



## Voltage Controlled Oscillator (VCO) From 40 MHz to 80 MHz, Phase Noise of -117 dBc/Hz and SMA

### Voltage Control Oscillators Technical Data Sheet

PE1V31003

#### Features

- 40 MHz to 80 MHz Bandwidth
- -117 dBc/Hz typ @ 10kHz offset
- Tuning Voltage 0.5V to 20V
- Pout = +12 dBm typ
- Harmonics = -14.0 dBc typ
- RoHS Compliant Assembly
- Compact Size Rugged Metal Coaxial package
- Field Replaceable SMA Female Connector
- Designed to meet MIL-STD-202 Environmental Conditions

#### Applications

- Phase Locked Loop
- Function Generators
- Frequency Synthesizers
- Receivers
- Electronic Jamming Equipment
- Local Oscillator
- Wireless Communications
- SATCOM
- Optical Communications
- Military Electronic Systems

#### Description

The PE1V31003 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 40 MHz to 80 MHz frequency band with a voltage tuning range from 0.5V to 20V. This design features exceptional phase noise performance of -117 dBc/Hz typ @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +12 dBm typ and 2nd harmonic output of -14.0 dBc typical. The assembly is RoHS compliant and available in a compact sized rugged metal housing which supports a field replaceable SMA female connector, RFI Voltage and ground pins. The VCO operates over a temperature range of -40°C to +85°C and is designed to meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.

#### Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	40		80	MHz
Tuning Voltage	0.5		20	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		18	20	mA
Phase Noise @ 1kHz Offset		-90	-88	dBc/Hz
Phase Noise @ 10kHz Offset		-117	-115	dBc/Hz
Phase Noise @ 100kHz Offset		-137	-135	dBc/Hz
Output Power	+10	+12	+14	dBm
Tuning Sensitivity (Kvco)	2		4	MHz/V
Pushing		0.05	0.1	MHz/V
Pulling (pk-pk)		50	100	KHz
Tuning Port Capacitance		180		pF
Load Impedance		50		Ohms
2nd Harmonics		-14	-11	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 40 MHz to 80 MHz, Phase Noise of -117 dBc/Hz and SMA PE1V31003](#)



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Electrical Specification Notes:  
Pulling @ 1.5:1 VSWR

### Mechanical Specifications

#### Size

Length	0.95 in [24.13 mm]
Width	0.95 in [24.13 mm]
Height	0.285 in [7.24 mm]
Weight	0.028 lbs [12.7 g]
Body Material and Plating	Aluminum
Design	Commercial
Output Connector	SMA Female

### Environmental Specifications

#### Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +125 deg C

Humidity	MIL-STD-202, Method 103, 90% RH, +65 C
Shock	MIL-STD-202, Method 213I
Vibration	MIL-STD-202, Method 204D
Temperature Cycle	MIL-STD-202, Method 107B
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:

