



18 dBm P1dB, 2 GHz to 35 GHz, Medium Power
Broadband Amplifier, 12 dB Gain, 2.92mm

TECHNICAL DATA SHEET

PE15A3038

The PE15A3038 Broadband Distributed Amplifier operates across an extremely wide frequency band from 2 to 35 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance at 10 GHz includes 12 dB of small signal gain, 3 dB noise figure, +29 dBm output IP3, and +18 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 2.92mm 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 12 dB @ 10 GHz
- High Output IP3 +29 dBm @ 10 GHz
- P1dB +18 dBm
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable 2.92mm Connectors
- -55°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- OC192 Fiber Optic
- Optical Modulator Driver Applications
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Electrical Specifications (TA= 25°C)

Description	Minimum	Typical	Maximum	Units
Frequency Range	2		35	GHz
Gain		12		dB
Gain Flatness		±0.4		dB
Output at 1 dB Compression Point	+18			dBm
Saturation Output Power		+18.5		dBm
Output 3 rd Intercept Point		+26		dBm
Noise Figure		4		dB
Operating DC Voltage 1	11		16	Volts
Operating DC Voltage 2	-4		-12	Volts
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: [18 dBm P1dB, 2 GHz to 35 GHz, Medium Power Broadband Amplifier, 12 dB Gain, 2.92mm PE15A3038](#)



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TECHNICAL DATA SHEET

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Performance by Frequency

Description	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		2.0 - 15			15 - 27			27 - 35		GHz
Gain	9	12		8	11		6	9		dB
Gain Flatness		±0.5			±0.4			±1.5		dB
Gain Variation Over Temperature		0.02	0.03		0.02	0.03		0.02	0.03	dB/ °C
Noise Figure		3.0			4.0			6.0		dB
Input Return Loss		15			10			6		dB
Output Return Loss		15			13			13		dB
Output Power For 1 dB Compression (P1dB)	15	18		13	16		10	14		dBm
Saturated Output Power (Psat)		20			18.5			15.5		dBm
Output Third Order Intercept (IP3)		29			26			25		dBm
Positive Supply Current (+Idc)		92			92			92		mA
Negative Supply Current (-Idc)		5.3			5.3			5.3		mA

Absolute Maximum Rating

Parameter	Rating	Unit
Positive Bias Voltage (+Vdc)	+17	Volts
Negative Bias Voltage (-Vdc)	-16	Volts
RF Input Power (RFIN)	+23	dBm
Operating Temperature (base-plate)	-55 to +85	°C
Storage Temperature	-65 to +150	°C



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

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TECHNICAL DATA SHEET

PE15A3038

Mechanical Specifications

Size

Length	1.086 in [27.58 mm]
Width	0.195 in [4.95 mm]
Height	0.85 in [21.59 mm]
Weight	0.092 lbs [41.73 g]
Connector Option	Field Replaceable
Input Connector	2.92mm Female
Output Connector	2.92mm 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
ESD Sensitive Material, Transport material in Approved
ESD bags. Handle only in ESD Workstation.

ESD Sensitivity

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

Plotted and Other Data

Notes:

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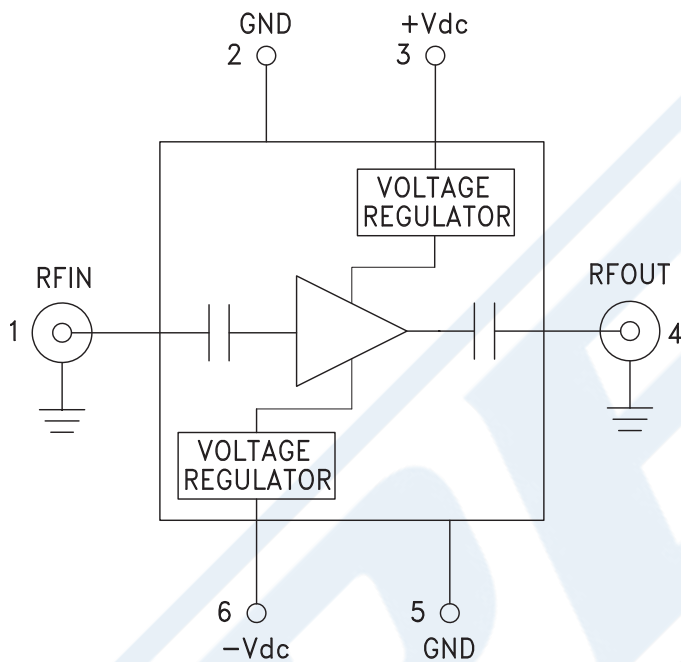


