



## Voltage Controlled Oscillator (VCO) From 50 MHz to 100 MHz, Phase Noise of -115 dBc/Hz and SMA

### Voltage Control Oscillators Technical Data Sheet

PE1V31005

#### Features

- 50 to 100 MHz Bandwidth
- -115 dBc/Hz typ @ 10kHz offset
- Tuning Voltage 0.5V to 20V
- Pout = +12.0 dBm typ
- Harmonics = -12.0 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 PE1V31005 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 50 MHz to 100 MHz frequency band with a voltage tuning range from 0.5V to 20V. This design features exceptional phase noise performance of -115 dBc/Hz typ @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +12.0 dBm typ and 2nd harmonic output of -12.0 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             | 50      |         | 100     | MHz    |
| Tuning Voltage              | 0.5     |         | 20      | Vdc    |
| Supply Voltage (DC)         | 14      | 15      | 16      | Vdc    |
| Supply Current (DC)         |         | 18      | 22      | mA     |
| Phase Noise @ 1kHz Offset   |         | -88     | -86     | dBc/Hz |
| Phase Noise @ 10kHz Offset  |         | -115    | -113    | dBc/Hz |
| Phase Noise @ 100kHz Offset |         | -135    | -133    | dBc/Hz |
| Output Power                | +10     | +12     | +14     | dBm    |
| Tuning Sensitivity (Kvco)   | 2       |         | 5       | MHz/V  |
| Pushing                     |         | 0.05    | 0.1     | MHz/V  |
| Pulling (pk-pk)             |         | 100     | 200     | KHz    |
| Tuning Port Capacitance     |         | 82      |         | pF     |
| Load Impedance              |         | 50      |         | Ohms   |
| 2nd Harmonics               |         | -12     | -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 50 MHz to 100 MHz, Phase Noise of -115 dBc/Hz and SMA PE1V31005](#)



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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                    | 0.027 lbs [12.25 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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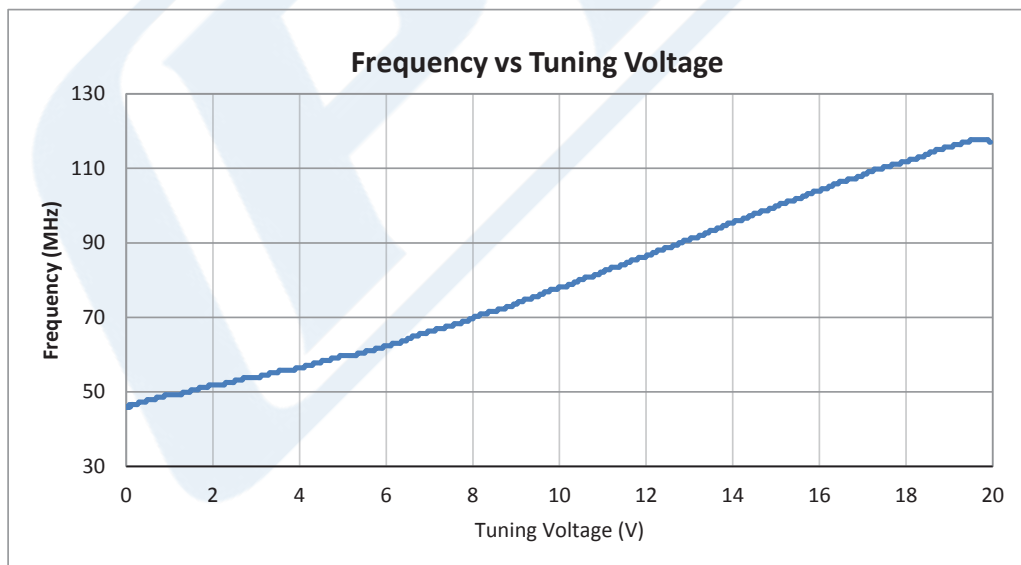
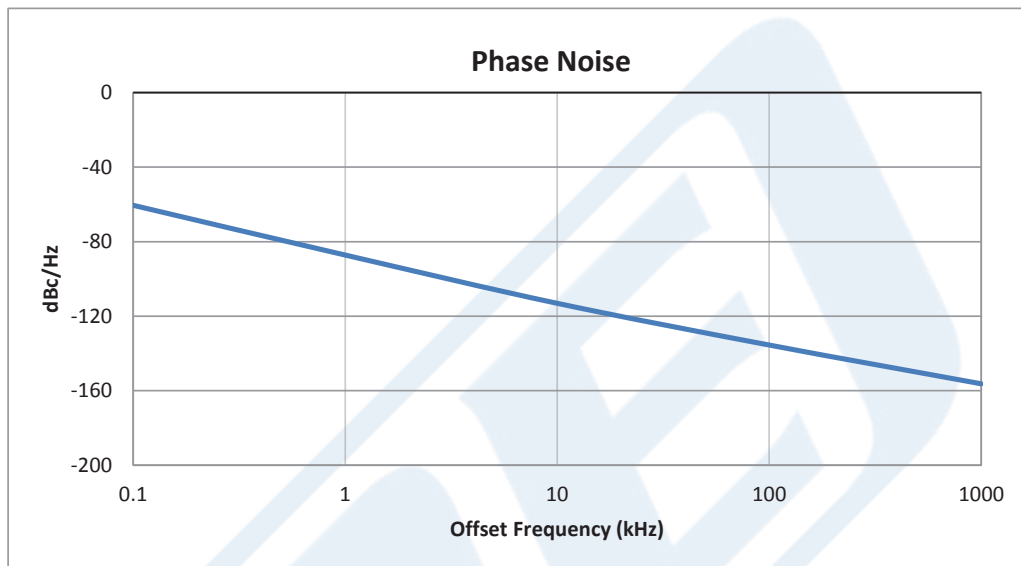


