



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 18 MHz to 30 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet

PE1V11001

Features

- 18 to 30 MHz Bandwidth
- -120 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0v to 12v
- Pout = +12 dBm
- Harmonics = -13 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 PE1V11001 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 18 MHz to 30 MHz frequency band with a voltage tuning range from 0.0V to 12V. This design features exceptional phase noise performance of -120 dBc/Hz @ 10 kHz offset. Supply Voltage is +12V with a generated output power level of +12 dBm and 2nd harmonic output of -13 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	18		30	MHz
Tuning Voltage	0		12	Vdc
Supply Voltage (DC)	11	12	13	Vdc
Supply Current (DC)		16	19	mA
Phase Noise @ 1kHz Offset		-95	-92	dBc/Hz
Phase Noise @ 10kHz Offset		-120	-118	dBc/Hz
Phase Noise @ 100kHz Offset		-140	-138	dBc/Hz
Output Power	+10	+12	+13.5	dBm
Tuning Sensitivity (Kvco)	0.9		1.8	MHz/V
Pushing		0.03	0.05	MHz/V
Pulling (pk-pk)		70	100	KHz
Tuning Port Capacitance		100		pF
Load Impedance		50		Ohms
2nd Harmonics		-13	-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 18 MHz to 30 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11001](#)



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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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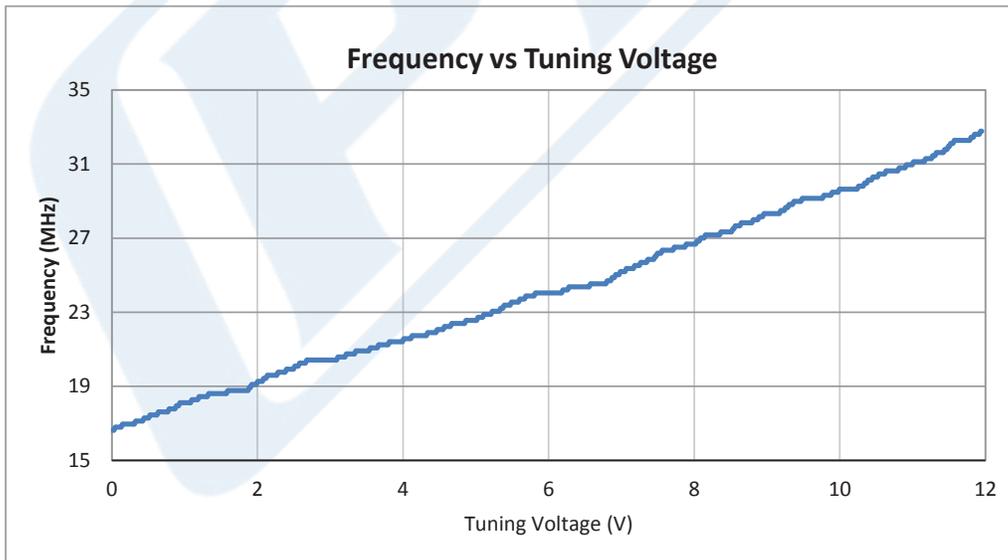
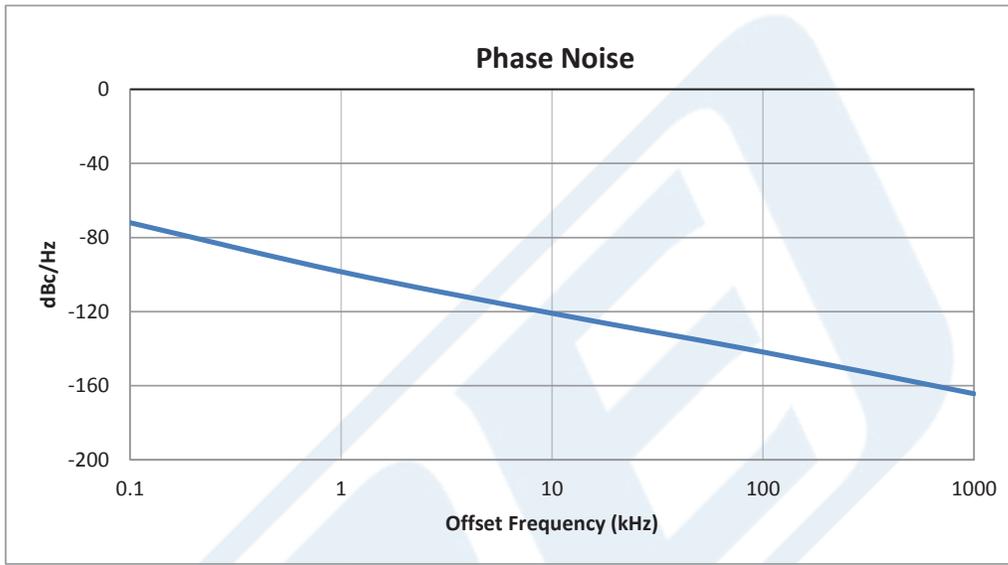


