



Voltage Controlled Oscillator (VCO) From 8 GHz to 12.5 GHz, Phase Noise of -83 dBc/Hz and SMA

Voltage Control Oscillators Technical Data Sheet

PE1V34002

Features

- VCO Module with Integrated Buffer Amplifier
- GaAs MMIC Technology
- Wide Tuning Bandwidth
- Vtune Range 0V to +13V
- High Output Power +21 dBm
- SSB Phase Noise -83 dBc/Hz @100Hz offset
- Single Positive Supply +8V to +15V
- Regulated Voltage Supply
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -40°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- Radar
- Industrial
- Medical Equipment
- Test Instrumentation
- Lab Instrumentation

Description

The PE1V34002 Voltage Controlled Oscillator operates across the frequency range of 8.0 GHz to 12.5 GHz. The design utilizes leading edge GaAs MMIC technology which incorporates the resonator, negative resistance device, and varactor diode. An internal voltage regulator provides excellent frequency pushing of 0.2 MHz/V. The design also incorporates an output buffer amplifier that provides output power up to +21 dBm. Phase noise performance is stable over temperature at -83 dBc/Hz @ 100 KHz offset, with a tuning voltage range of 0 to +13 Volts. Bias is from a single +12V DC supply. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -40°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.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	8		12.5	GHz
Tuning Voltage	0		13	Vdc
Supply Voltage (DC)		12		Vdc
Supply Current (DC)		195		mA
Tune Port Leakage Current			0.01	mA
Phase Noise @ 10kHz Offset		-59		dBc/Hz
Phase Noise @ 100kHz Offset		-83		dBc/Hz
Output Return Loss		15		dB
Output Power	+18	+21		dBm
Pushing		0.2		MHz/V
Frequency Drift Rate		0.8		MHz/°C
2nd Harmonics		-20		dBc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Voltage Controlled Oscillator \(VCO\) From 8 GHz to 12.5 GHz, Phase Noise of -83 dBc/Hz and SMA PE1V34002](#)



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Electrical Specification Notes:
Tune Port Leakage Current (Vtune=+15VDC)
Pulling (Into a 2.0:1 VSWR)
Pushing @ Vtune = +5VDC

Mechanical Specifications

Size

Length	0.64 in [16.26 mm]
Width	0.7 in [17.78 mm]
Height	0.29 in [7.37 mm]
Weight	0.055 lbs [24.95 g]

Configuration

Design	Commercial
Connector Option	Field Replaceable
Control Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-65 to +150 deg C

Temperature Cycle
Hermetic Seal

ESD Sensitivity

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.



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

Plotted and Other Data

Notes:

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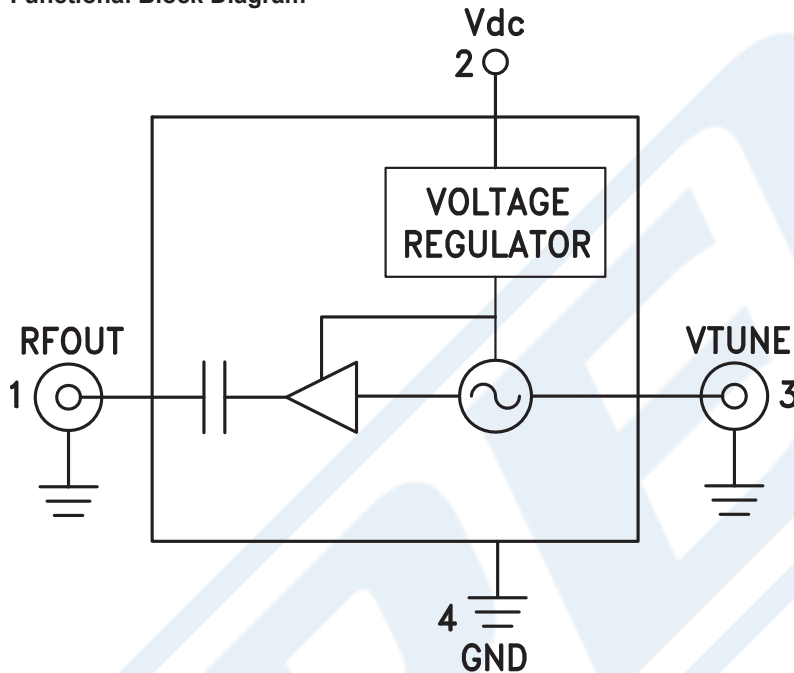


