



## Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 200 MHz to 400 MHz, Phase Noise of -106 dBc/Hz and 0.5 inch Hermetic Package

### Voltage Control Oscillators Technical Data Sheet

PE1V13011

#### Features

- 200 MHz to 400 MHz Bandwidth
- -106 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 20V
- Pout = +11 dBm
- Harmonics = -14 dBc
- RoHs Compliant Assembly
- Hermetically Sealed Rugged SMT Package
- Designed to meet Fine & Gross leak per MIL-STD-883 Method 1014
- 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 PE1V13011 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 200 MHz to 400 MHz frequency band with a voltage tuning range from 0V to 20V. This design features exceptional phase noise performance of -106 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V DC with a generated output power level of +11 dBm and 2nd harmonic output of -14 dBc typical. The assembly is RoHs compliant and available in a hermetically sealed 0.5" surface mount package with exposed leads that meets MIL-STD-883, Method 1014 fine & Gross leak conditions. This rugged package operates over a temperature range of -40°C to +85°C and is designed to also meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.

#### Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	200		400	MHz
Tuning Voltage	0		20	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		18	20	mA
Phase Noise @ 1kHz Offset		-78	-76	dBc/Hz
Phase Noise @ 10kHz Offset		-106	-104	dBc/Hz
Phase Noise @ 100kHz Offset		-126	-124	dBc/Hz
Output Power	+10	+11	+12	dBm
Tuning Sensitivity (Kvco)	8		20	MHz/V
Pushing		0.4	0.8	MHz/V
Pulling (pk-pk)		200	500	KHz
Tuning Port Capacitance		47		pF
Load Impedance		50		Ohms
2nd Harmonics		-14	-12	dBc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Surface Mount \(SMT\) Voltage Controlled Oscillator \(VCO\) From 200 MHz to 400 MHz, Phase Noise of -106 dBc/Hz and 0.5 inch Hermetic Package PE1V13011](#)



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### Mechanical Specifications

#### Size

Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.215 in [5.46 mm]
Weight	0.02 lbs [9.07 g]
Body Material and Plating	Copper Clad, Nickel, Gold
Design	Hermetic

### 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

Hermetic Seal

Fine Leak MIL-STD-883 Method 1014C/Gross Leak

MIL-STD-883, Method 1014A, 1 x 10<sup>-8</sup> atm cc/s

ESD Sensitivity

ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.



### Compliance Certifications (visit [www.Pasternack.com](http://www.Pasternack.com) for current document)

RoHS Compliant

REACH Compliant

12/17/2015

### Plotted and Other Data

Notes:

