



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 75 MHz to 150 MHz, Phase Noise of -110 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet

PE1V11008

Features

- 75 to 150 MHz Bandwidth
- -110 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 18V
- Pout = +11 dBm
- Harmonics = -20 dBc
- RoHs Compliant Assembly
- 0.5" 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 PE1V11008 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 75 MHz to 150 MHz frequency band with a voltage tuning range from 0V to 18V. This design features exceptional phase noise performance of -110 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11 dBm and 2nd harmonic output of -20 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 | 75 | | 150 | MHz |
| Tuning Voltage | 0 | | 18 | Vdc |
| Supply Voltage (DC) | 14 | 15 | 16 | Vdc |
| Supply Current (DC) | | 18 | 20 | mA |
| Phase Noise @ 1kHz Offset | | -83 | -80 | dBc/Hz |
| Phase Noise @ 10kHz Offset | | -110 | -108 | dBc/Hz |
| Phase Noise @ 100kHz Offset | | -130 | -129 | dBc/Hz |
| Output Power | +10 | +11 | +12 | dBm |
| Tuning Sensitivity (Kvco) | 3 | | 8 | MHz/V |
| Pushing | | 0.2 | 0.4 | MHz/V |
| Pulling (pk-pk) | | 400 | 800 | KHz |
| Tuning Port Capacitance | | 100 | | pF |
| Load Impedance | | 50 | | Ohms |
| 2nd Harmonics | | -20 | -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 75 MHz to 150 MHz, Phase Noise of -110 dBc/Hz and 0.5 inch Package PE1V11008](#)



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Mechanical Specifications

Size

| | |
|---------------------------|---------------------------|
| Length | 0.5 in [12.7 mm] |
| Width | 0.5 in [12.7 mm] |
| Height | 0.13 in [3.3 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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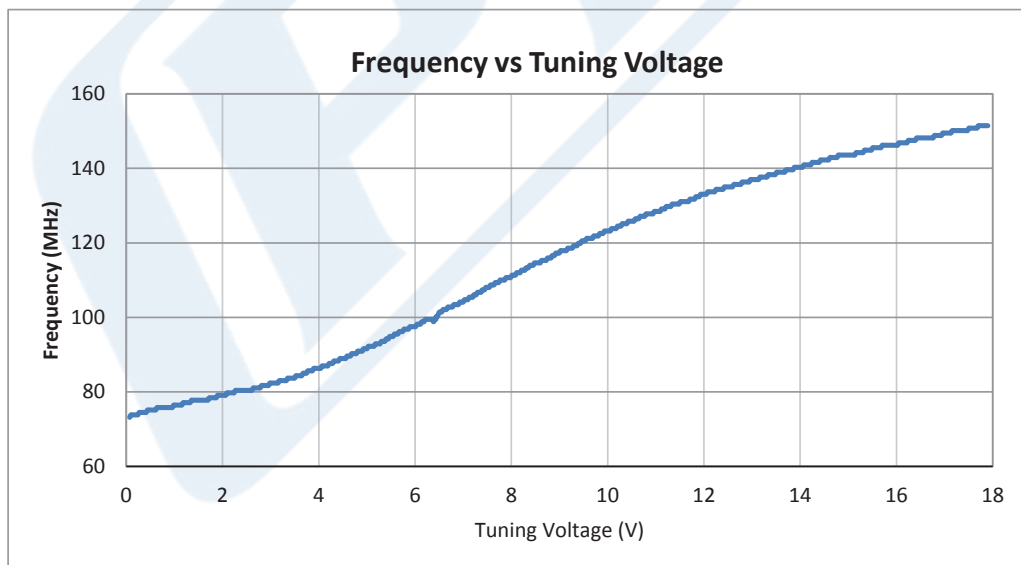
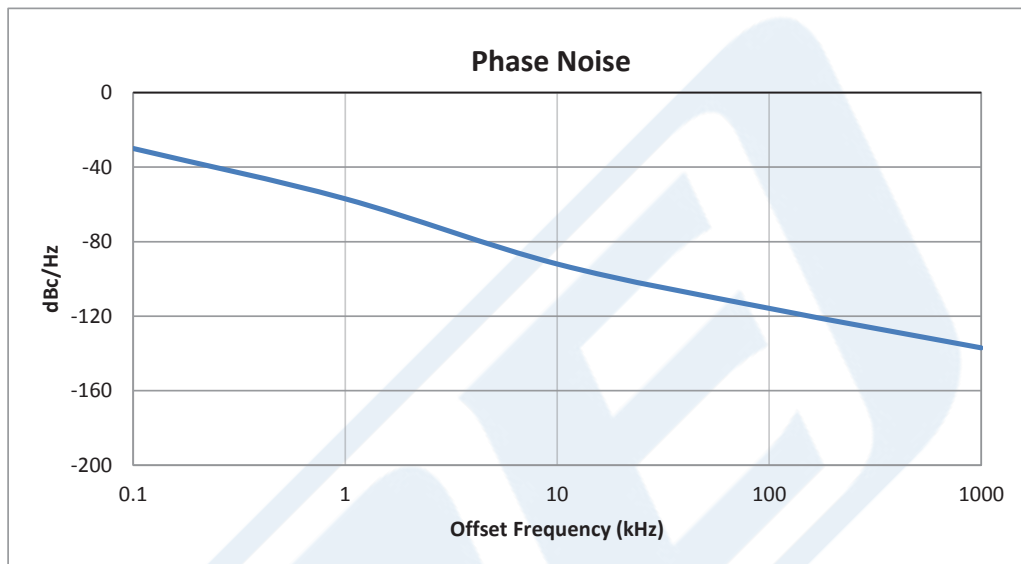


