



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 800 MHz to 1.6 GHz, Phase Noise of -93 dBc/Hz and 0.175 inch Package

Voltage Control Oscillators Technical Data Sheet

PE2V004

Features

- 800 MHz to 1,600 MHz Bandwidth
- -93 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 18V
- Pout = +11.0 dBm
- Harmonics = -17 dBc
- RoHS Compliant Assembly
- 0.175" SMT package
- Industry Standard Mounting Footprint
- 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 PE2V004 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 800 MHz to 1,600 MHz frequency band with a voltage tuning range from 0V to 18V. This design features exceptional phase noise performance of -93 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V with a generated output power level of +11.0 dBm and 2nd harmonic output of -17 dBc typical. The assembly is RoHS compliant and available in a compact 0.5 inch SMT package with an industry standard mounting footprint. The bottom surface is copper clad with 2-5 micro inches of immersion Gold over 150 - 250 micro inches of Electro less Nickel which makes it resistant to oxidation for ease of soldering. 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	0.8		1.6	GHz
Tuning Voltage	0		18	Vdc
Supply Voltage (DC)	4.75	5	5.25	Vdc
Supply Current (DC)		23	25	mA
Phase Noise @ 10kHz Offset		-93	-90	dBc/Hz
Phase Noise @ 100kHz Offset		-113	-110	dBc/Hz
Output Power	+10	+11	+13	dBm
Tuning Sensitivity (Kvco)	30		70	MHz/V
Pushing		4	6	MHz/V
Pulling (pk-pk)		20	30	MHz
Load Impedance		50		Ohms
2nd Harmonics		-17	-15	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 800 MHz to 1.6 GHz, Phase Noise of -93 dBc/Hz and 0.175 inch Package PE2V004](#)



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Mechanical Specifications

Size

Length	0.175 in [4.45 mm]
Width	0.175 in [4.45 mm]
Height	0.075 in [1.91 mm]
Weight	0.01 lbs [4.54 g]
Body Material and Plating	Copper Clad, Nickel, Gold
Design	Commercial

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 (visit www.Pasternack.com for current document)

RoHS Compliant

REACH Compliant

12/17/2015

Plotted and Other Data

Notes:

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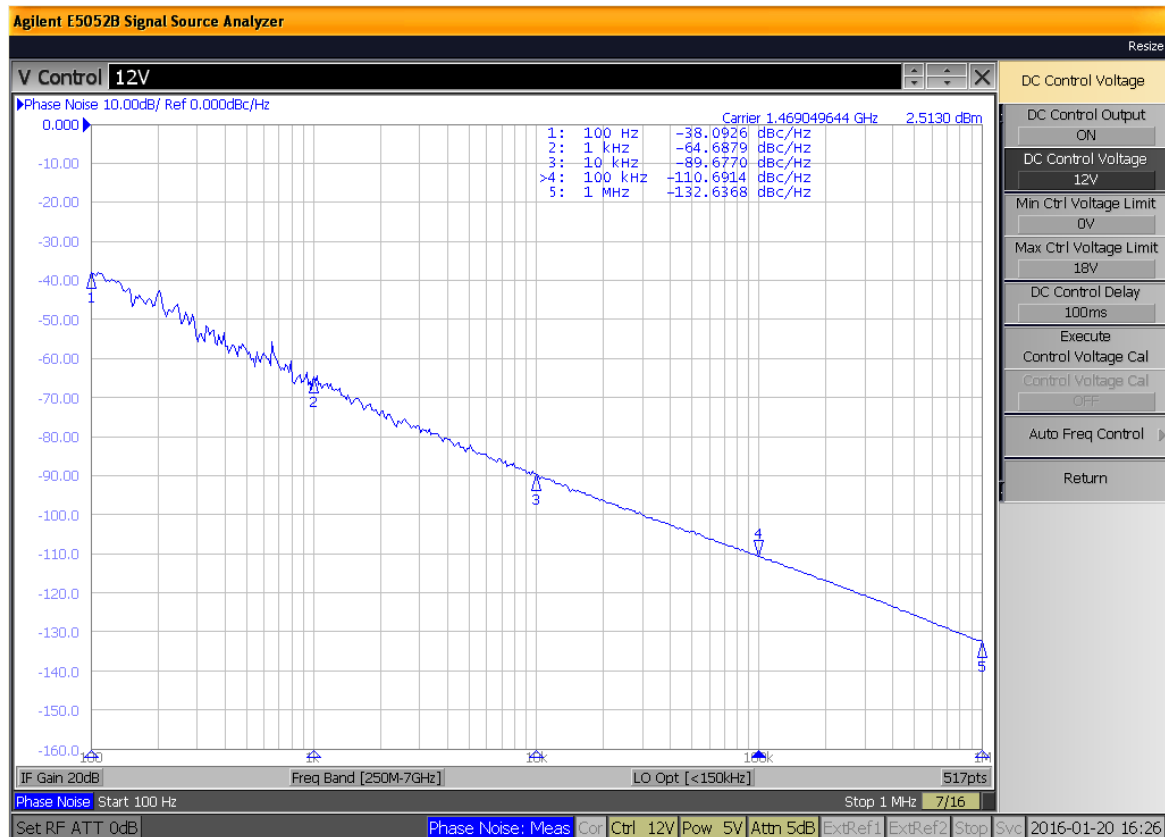