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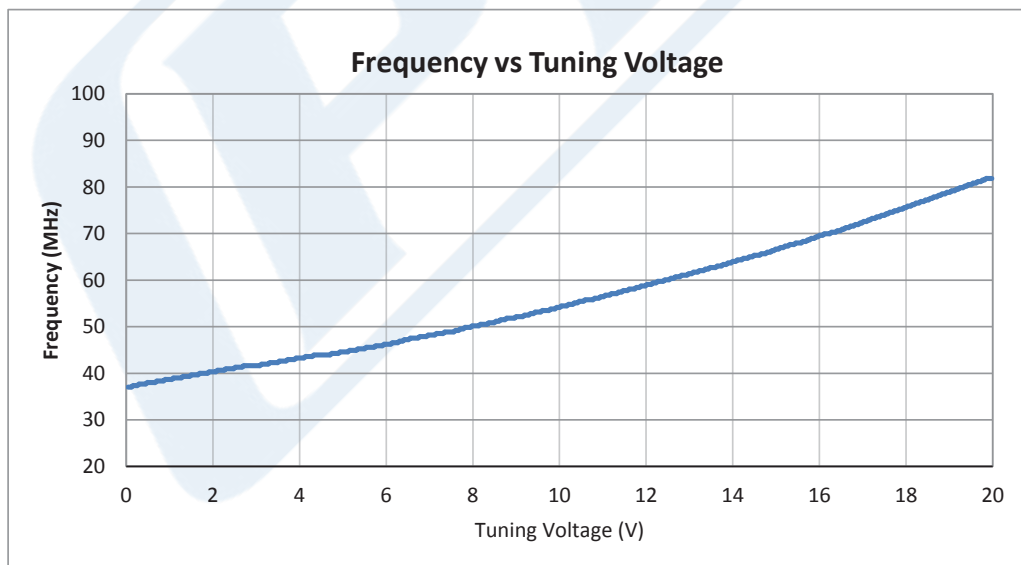
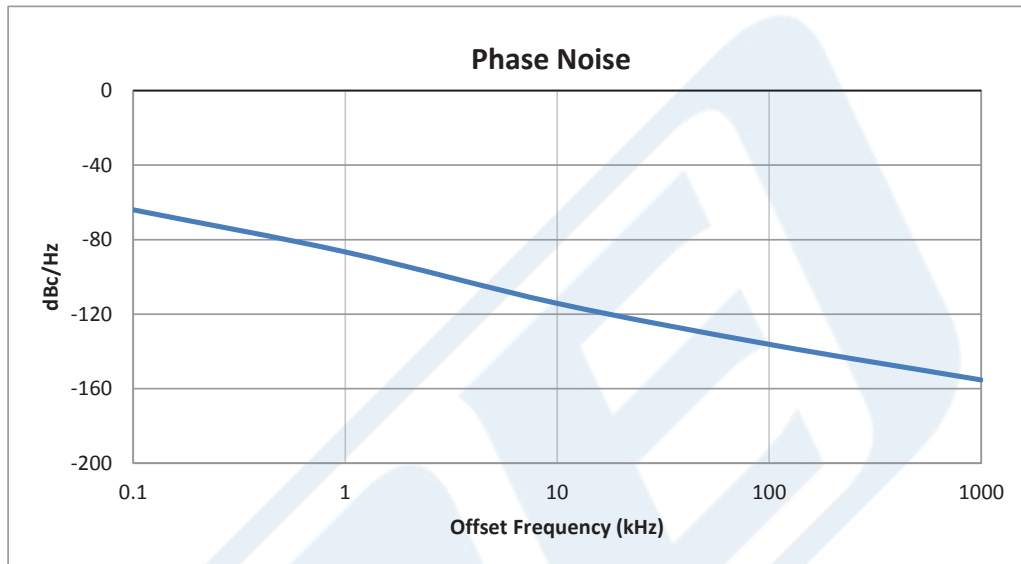


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### Typical Performance Data