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Typical Performance Data



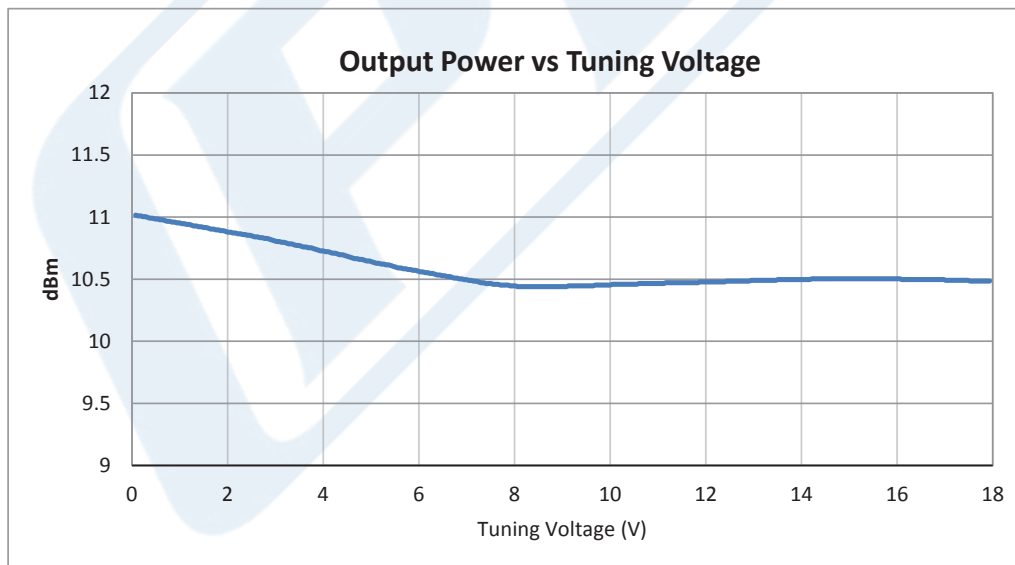
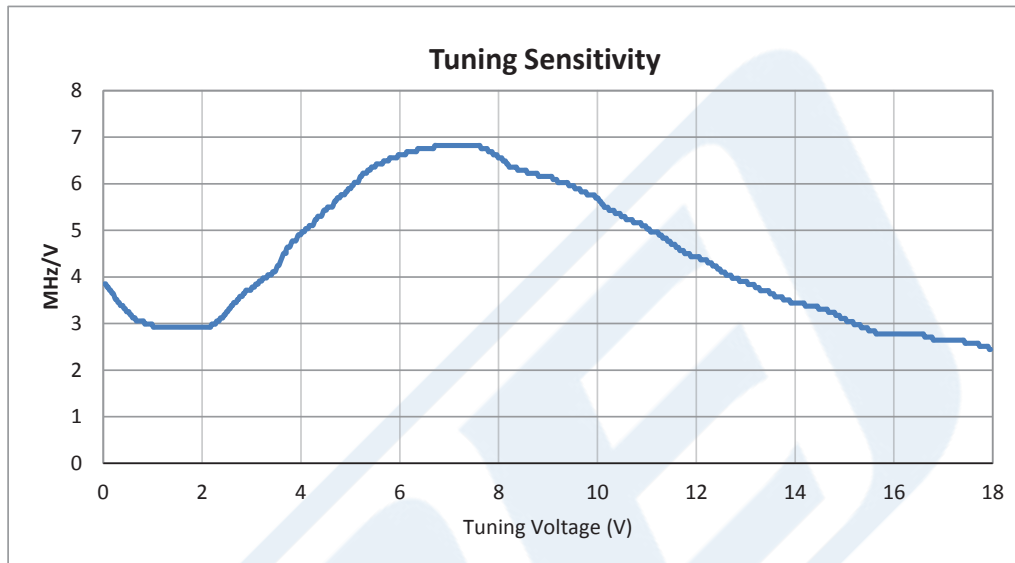