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Functional Block Diagram



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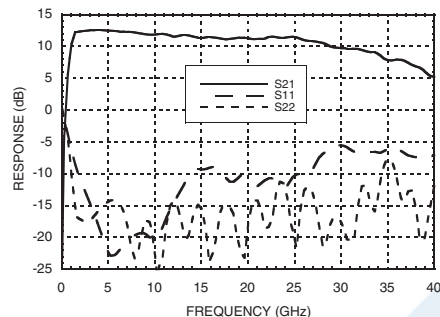
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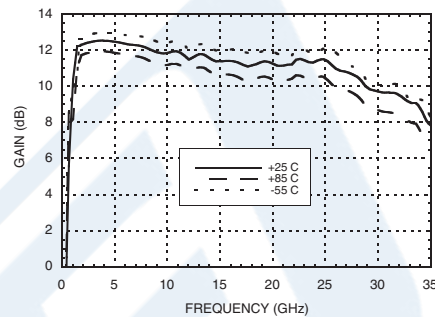
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Typical Performance Data

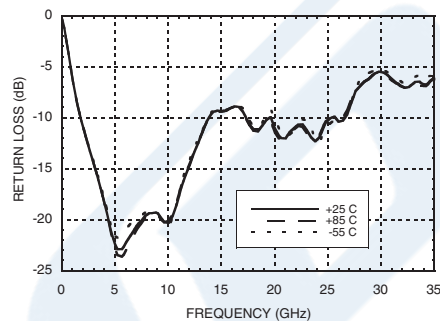
Gain & Return Loss



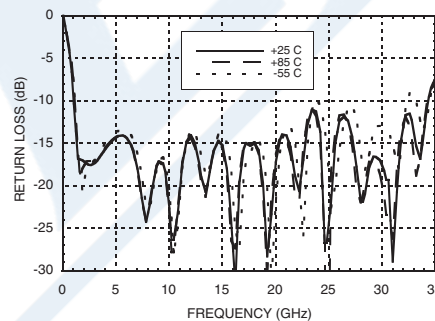
Gain vs. Temperature



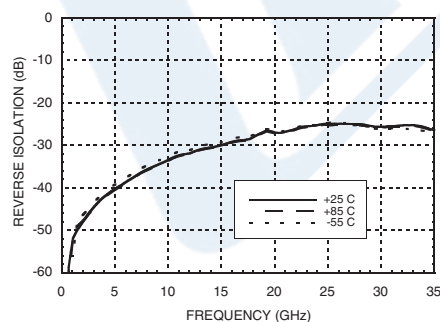
Input Return Loss vs. Temperature



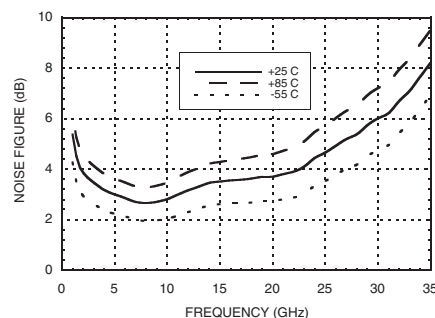
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



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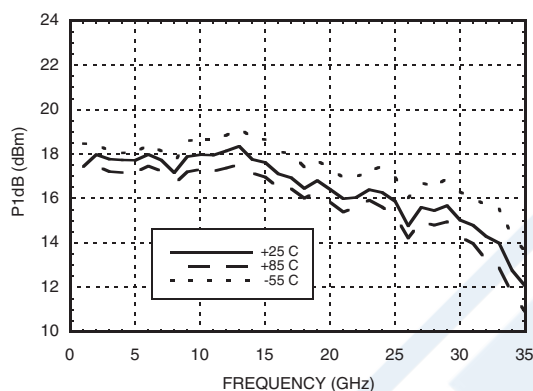


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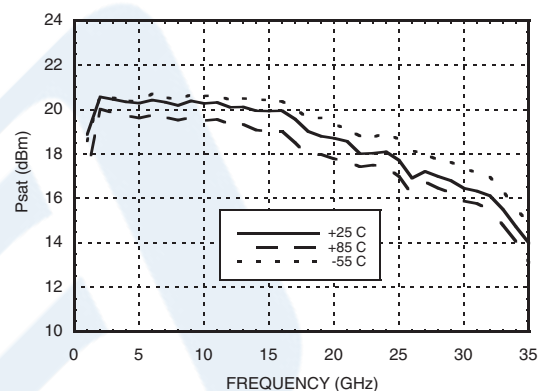
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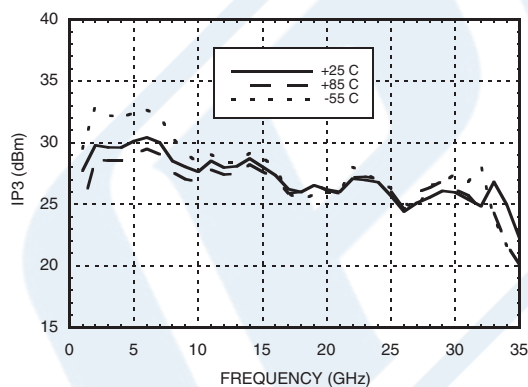
P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature



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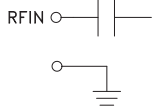

