



2.5 dB NF, 14 dBm P1dB, 7 GHz to 17 GHz, Low Noise Broadband Amplifier, 22 dB Gain, SMA

TECHNICAL DATA SHEET

PE15A3273

The PE15A3273 low noise amplifier operates across a wide frequency range from 7 GHz to 17 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance includes 22 dB small signal gain, 2.5 dB noise figure, up to +14 dBm of output power at P1dB and +25 dBm output IP3, while using a single DC supply between +8VDC and +16 VDC. 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 positive voltage supply. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Features

- LNA Module
- Extremely wide frequency band
- GaAs PHEMT MMIC Technology
- Gain 22 dB
- High Output IP3 +25 dBm
- Output P1dB up to +14 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, VDC1 = 12 Vdc)

Description	Minimum	Typical	Maximum	Units
Frequency Range	7		17	GHz
Gain		22		dB
Output at 1 dB Compression Point		+14		dBm
Noise Figure		2.5		dB
Operating DC Voltage 1	8	12	16	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		7 - 9			9 - 13			13 - 17		GHz
Gain	17.5	20.5		19	22		18	21		dB
Gain Variation Over Temperature		0.02	0.025		0.02	0.025		0.02	0.025	dB/ °C
Noise Figure		3	4.5		2.5	3		2	3	dB
Input Return Loss		8			10			10		dB
Output Return Loss		20			25			15		dB
Output Power For 1 dB Compression (P1dB)	8	12		11	14		11	14		dBm
Saturated Output Power (Psat)		17			18			18		dBm
Output Third Order Intercept (IP3)		24			25			25		dBm
Supply Current		93			93			93		mA

Mechanical Specifications

Size

Length	0.64 in [16.26 mm]
Width	0.59 in [14.99 mm]
Height	0.29 in [7.37 mm]
Weight	0.056 lbs [25.4 g]

Connector Option

Input Connector	Field Replaceable
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
	ESD Sensitive Material, Transport material in Approved
	ESD bags. Handle only in ESD Workstation.

ESD Sensitivity



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

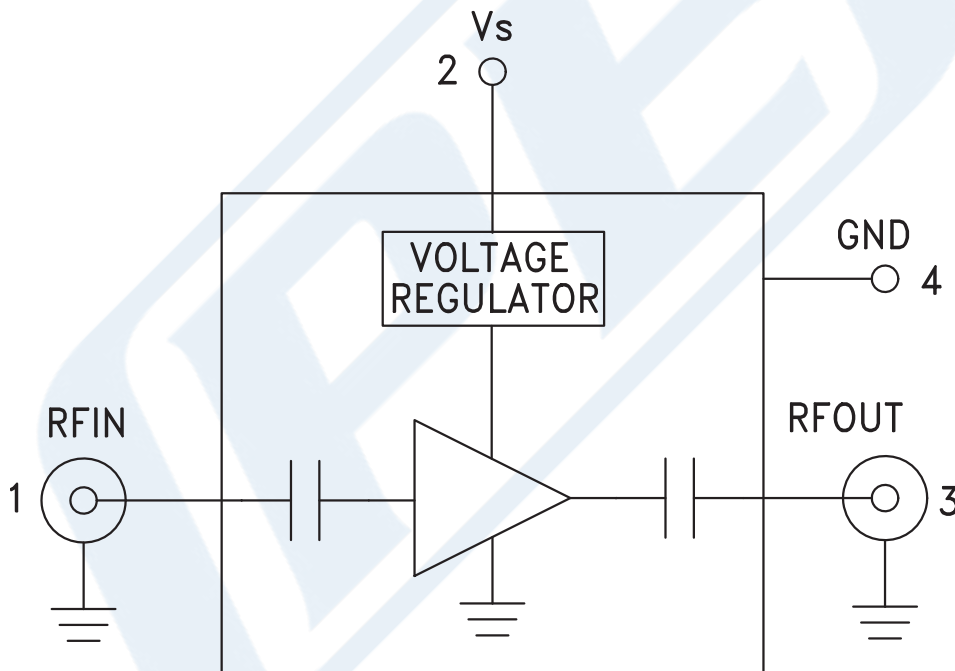
RoHS Compliant

Plotted and Other Data

Notes:

- Values at +25 °C, sea level

Functional Block Diagram



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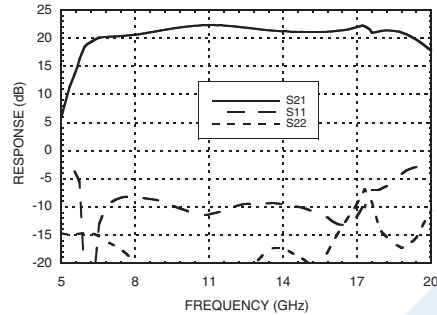
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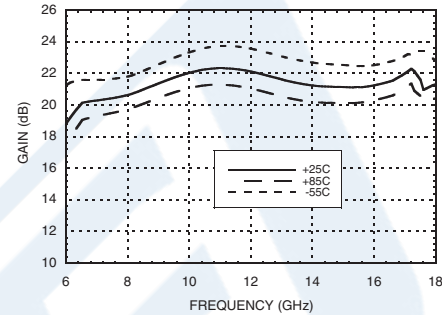
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Typical Performance Data