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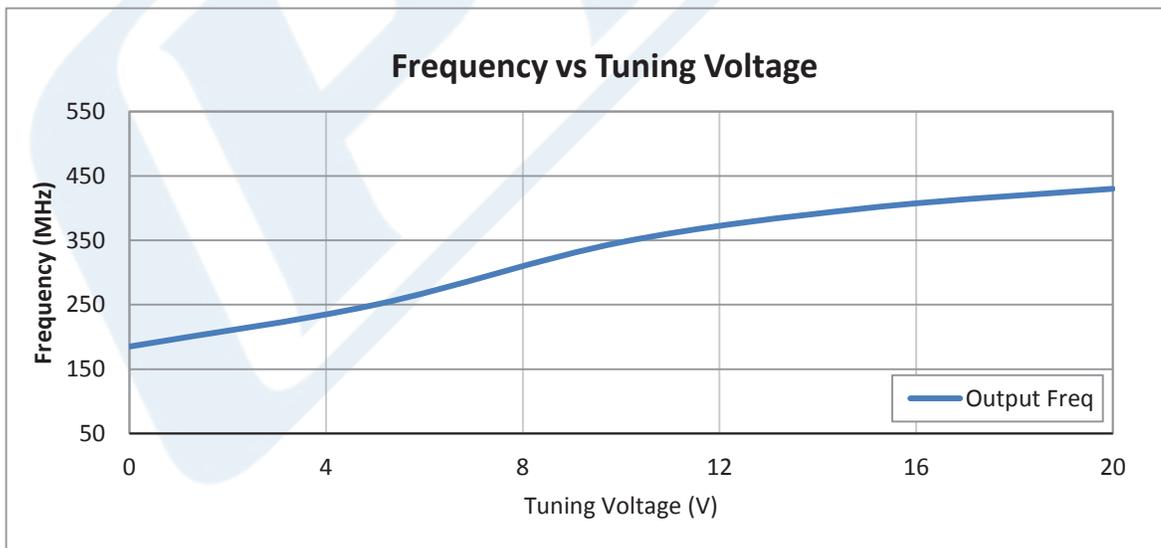
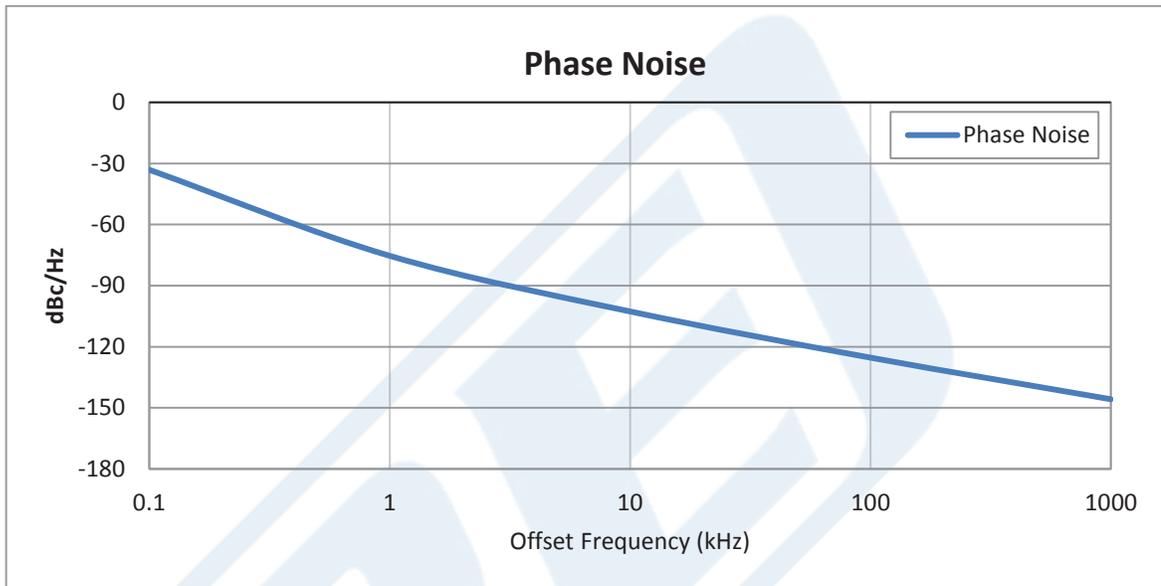


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Typical Performance Data



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Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 200 MHz to 400 MHz, Phase Noise of -106 dBc/Hz and 0.5 inch Hermetic Package from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