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Functional Block Diagram



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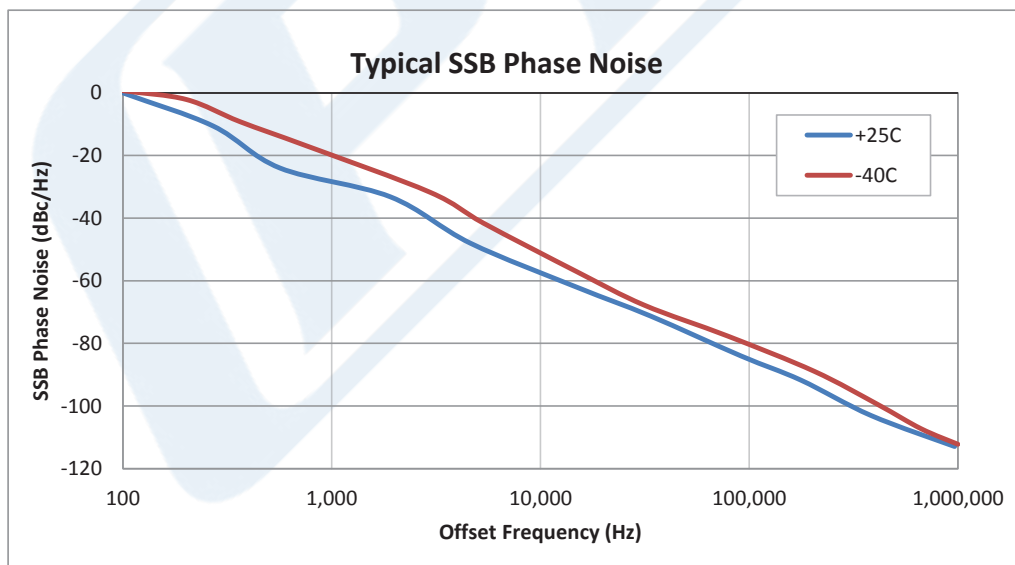
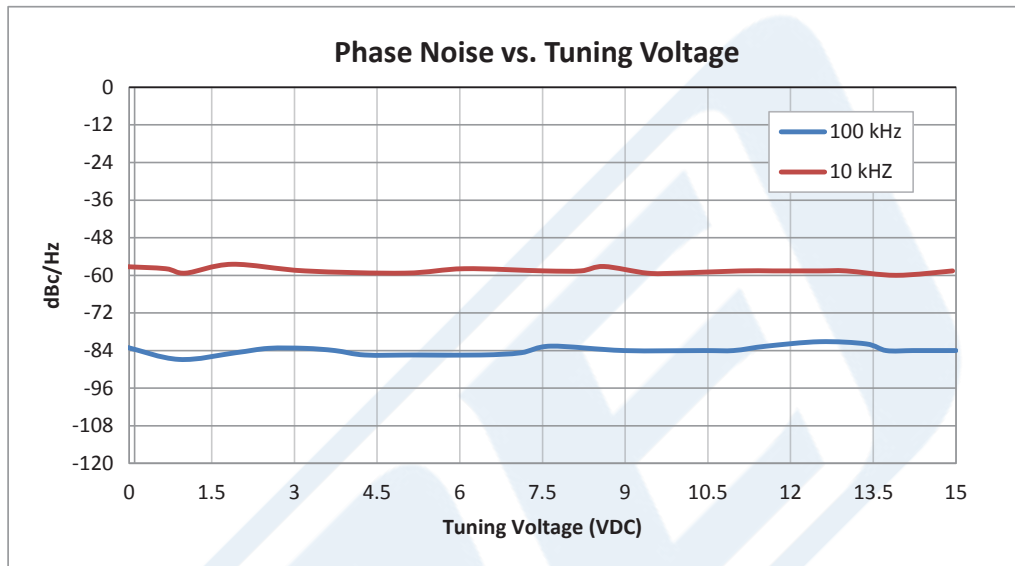