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Typical Performance Data



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Tuning, Pout, and Current

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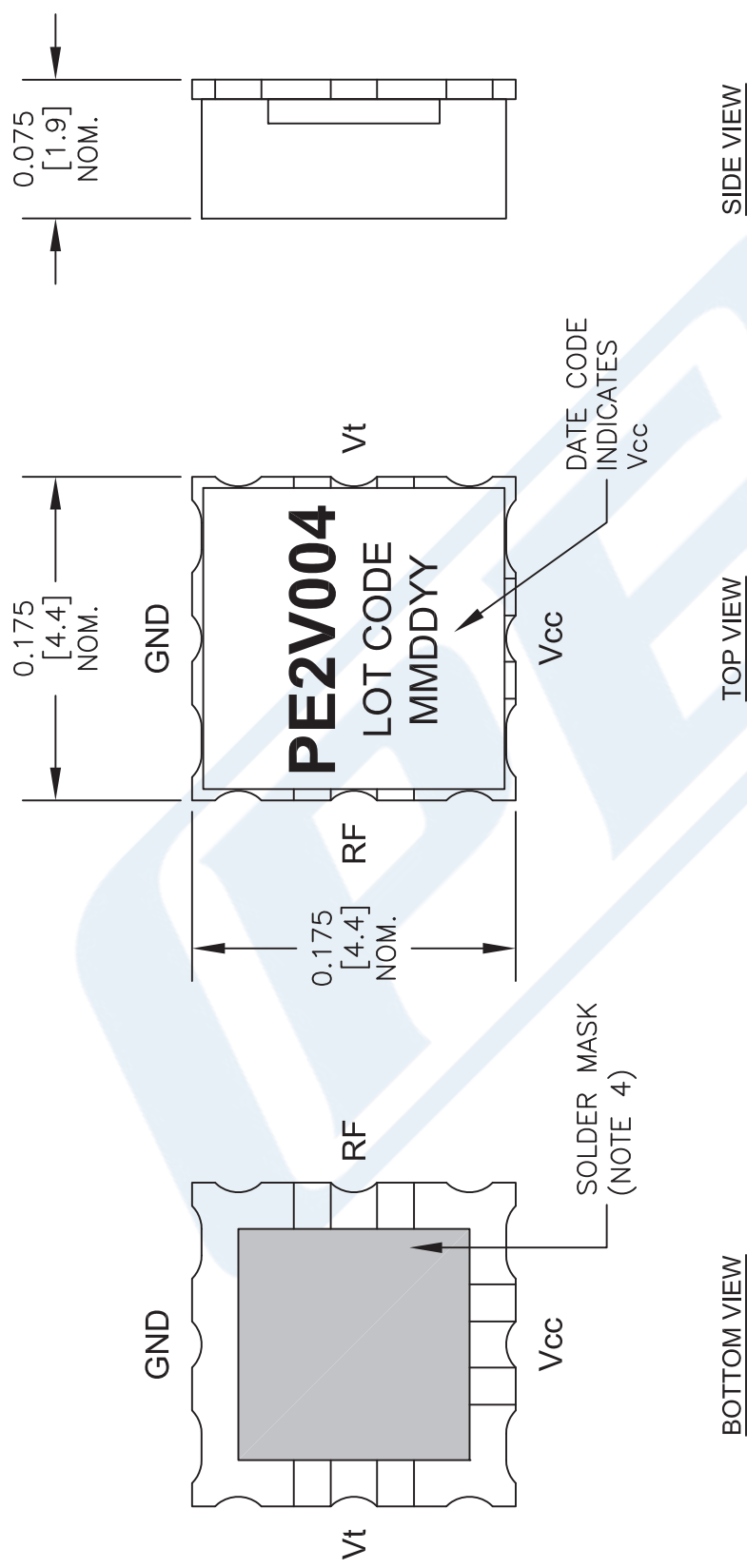
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PE2V004 CAD Drawing