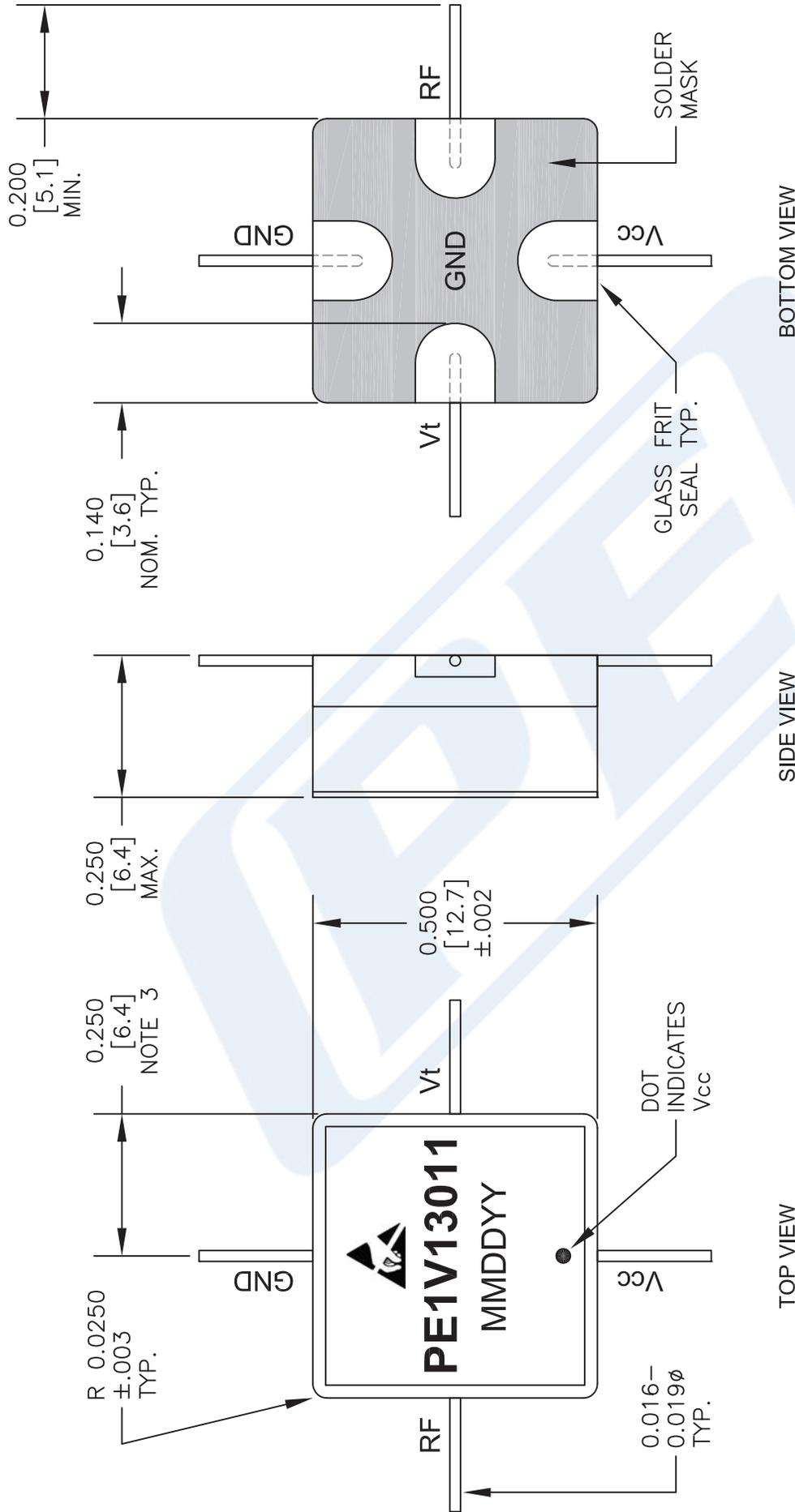
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# PE1V13011 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 200 MHz to 400 MHz, Phase Noise of -106 dBc/Hz and 0.5 inch Hermetic Package



- NOTES:
1. LEAD / BODY BASE MATERIAL IS KOVAR.
  2. LEAD / BODY FINISH IS 50U" GOLD / NI.
  3. MEASURED WITHIN .05" OF BODY.