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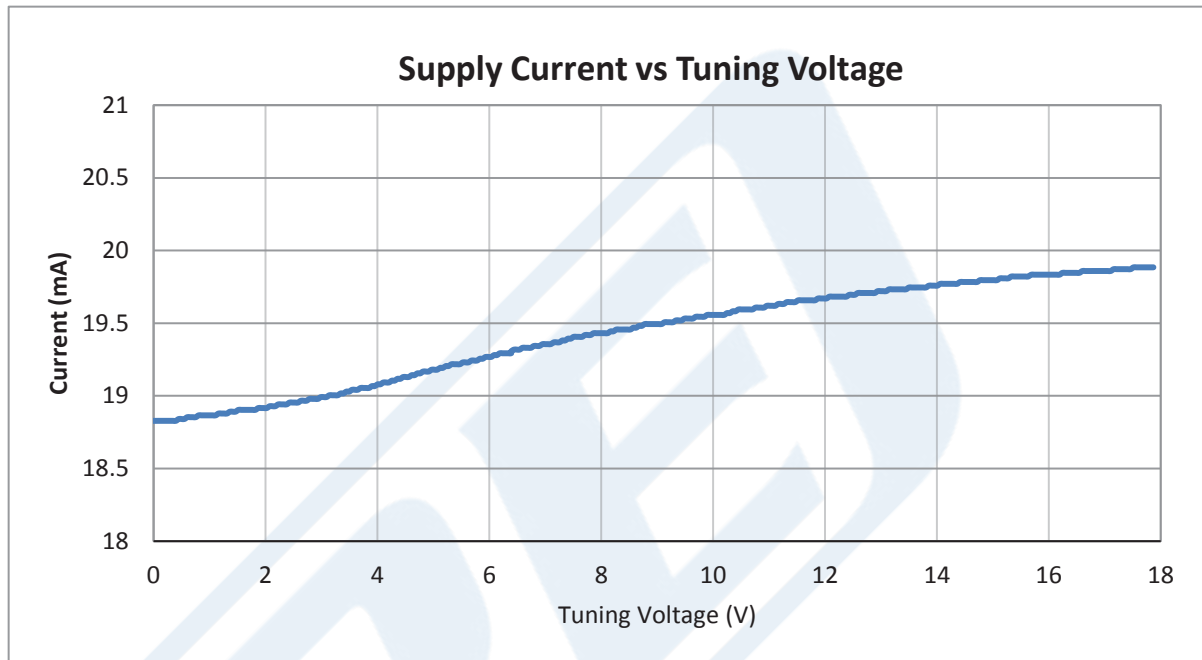
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