



Voltage Controlled Oscillator (VCO) From 4 GHz to 8 GHz, Phase Noise of -95 dBc/Hz and SMA

Voltage Control Oscillators Technical Data Sheet

PE1V34000

Features

- VCO Module with Integrated Buffer Amplifier
- GaAs MMIC Technology
- Wide Tuning Bandwidth
- Vtune Range 0V to +18V
- High Output Power +20 dBm
- SSB Phase Noise -95 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 PE1V34000 Voltage Controlled Oscillator operates across the frequency range of 4 GHz to 8 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 +20 dBm. Phase noise performance is stable over temperature at -95 dBc/Hz @ 100 KHz offset, with a tuning voltage range of 0 to +18 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	4		8	GHz
Tuning Voltage	0		18	Vdc
Supply Voltage (DC)		12		Vdc
Supply Current (DC)		195		mA
Tune Port Leakage Current			0.01	mA
Phase Noise @ 10kHz Offset		-75		dBc/Hz
Phase Noise @ 100kHz Offset		-95		dBc/Hz
Output Return Loss		15		dB
Output Power	+17	+20		dBm
Pushing		0.2		MHz/V
2nd Harmonics		-10		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 4 GHz to 8 GHz, Phase Noise of -95 dBc/Hz and SMA PE1V34000](#)



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Performance by Frequency

Description	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		4.0 - 8.0		5.0 - 8.0			GHz
Power Output	13	15		17	20		dBm
SSB Phase Noise @ 100 KHz Offset		-95			-95		dBc/Hz
SSB Phase Noise @ 10 KHz Offset		-75			-75		dBc/Hz
Tune Voltage (Vtune)	0		18	3		18	V
Supply Current (Idc) (Vdc = +12V)		185			185		mA
Tune Port Leakage Current (Vtune = +15V)			10			10	µA
Output Return Loss		15			15		dB
2nd Harmonic		-10			-10		dBc
Pulling (Into A 2.0:1 VSWR)		1			1		MHz pp
Pushing @ Vtune= +5V		0.2			0.2		MHz/V
Frequency Drift Rate		0.8			0.8		MHz/°C

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	0.056 lbs [25.4 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

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Temperature Cycle
Hermetic Seal

ESD Sensitivity



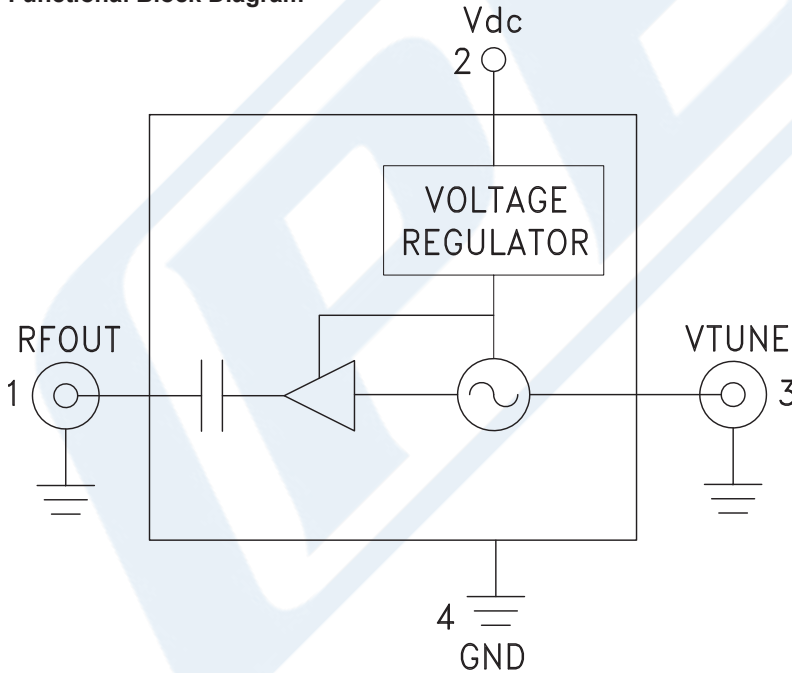
MIL-STD-883, Method 101C, Cond B
Gross Leak MIL-STD-883 Method 1014C1/Fine Leak
MIL-STD-883, Method 1014A2, 5 x 10-8 atm cc
ESD Sensitive Material, Transport material in Approved
ESD bags. Handle only in ESD Workstation.