DWG TITLE

**PE1V13011**

- 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 021116

SCALE N/A

SIZE A

2233

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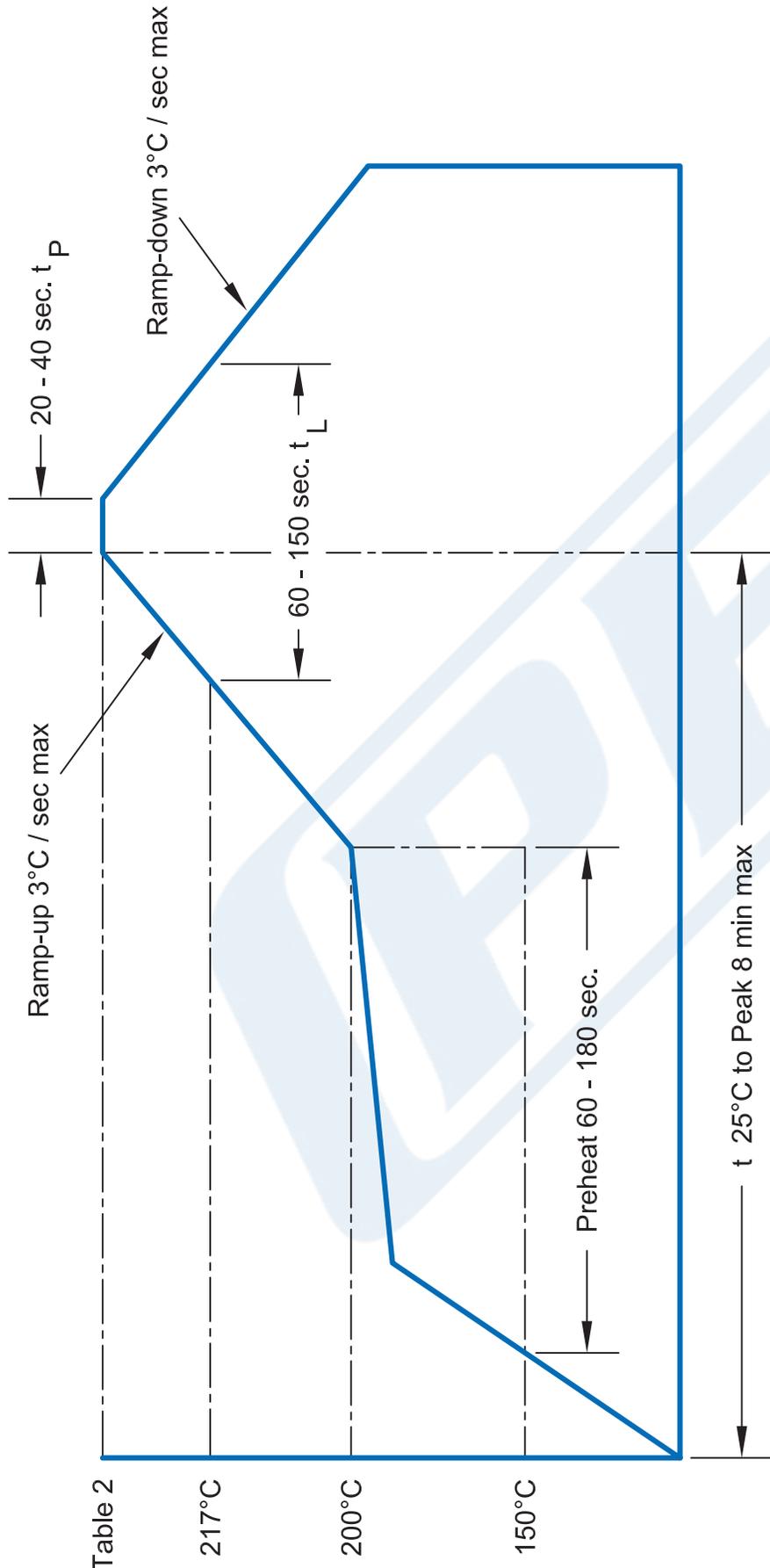


Table 2

217°C

200°C

150°C

Table 1

Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

Table 2

Package re-flow temp	
Pkg.	tp (°C)
PE2V Series	260
PE1V11 Series	245
All Others	245

**NOTES:**

1. ALL VCO'S HAVE A MS RATING OF 1
2. ALL PRODUCTS CONFORM TO JEDEC J-STD-020C FOR LEAD FREE PROCESSING.

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