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PE1V31005

### Typical Performance Data



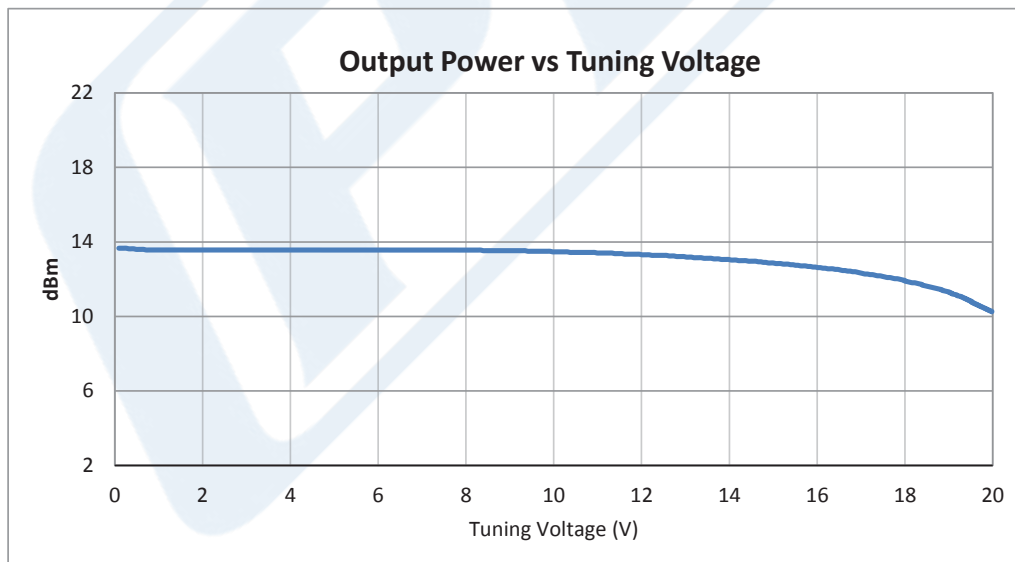
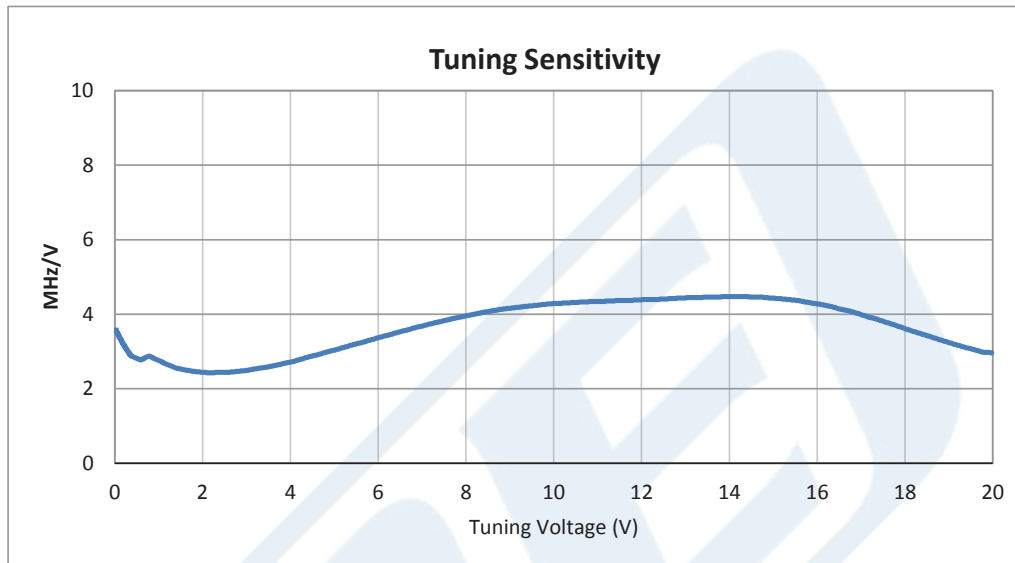
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