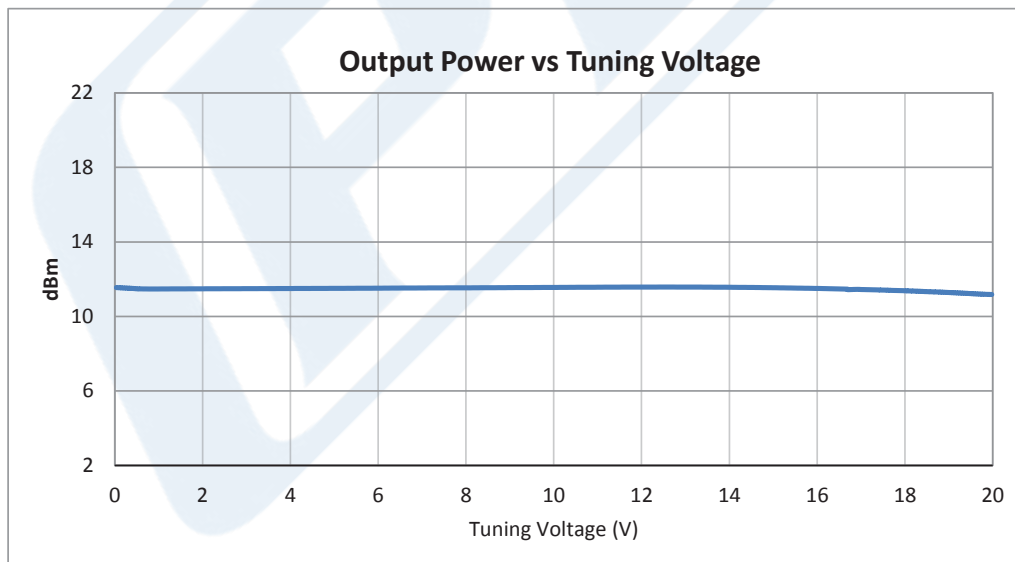
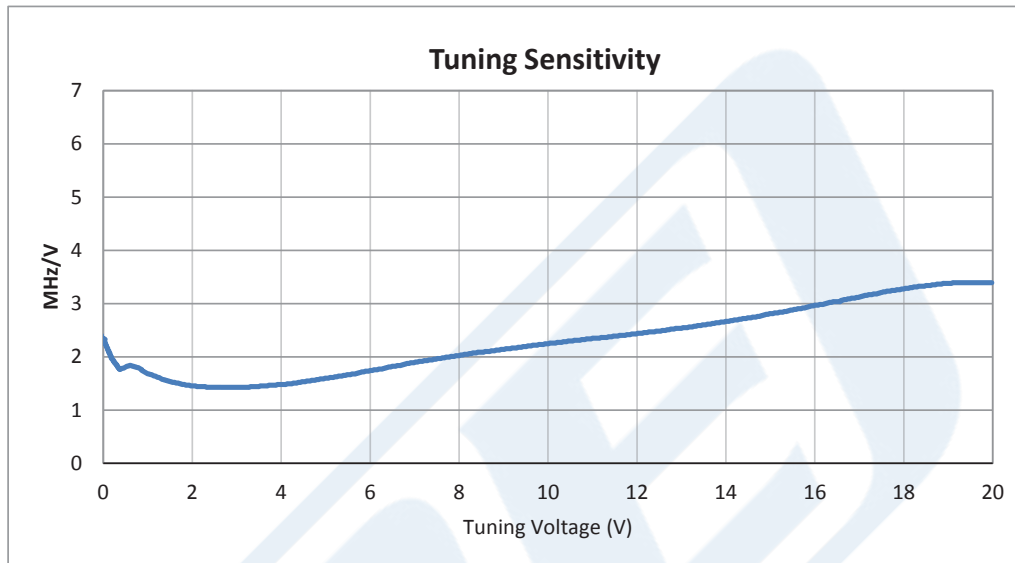
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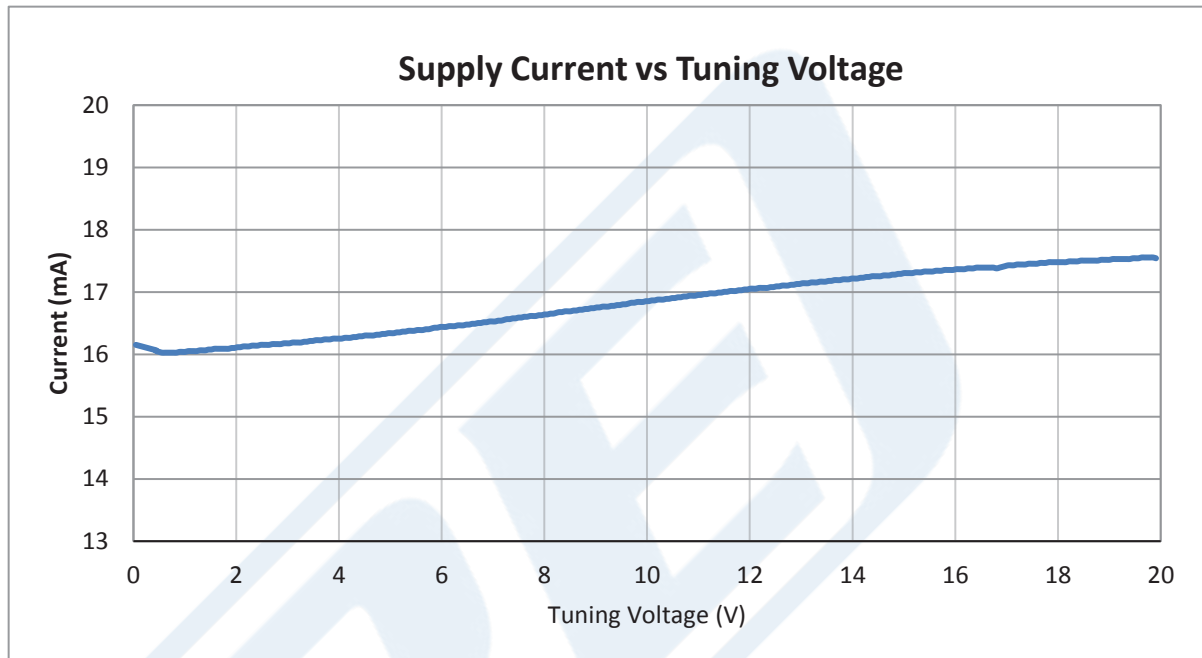
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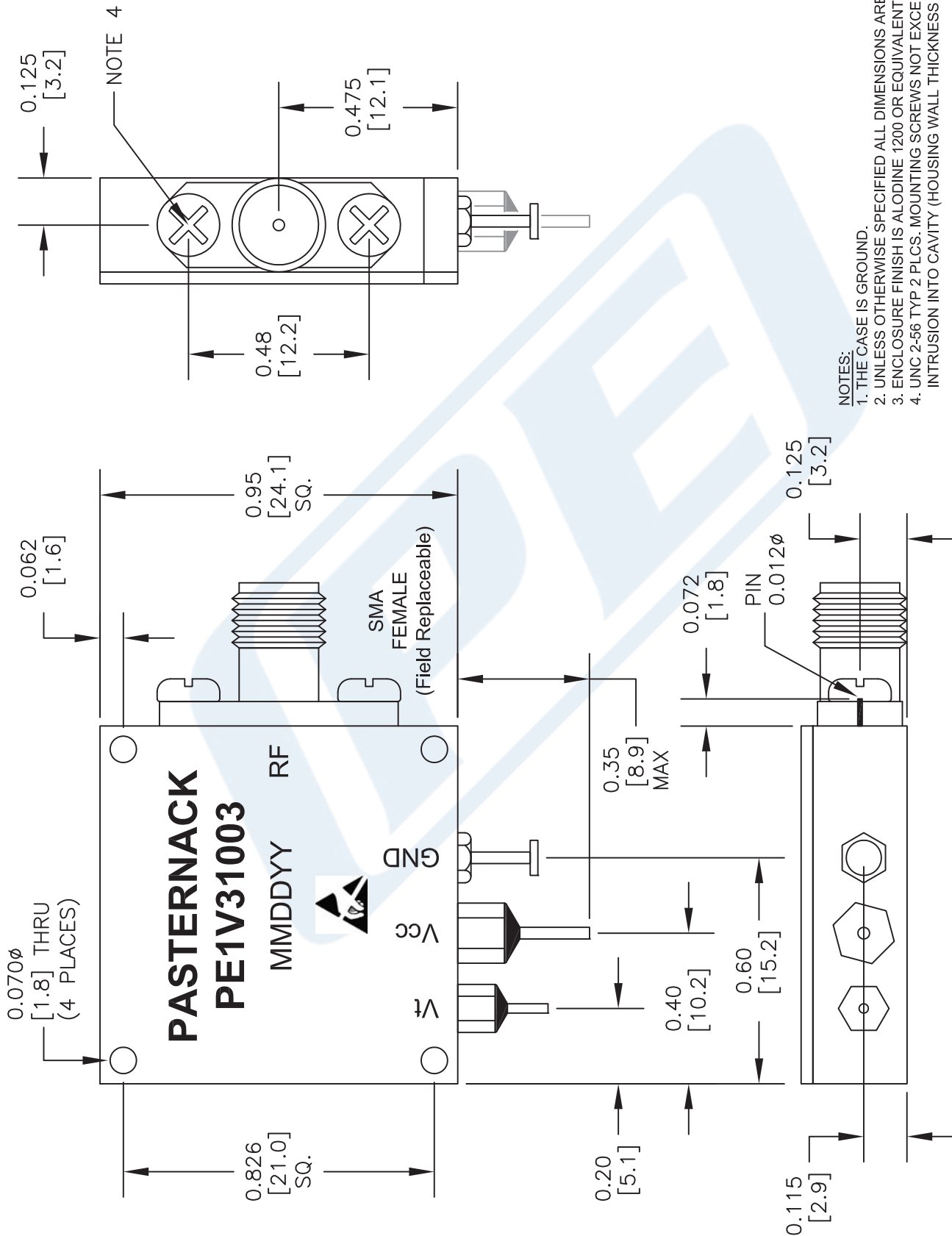
Voltage Controlled Oscillator (VCO) From 40 MHz to 80 MHz, Phase Noise of -117 dBc/Hz and SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

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 40 MHz to 80 MHz, Phase Noise of -117 dBc/Hz and SMA PE1V31003](https://www.pasternack.com/voltage-controlled-oscillator-vco-80-mhz-pe1v31003-p.aspx)

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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

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NOTES:

- NOTES:
1. THE CASE IS GROUND.
  2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES [mm].
  3. ENCLOSURE FINISH IS ALODINE 1200 OR EQUIVALENT.
  4. UNC 2-56 TYP 2 PLCS. MOUNTING SCREWS NOT EXCEED 0.062" INTRUSION INTO CAVITY (HOUSING WALL THICKNESS 0.125").

**DWG TITLE**

**PE1V31003**

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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FSCM NO. 53919

CAD FILE 040716

SCALE N/A

**SIZE A**

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