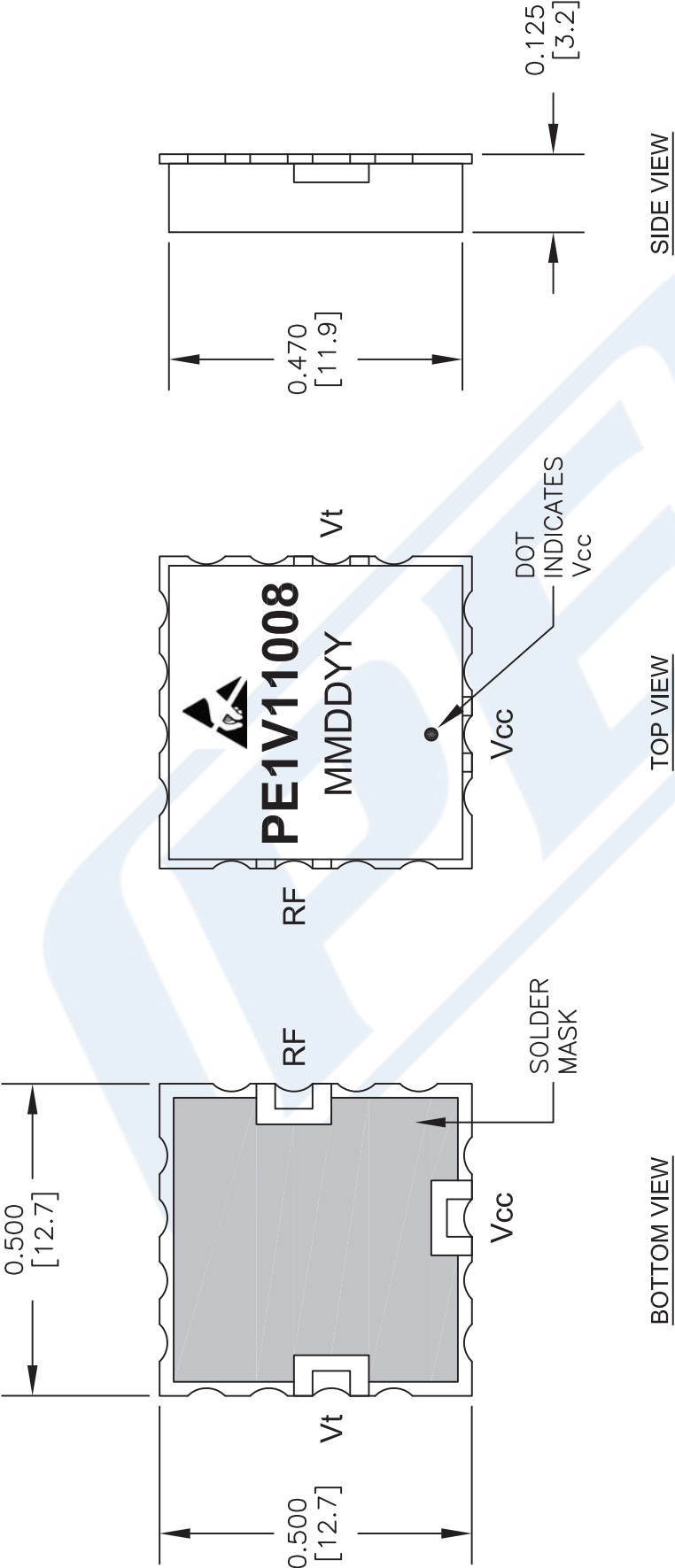
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements.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