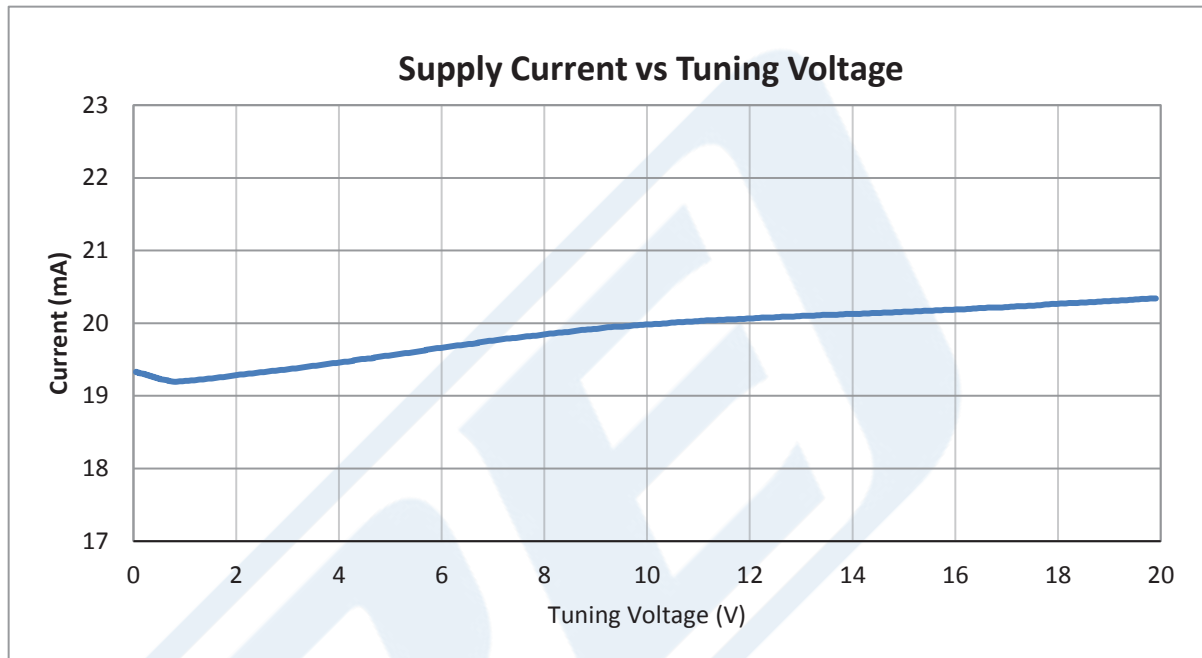
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Voltage Controlled Oscillator (VCO) From 50 MHz to 100 MHz, Phase Noise of -115 dBc/Hz and SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