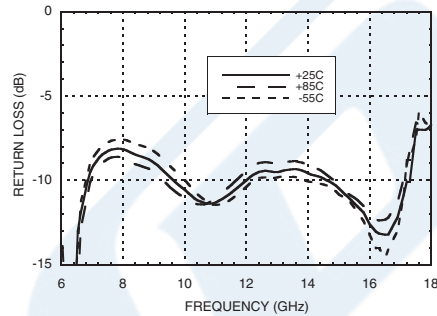
Gain & Return Loss



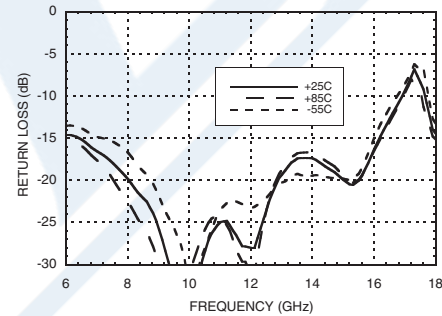
Gain vs. Temperature



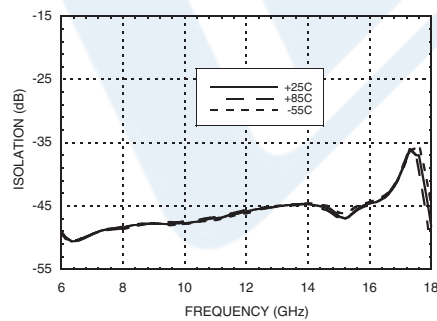
Input Return Loss vs. Temperature



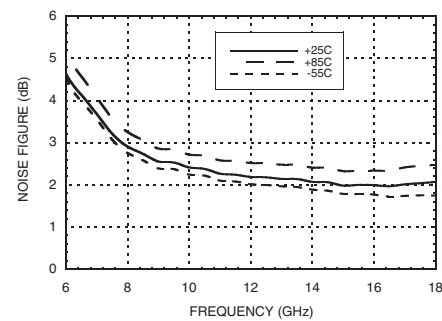
Output Return Loss vs. Temperature



Reverse Isolation vs. Temperature



Noise Figure vs. Temperature



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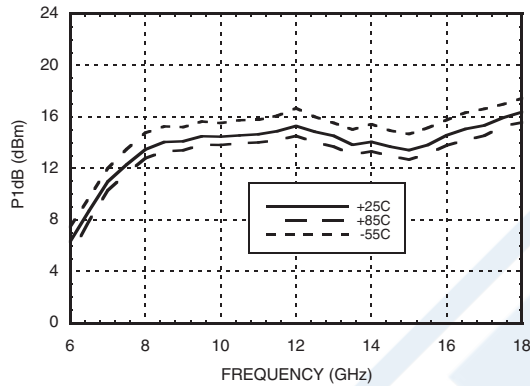


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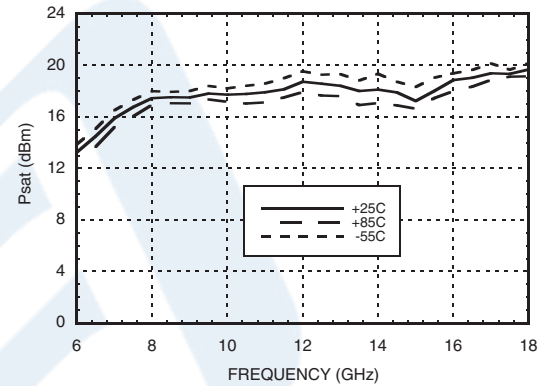
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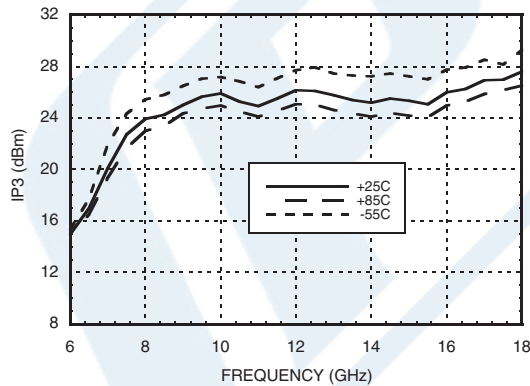
P1dB vs. Temperature