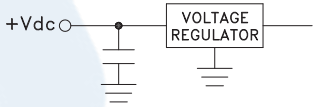
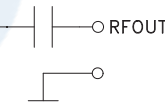
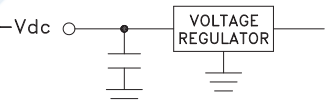


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PE15A3038

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, 2.92 mm female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	
2, 5	GND	Power supply ground.	
3	+Vdc	Positive power supply voltage for the amplifier.	
4	RFOUT & RF Ground	RF output connector, 2.92 mm female field replaceable. This pin is AC coupled and matched to 50 Ohms.	
6	-Vdc	Negative power supply voltage for the amplifier	

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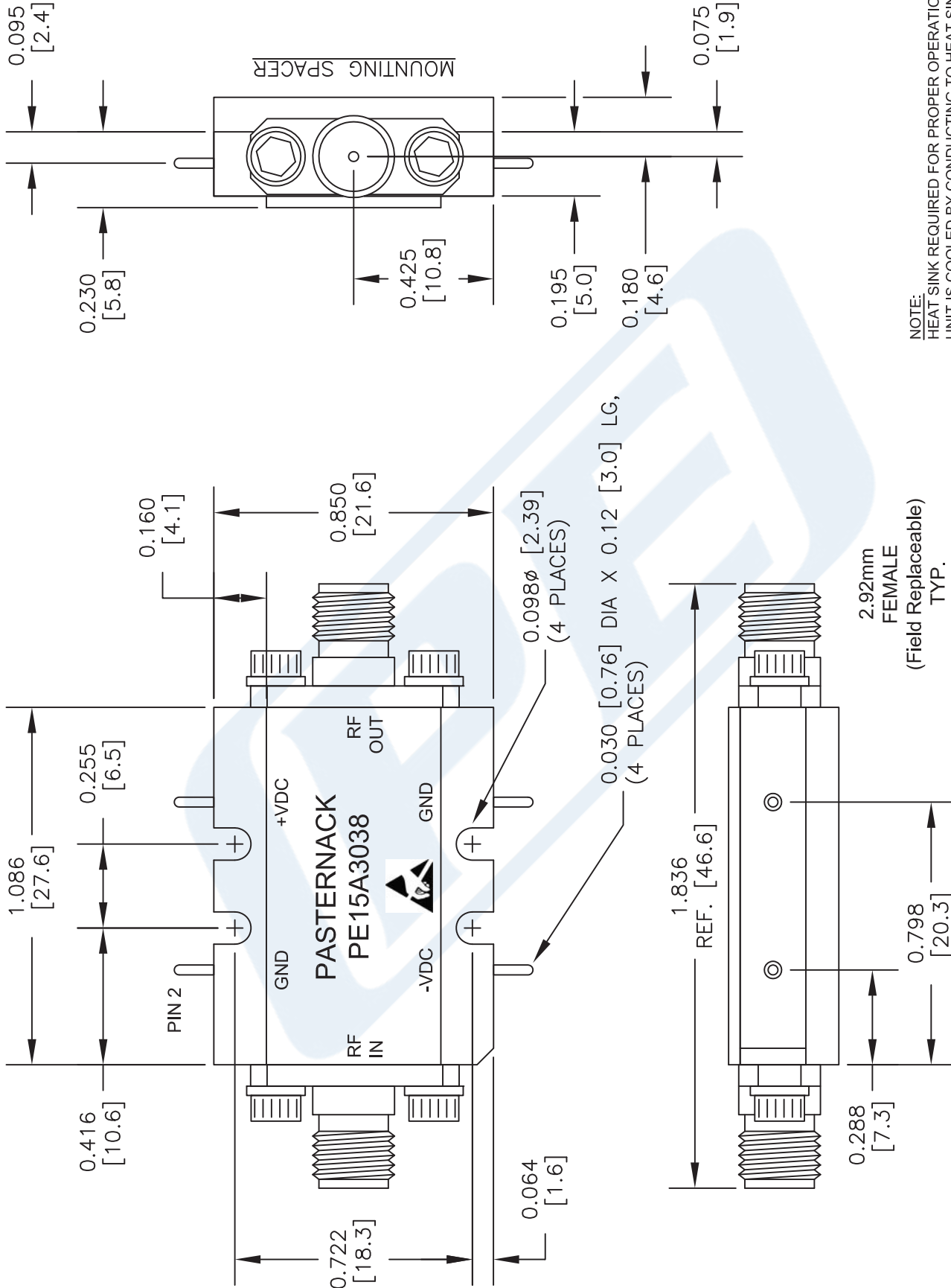
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URL: <https://www.pasternack.com/35-ghz-medium-power-broadband-amplifier-12-db-gain-2.92mm-pe15a3038-p.aspx>

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PE15A3038 CAD Drawing

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

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

PE15A3038

PE PASTERNAK
THE ENGINEER'S RF SOURCE

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FSCM NO. 53919

CAD FILE 051716

SCALE N/A

SIZE A

2233