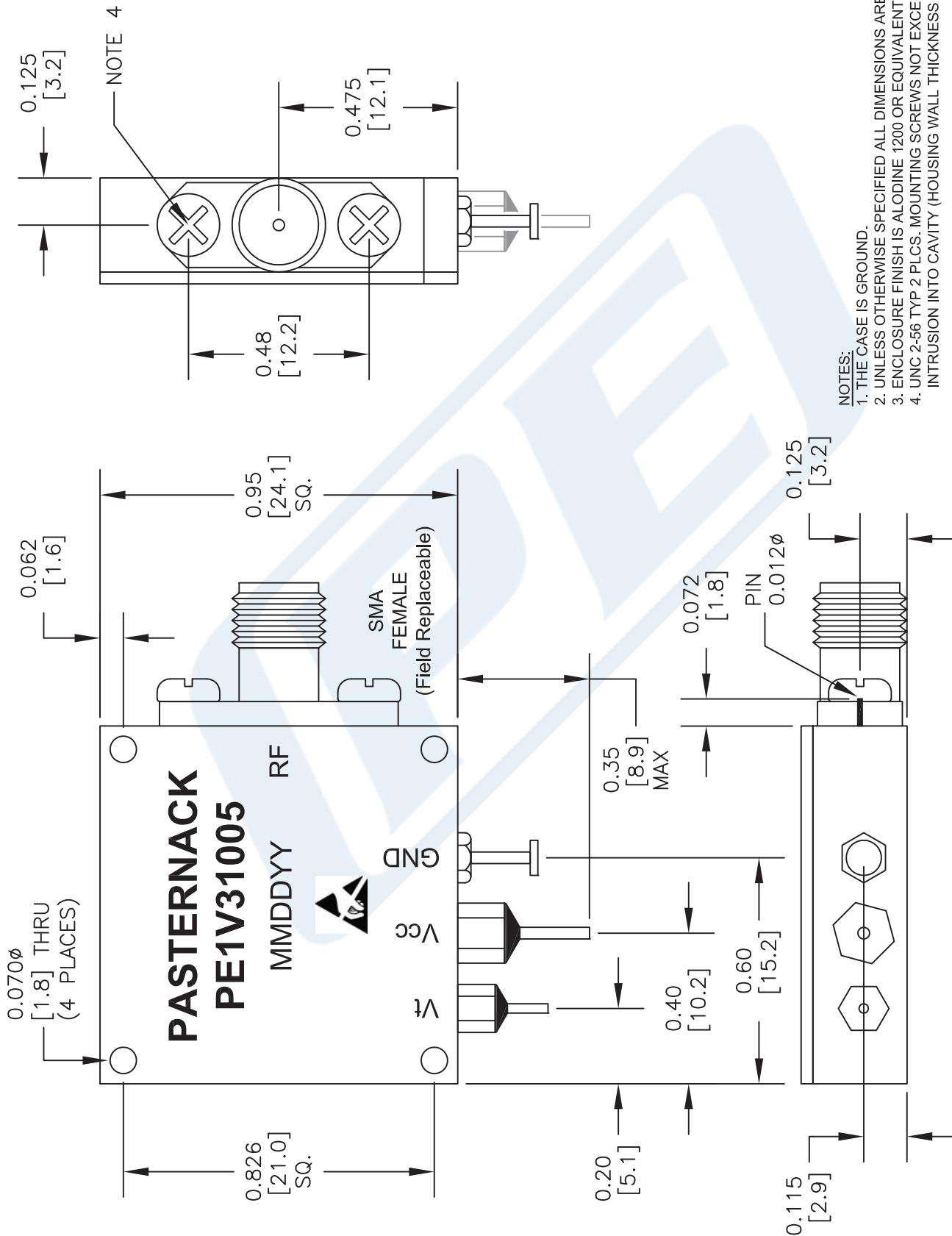
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. 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.

# PE1V31005 CAD Drawing

Voltage Controlled Oscillator (VCO) From 50 MHz to 100 MHz, Phase Noise of -115 dBc/Hz and SMA



## 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

**PE1V31005**

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

2233