



26 dBm P1dB, 2 GHz to 20 GHz, Medium Power
Broadband Amplifier, 15 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A4027

The PE15A4027 distributed amplifier operates across a wide frequency range from 2 GHz to 20 GHz. The design utilizes leading edge GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance at 2-6 GHz includes 15 dB of small signal gain, 4.0 dB noise figure, +34 dBm output IP3, and up to +27 dBm of Saturated Power. 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 the positive voltage supply. 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
- Wide Frequency Band
- GaAs PHEMT MMIC Technology
- Spurious-Free Operation
- Gain 15 dB
- High Output IP3 +34 dBm
- Saturated Output Power up to + 27 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, DC Voltage = 12Volts)

Description	Minimum	Typical	Maximum	Units
Frequency Range	2		20	GHz
Gain		15		dB
Output at 1 dB Compression Point		+26		dBm
Operating DC Voltage 1		12		Volts
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		2.0 - 6.0		6.0 - 18.0			18.0 - 20.0			GHz
Gain	13	15		11	14		9	12		dB
Gain Flatness		±0.25			±0.75			±1.0		dB
Gain Variation Over Temperature		0.02	0.03		0.02	0.03		0.02	0.03	dB/ °C
Noise Figure		4.0			4.0			6.0		dB
Input Return Loss		17			18			10		dB
Output Return Loss		12			10			12		dB
Output Power For 1 dB Compression (P1dB)	23	26		20	24		19	22		dBm
Saturated Output Power (Psat)		27			25			23		dBm
Output Third Order Intercept (IP3)		34			30			25		dBm
Spurious Response		-50			-60			-60		dBc
Supply Current		310	350		310	350		310	350	mA

Mechanical Specifications

Size

Length	1.5 in [38.1 mm]
Width	0.7 in [17.78 mm]
Height	0.29 in [7.37 mm]
Weight	0.055 lbs [24.95 g]
Connector Option	Field Replaceable
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

Temperature Cycling
Hermetic Seal

MIL-STD-883, Method 101C, Cond B
Gross Leak MIL-STD-883 Method 1014C1/Fine Leak
MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc



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

RoHS Compliant

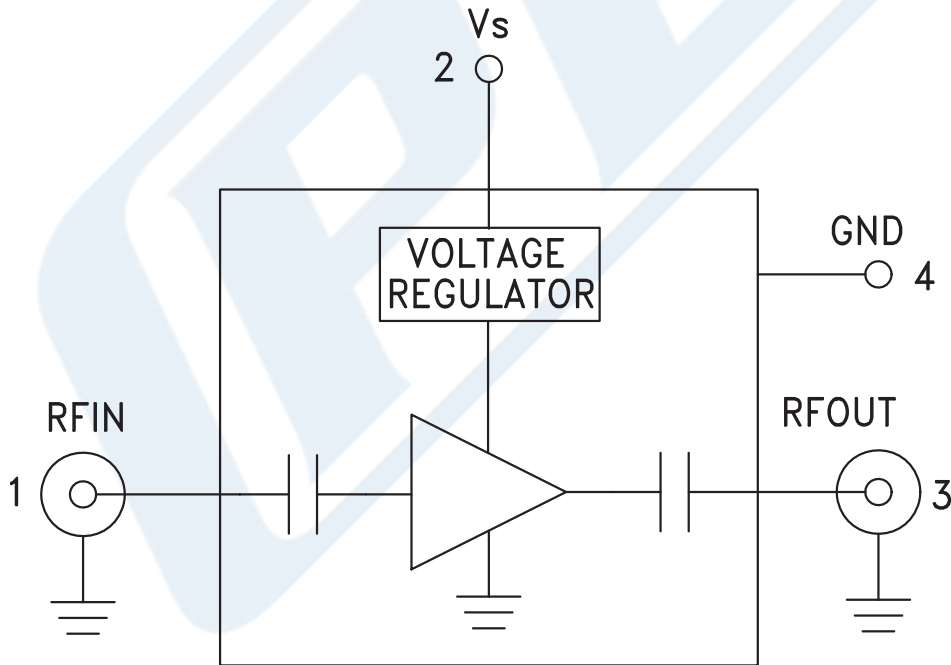
Plotted and Other Data

Notes:

- Values at +25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.