PE1V11008 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. MOD PORT NOT AVAILABLE ON ALL MODELS.

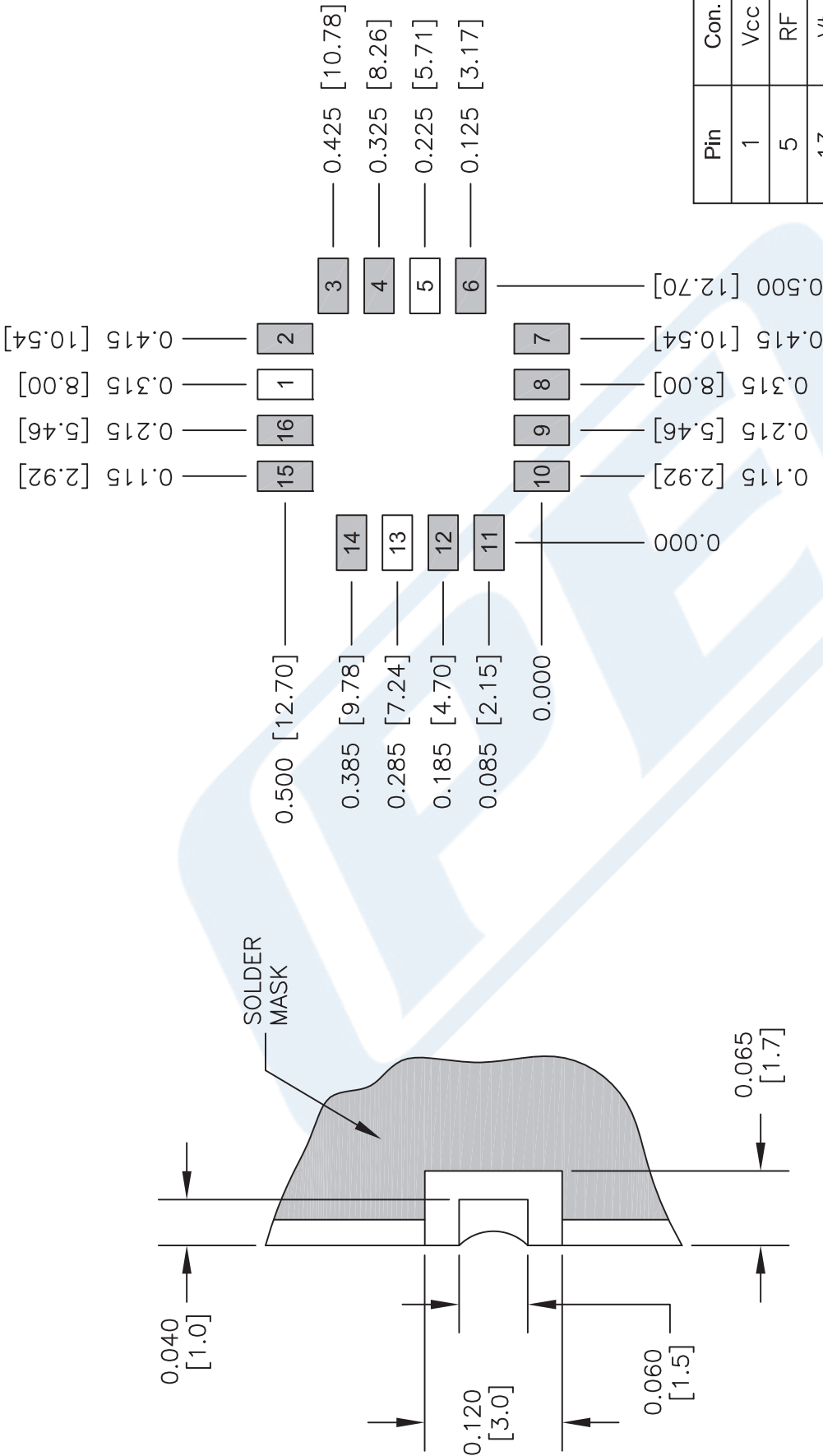
NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
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3. DIMENSIONS ARE IN INCHES [mm].

| | | | | | | | | | | | |
|-----------|--|----------------|--|-----------------|--|-----------|--|--------|--|------|--|
| DWG TITLE | | FSCM NO. 53919 | | CAD FILE 021216 | | SCALE N/A | | SIZE A | | 2233 | |
| PE1V11008 | | | | | | | | | | | |

