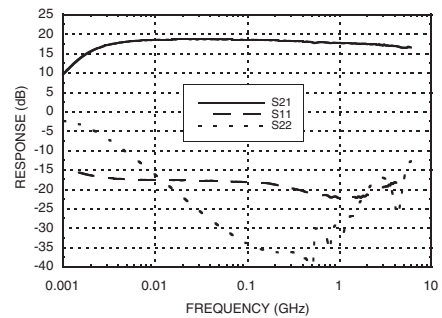
Group Delay



Deviation from Linear Phase



Low Frequency Gain and Return Loss



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17 dBm P1dB, 10 MHz to 20 GHz, Medium Power Broadband Amplifier, 13 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% availability and are part of the broadest selection in the industry.

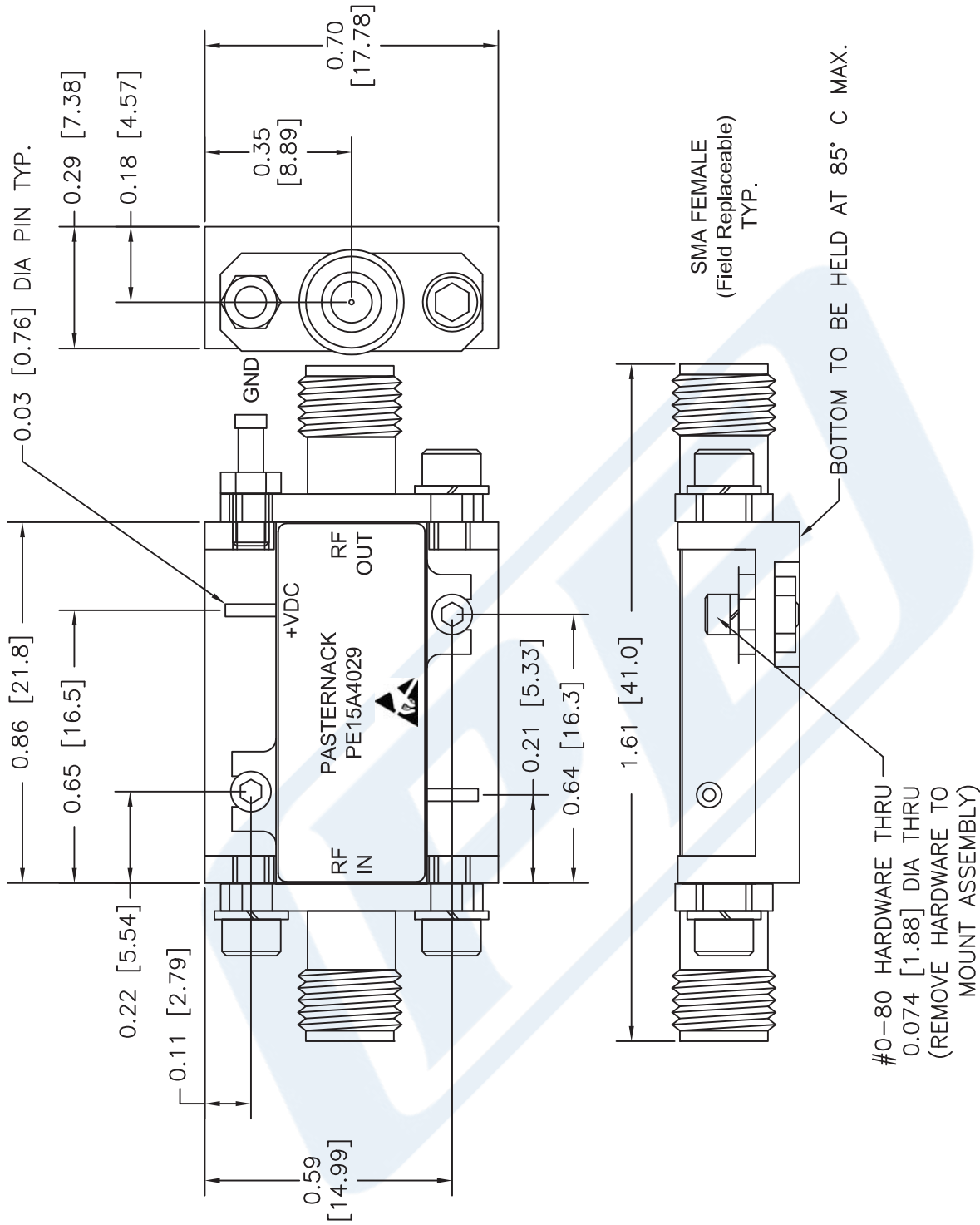
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PE15A4029 CAD Drawing

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

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DWG TITLE
PE15A4029

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].

FSCM NO. 53919

CAD FILE 033016

SCALE N/A

SIZE A

2233