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- NOTES:
1. THE CASE IS GROUND.
 2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES [mm].
 3. UNLESS OTHERWISE SPECIFIED FINISH IS 150-250 MICRO INCHES ELECTROLESS NICKEL OVER COPPER CLAD PCB, 2-5 MICRO INCHES IMMERSION GOLD, OVER NICKEL.
 4. SOLDER MASK NOT USED FOR APPLICATIONS GREATER THAN 6GHz.

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DWG TITLE
PE2V004

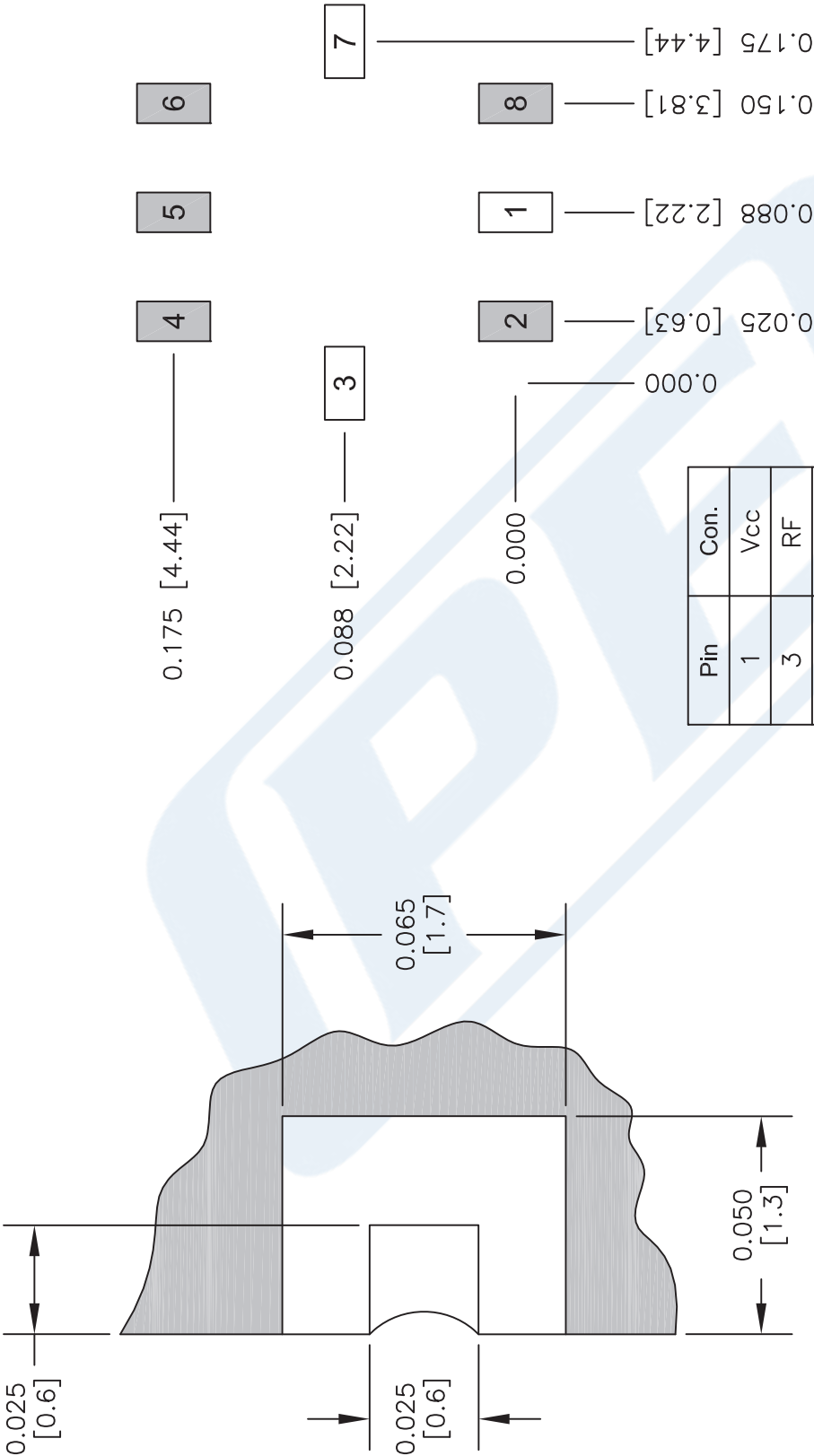
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NOTES:
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PAD DETAIL

