PASTERNACK®
THE ENGINEER'S RF SOURCE

4.5 dB NF, 20 dBm P1dB, 6 GHz to 12 GHz, Low Phase Noise Amplifier 11 dB Gain, SMA

TECHNICAL DATA SHEET PE15A1032

The PE15A1032 is a low phase noise amplifier that operates across the frequency range from 6 GHz to 12 GHz. The design utilizes GaAs HBT MMIC technology and exhibits ultra low phase noise of -167 dBc/Hz @ 1 kHz offset frequency. The design also exhibits high dynamic range with typical performance that incudes 11 dB of small signal gain, 4.5 dB noise figure, up to +20 dBm of output power at P1dB, +34 dBm output IP3, while using a +7V single DC supply. The wideband distributed amplifier design input/output ports are internally matched to 50 ohms and are DC blocked. 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

- Low Phase Noise Amplifier
- Wide frequency band
- Highly Linear GaAs HBT MMIC Technology
- Phase Noise -167 dBc/Hz @ 1KHz offset
- Gain 11 dB
- High Output IP3 +34 dBm
- P1dB up to +20 dBm
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Electrical Specifications (TA = +25°C, DC Voltage = 7Vdc,)

Description	Minimum	Typical	Maximum	Units
Frequency Range	6		12	GHz
Small Signal Gain		11		dB
Output at 1 dB Compression Point		+20		dBm
Noise Figure		4.5		dB
Operating DC Voltage		7		Volts
Operating Temperature Range	-55		+85	°C

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Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
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Performance by Frequency

Description	Min.	Typ.	Max.	Units
Frequency Range		6 - 12		GHz
Gain	9	11		dB
Gain Flatness		±1		dB
Gain Variation Over Temperature		0.015		dB/ °C
Noise Figure		4.5		dB
Input Return Loss		15		dB
Output Return Loss		15		dB
Output Power For 1 dB Compression (P1dB)	17	20		dBm
Saturated Output Power (Psat)		22		dBm
Output Third Order Intercept (IP3)		34		dBm
Phase Noise @ 100 Hz, Psat, 10 GHz		-157		dBc/Hz
Phase Noise @ 1 KHz, Psat, 10 GHz		-167		dBc/Hz
Phase Noise @ 10 KHz, Psat, 10 GHz		-176		dBc/Hz
Phase Noise @ 100 KHz, Psat, 10 GHz		-180		dBc/Hz
Supply Current		170	200	mA

Mechanical Specifications

Size

Length	1.14 in [28.96 mm]
Width	1.9 in [48.26 mm]
Height	0.56 in [14.22 mm]
Weight	0.404 lbs [183.25 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

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Temperature Cycling	MIL-STD-883, Method 101C, Cond B
Hermetic Seal	Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

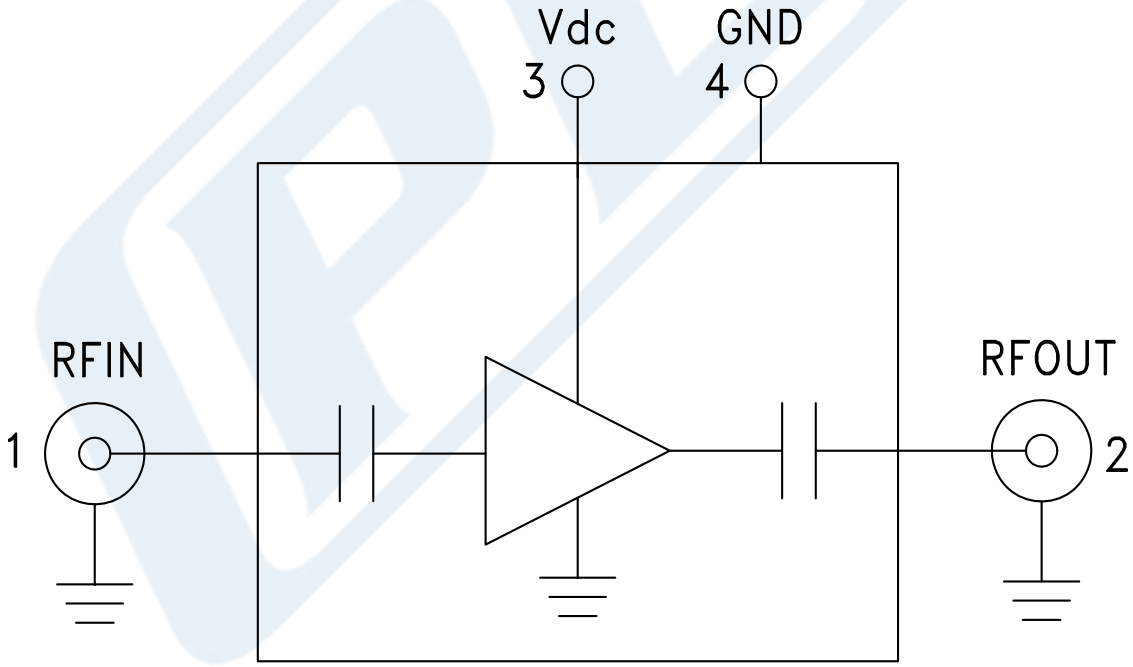
Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