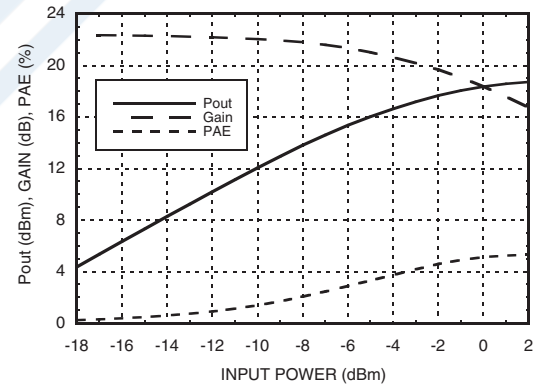
Psat vs. Temperature



Output IP3 vs. Temperature



Power Compression @ 12 GHz



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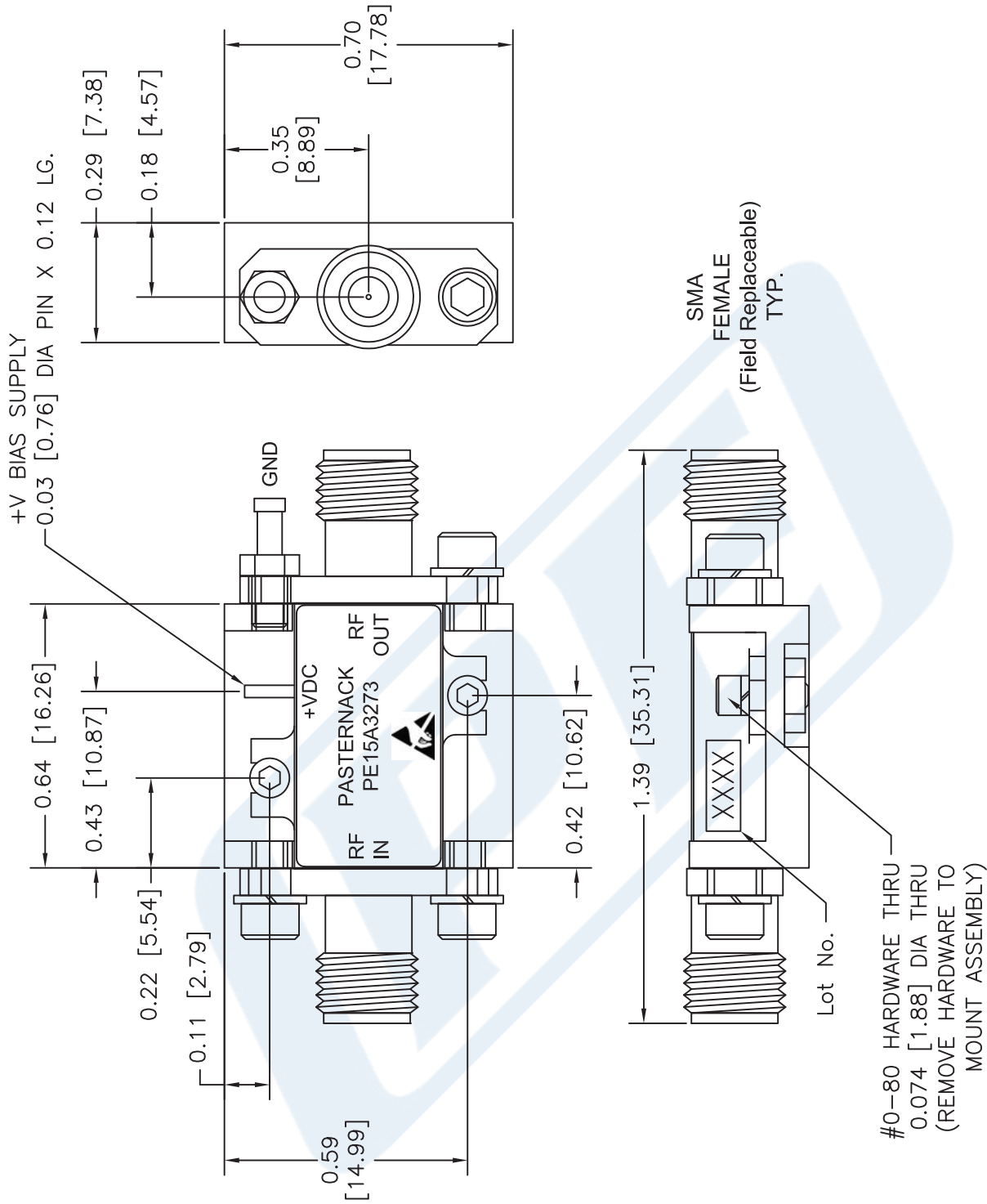
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PE15A3273 CAD Drawing

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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
PE15A3273

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 071916

SCALE N/A

SIZE A

2233