PCB PAD LAYOUT

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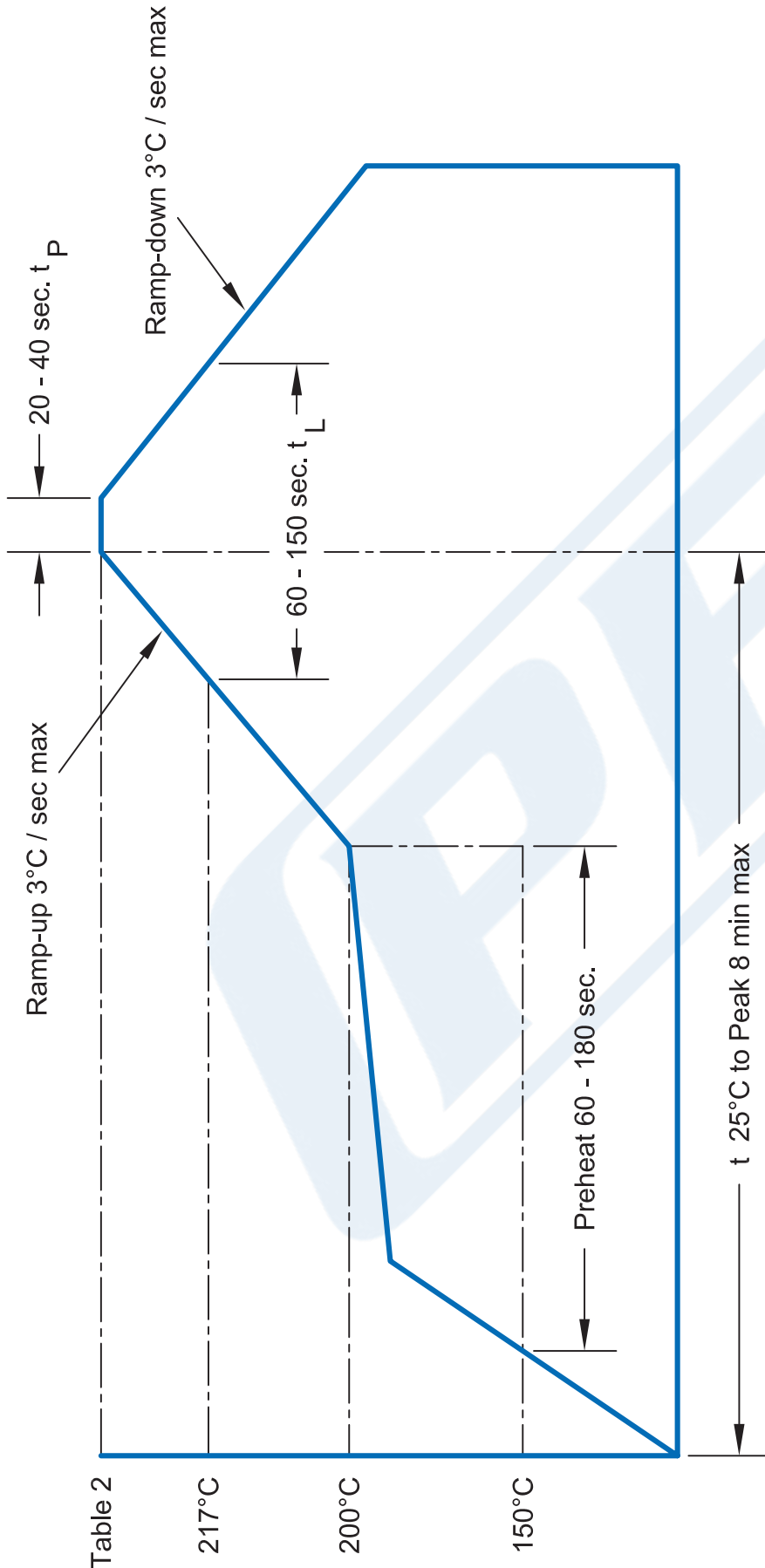


Table 2

217°C

200°C

150°C

Preheat 60 - 180 sec.

t 25°C to Peak 8 min max

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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