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

Plotted and Other Data

Notes:

Functional Block Diagram



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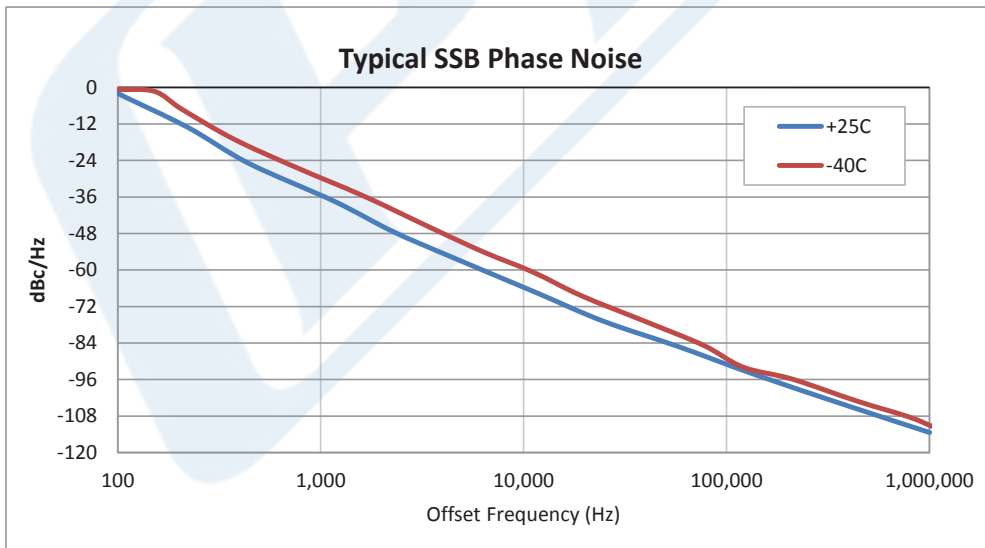
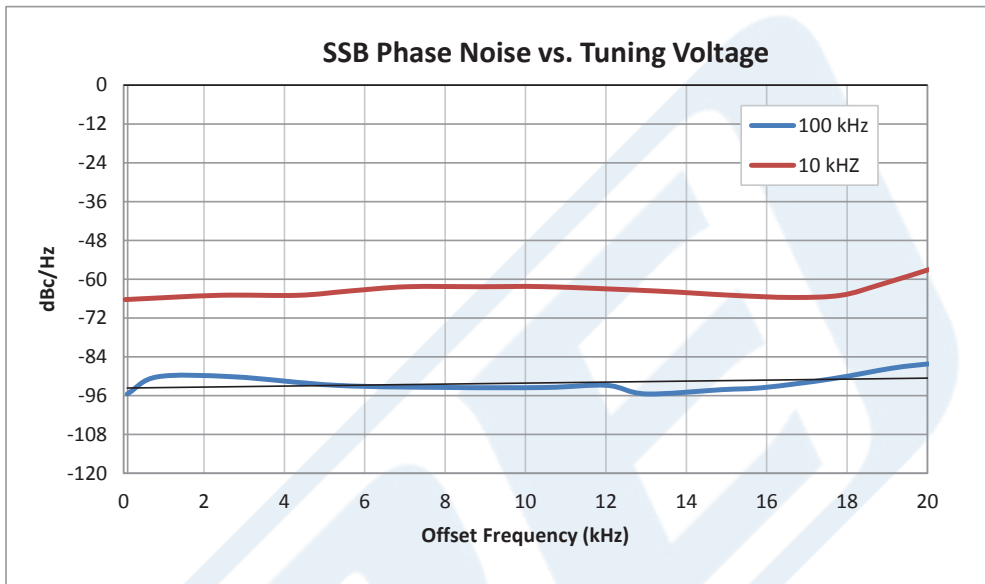