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Typical Performance Data



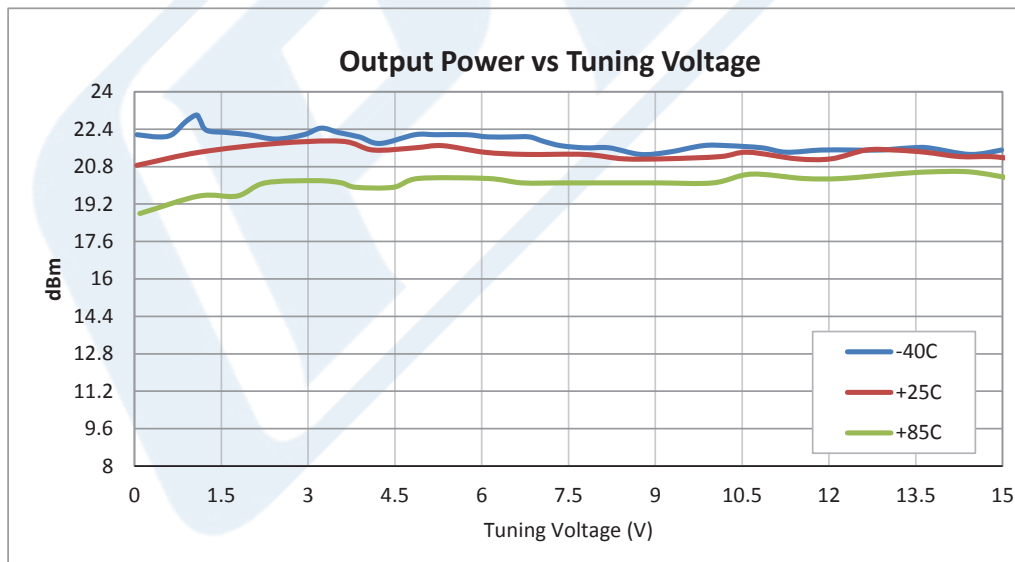
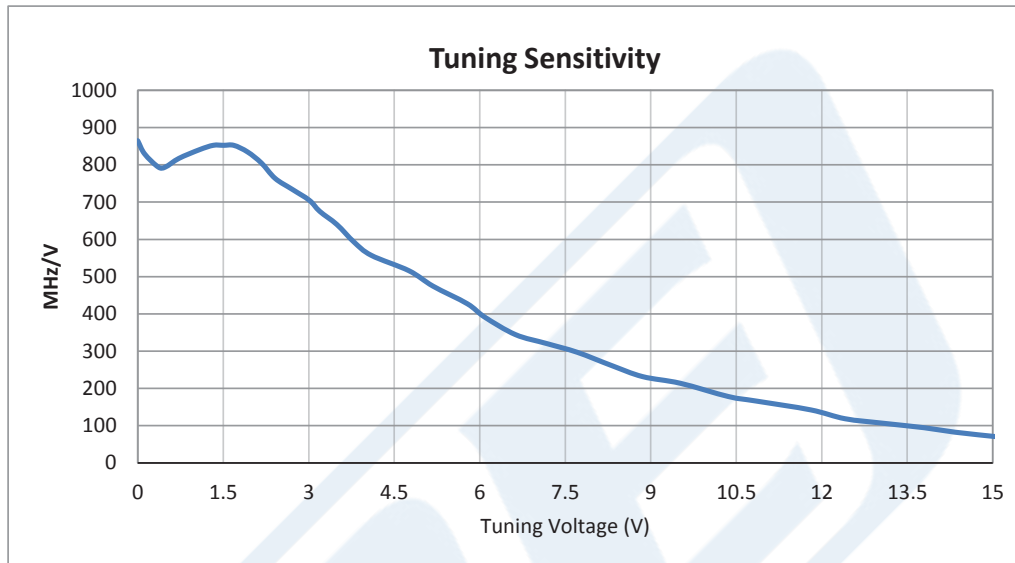
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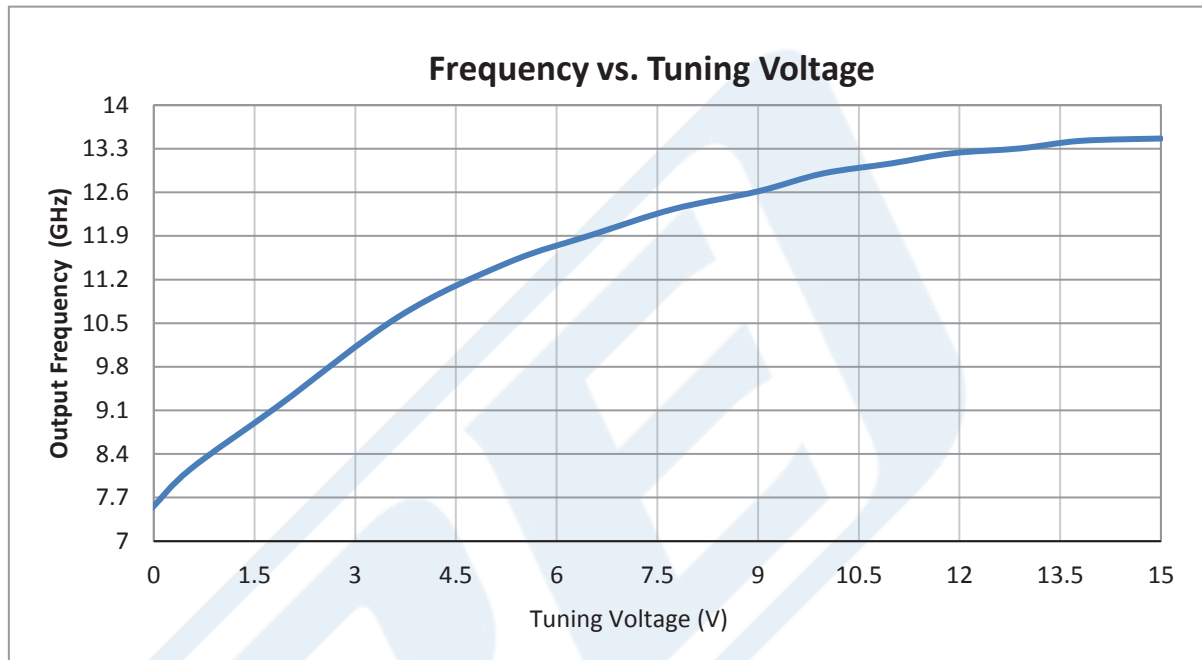
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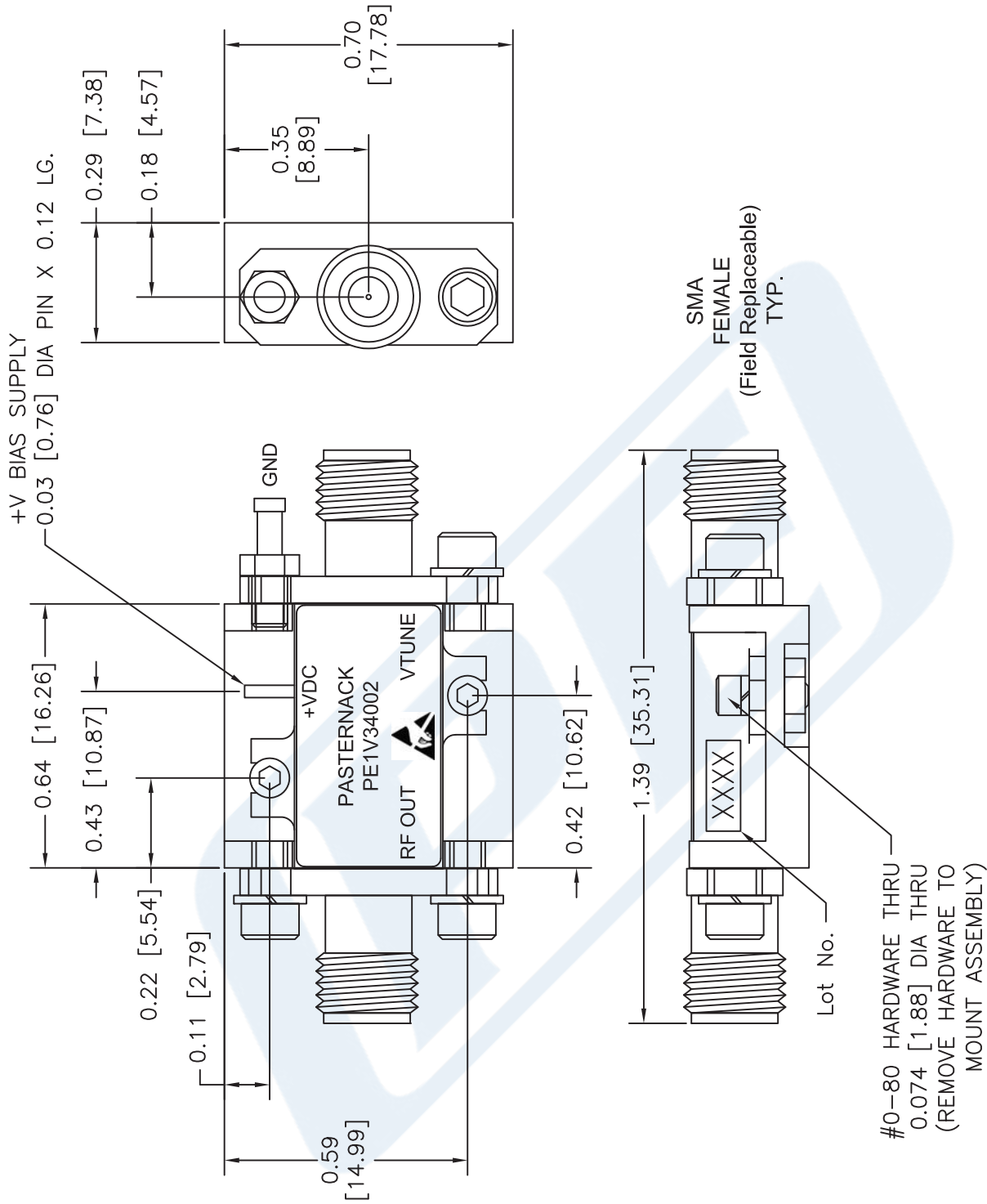
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PE1V34002 CAD Drawing

Voltage Controlled Oscillator (VCO) From 8 GHz to 12.5 GHz, Phase Noise of -83 dBc/Hz and SMA



DWG TITLE

PE1V34002

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].

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CAD FILE 102516

SCALE N/A

SIZE A

2233