- Values at +25 °C, sea level

Functional Block Diagram



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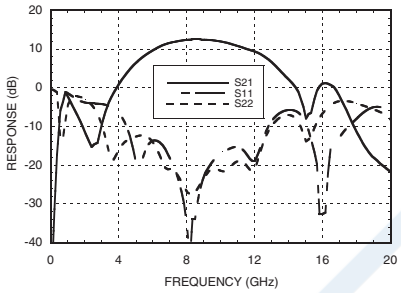
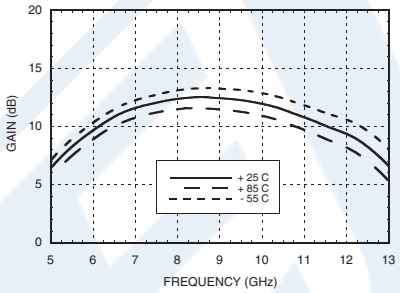
Typical Performance Data

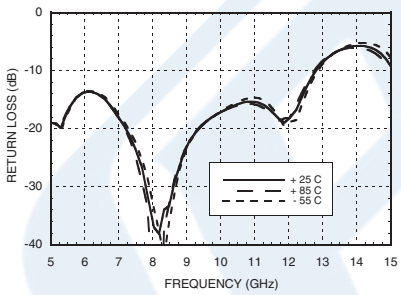
Gain & Return Loss



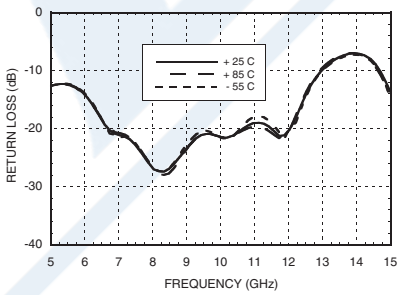
Gain vs. Temperature



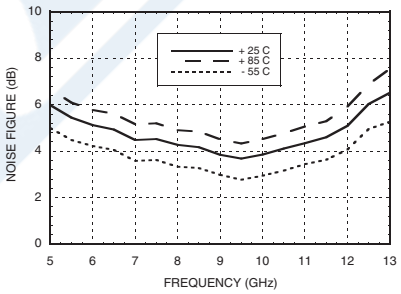
Input Return Loss vs. Temperature



Output Return Loss vs. Temperature



Noise Figure vs. Temperature



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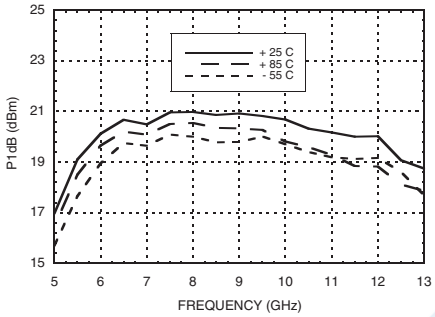
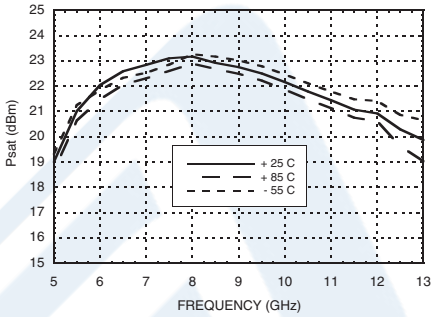
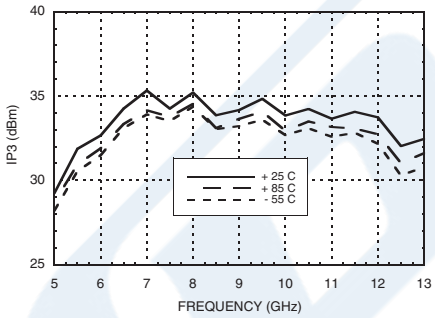
Output P1dB vs. Temperature



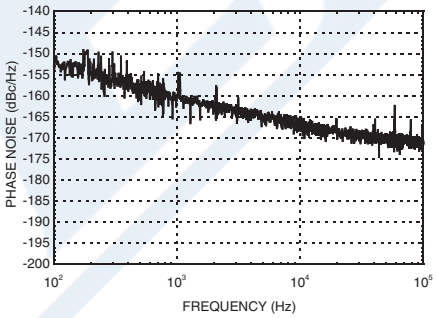
Output Psat vs. Temperature



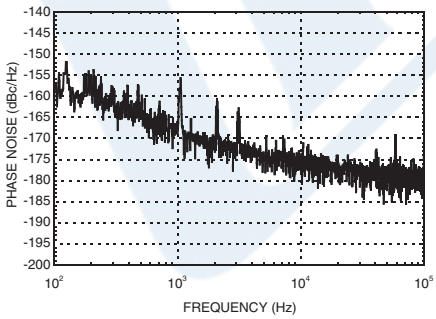
Output IP3 vs. Temperature



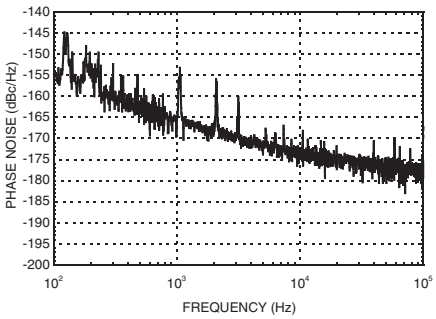
Phase Noise at Pout = 10 dBm @ 10 GHz



Phase Noise at Pout = P1dB @ 10 GHz



Phase Noise at Pout = Psat @ 10 GHz



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URL: https://www.pasternack.com/12-ghz-low-phase-noise-amplifier-11-db-gain-sma-pe15a1032-p.aspx

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PE15A1032 CAD Drawing

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