Functional Block Diagram



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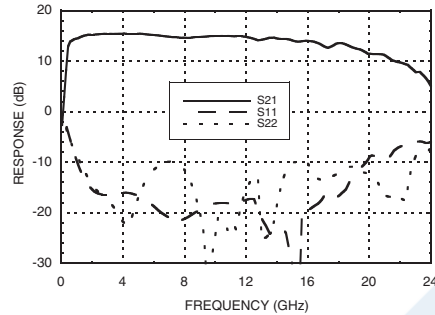
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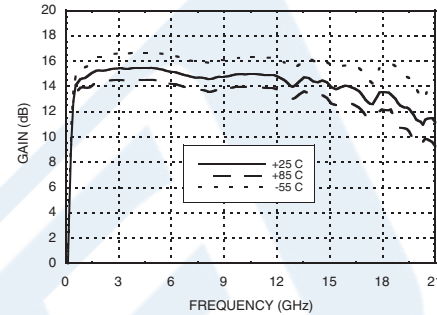
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Typical Performance Data

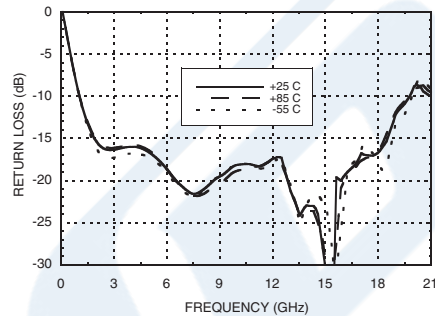
Gain & Return Loss



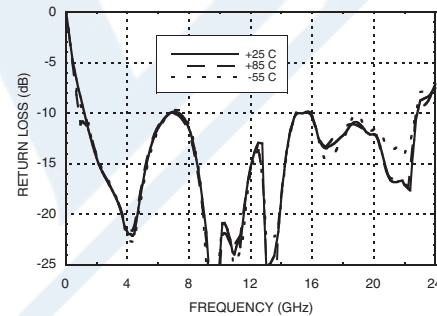
Gain vs. Temperature



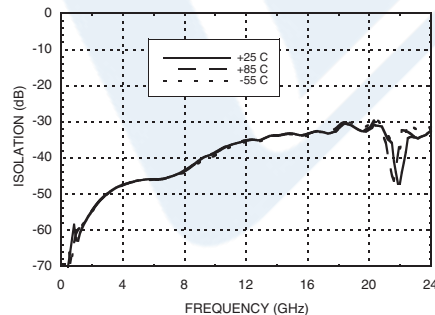
Input Return Loss vs. Temperature



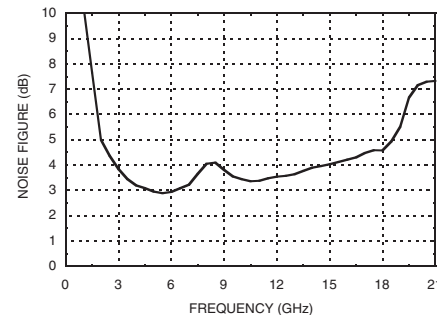
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure



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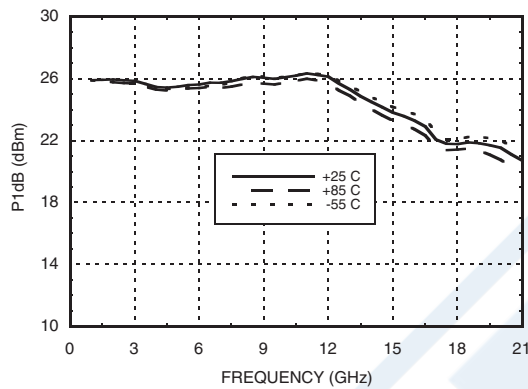


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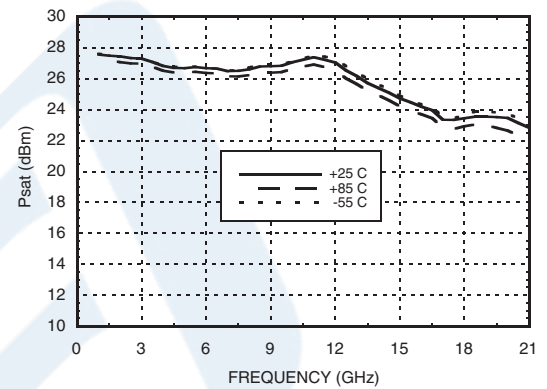
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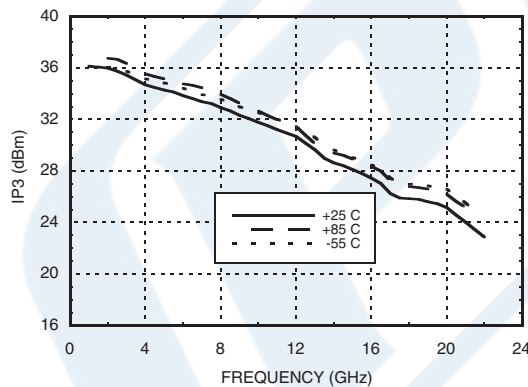
P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature



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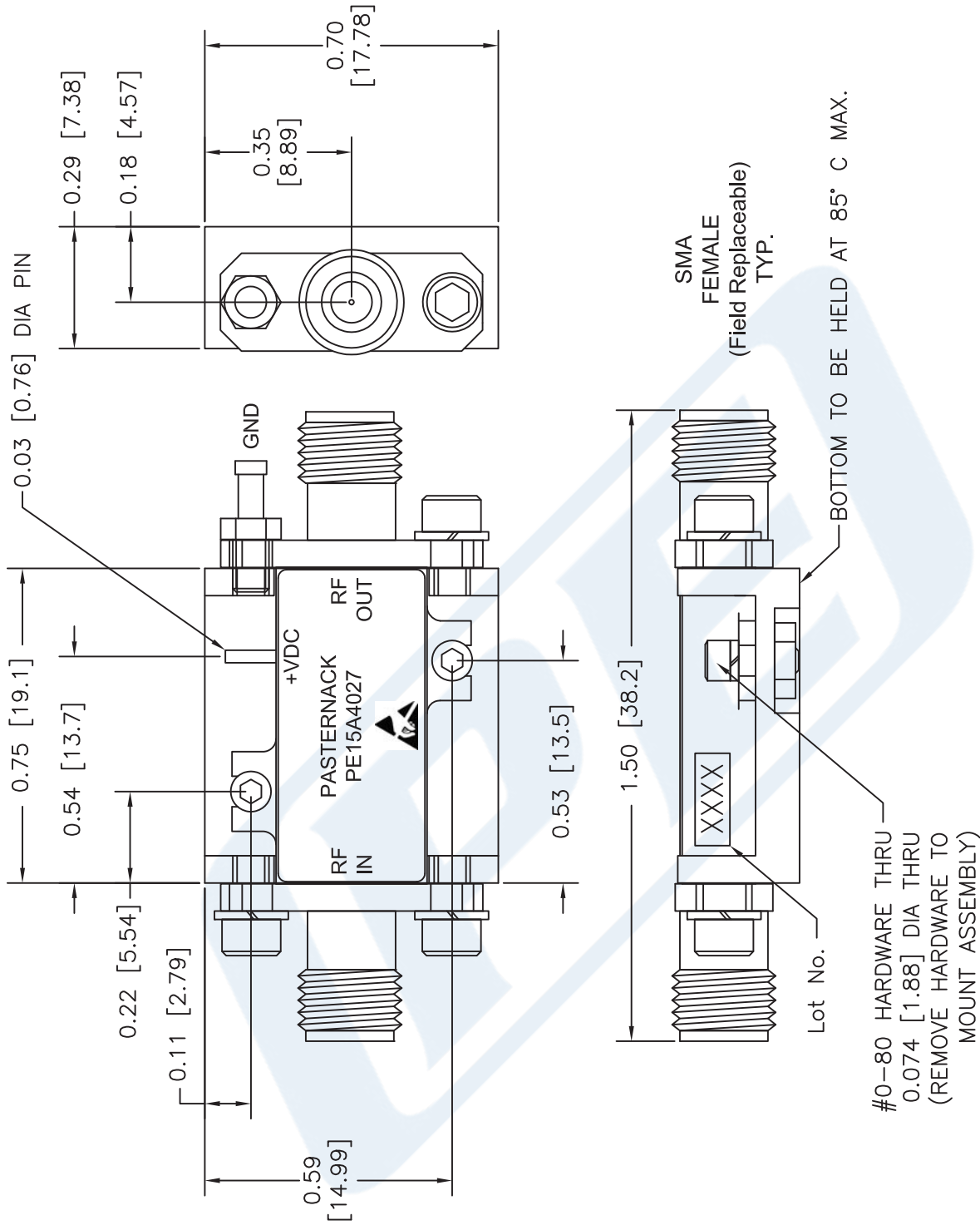
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URL: <http://www.pasternack.com/20-ghz-medium-power-broadband-amplifier-15-db-gain-sma-pe15a4027-p.aspx>

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PE15A4027 CAD Drawing

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

PE PASTERNAK®
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DWG TITLE

PE15A4027

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 050316

SCALE N/A

SIZE A

2233