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DWG TITLE

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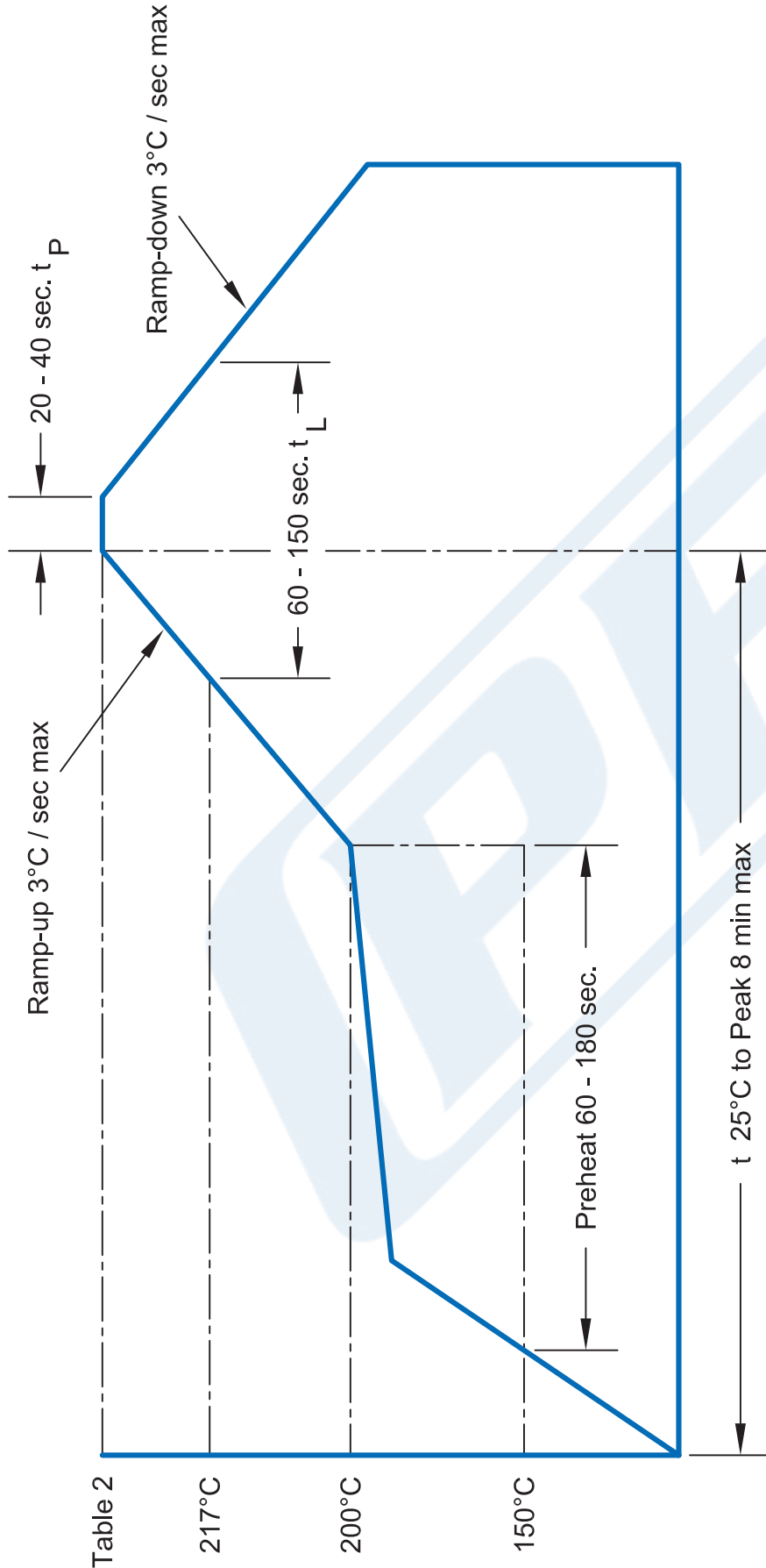
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SIZE A

2233

PE1V11008 CAD Drawing

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| 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.

DWG TITLE

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