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Typical Performance Data



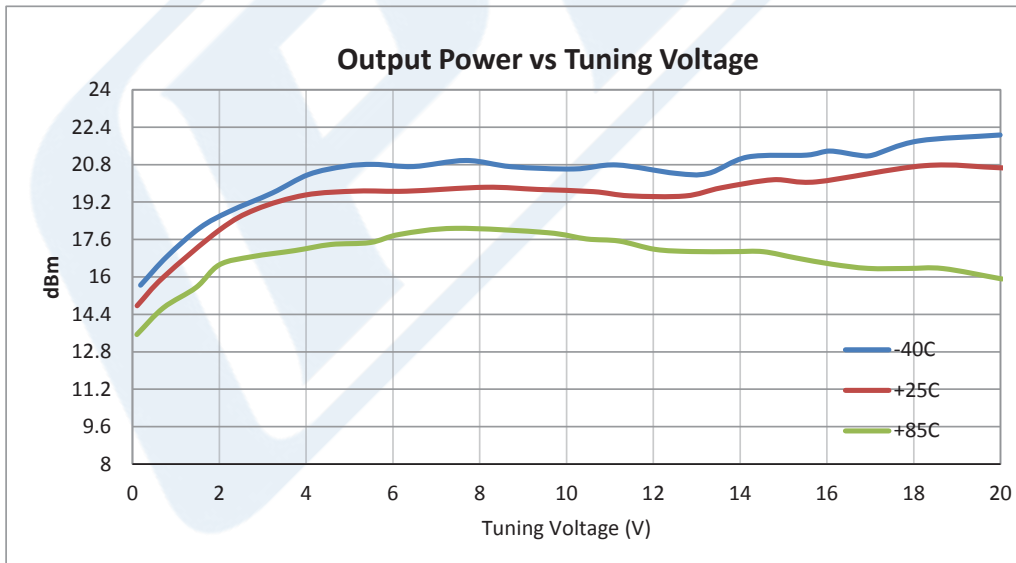
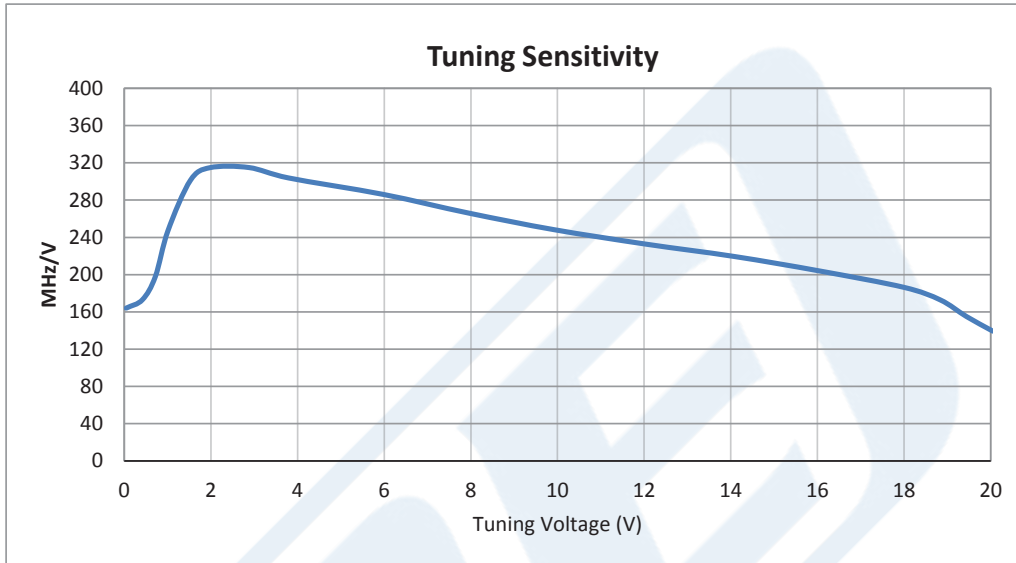
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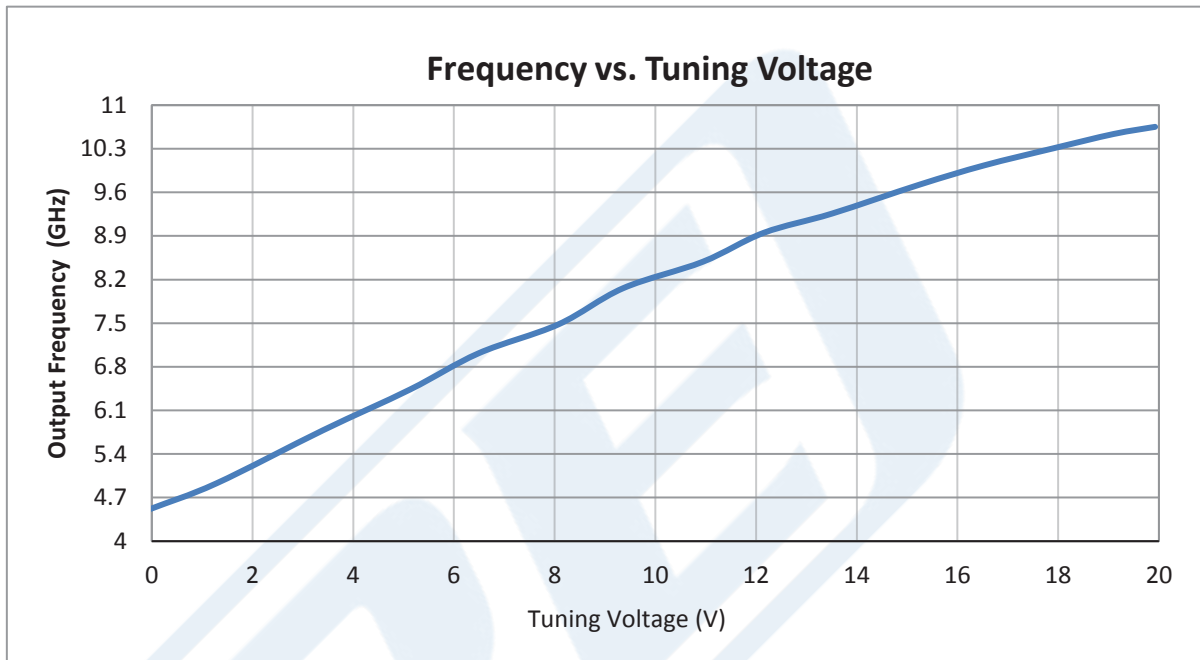
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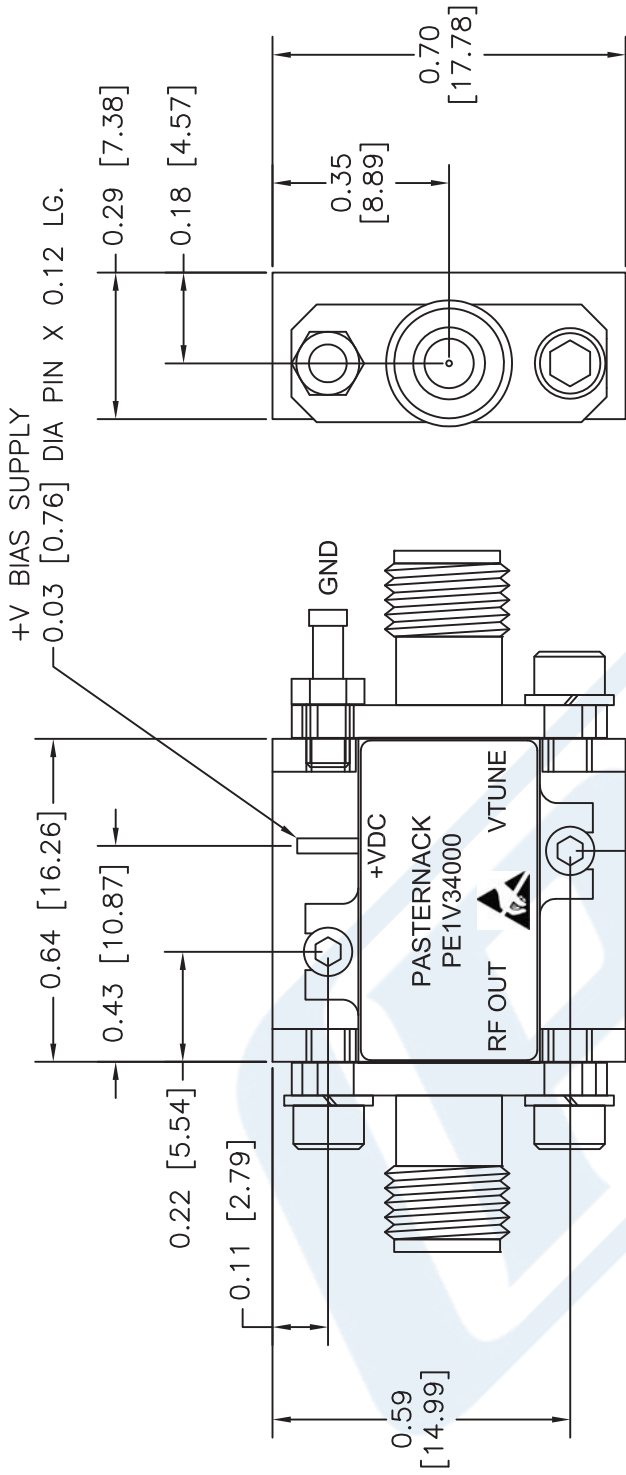
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PE1V34000 CAD Drawing

Voltage Controlled Oscillator (VCO) From 4 GHz to 8 GHz, Phase Noise of -95 dBc/Hz and SMA



#0-80 HARDWARE THRU
0.074 [1.88] DIA THRU
(REMOVE HARDWARE TO
MOUNT ASSEMBLY)

DWG TITLE

PE1V34000

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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CAGE CODE 53919

CAD FILE 112216

SCALE N/A

SIZE A

2233