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Typical Performance Data



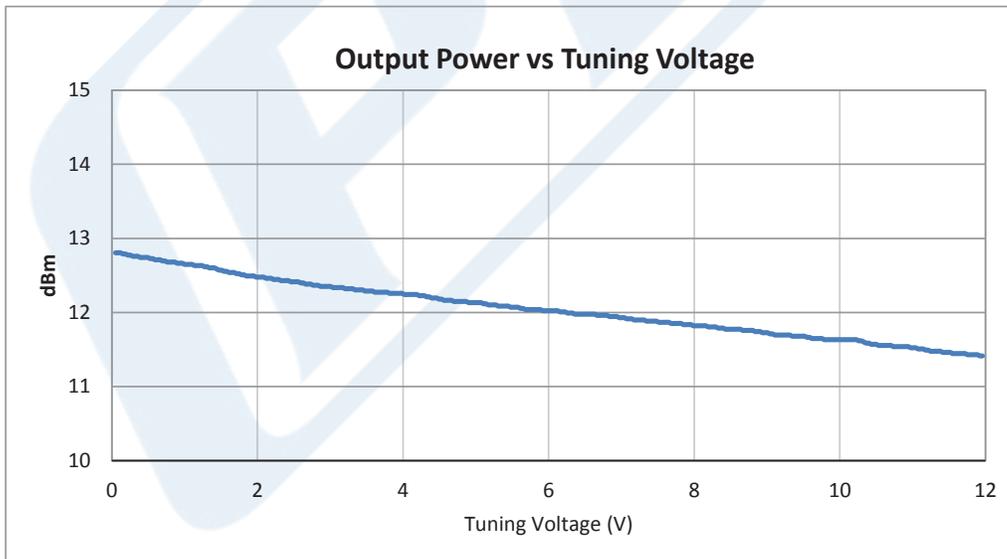
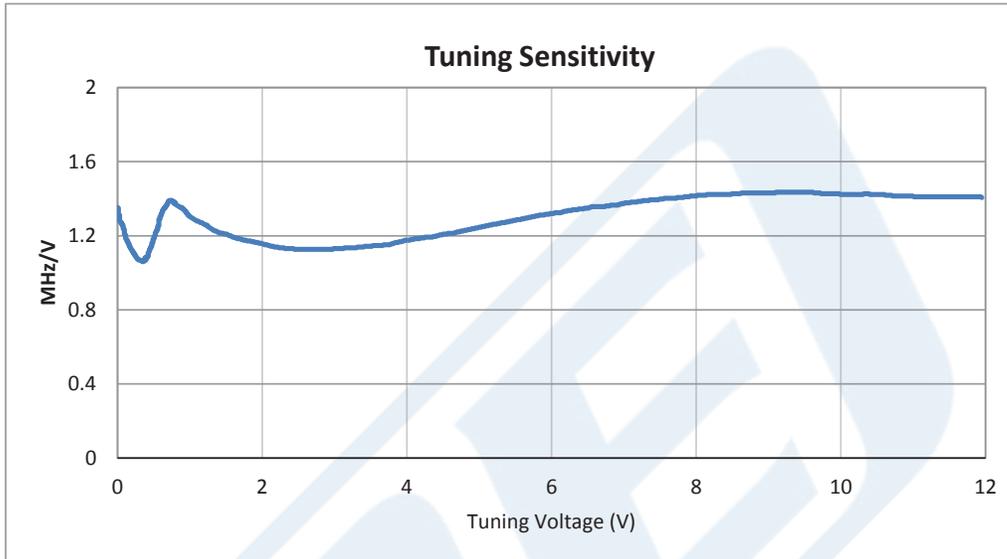
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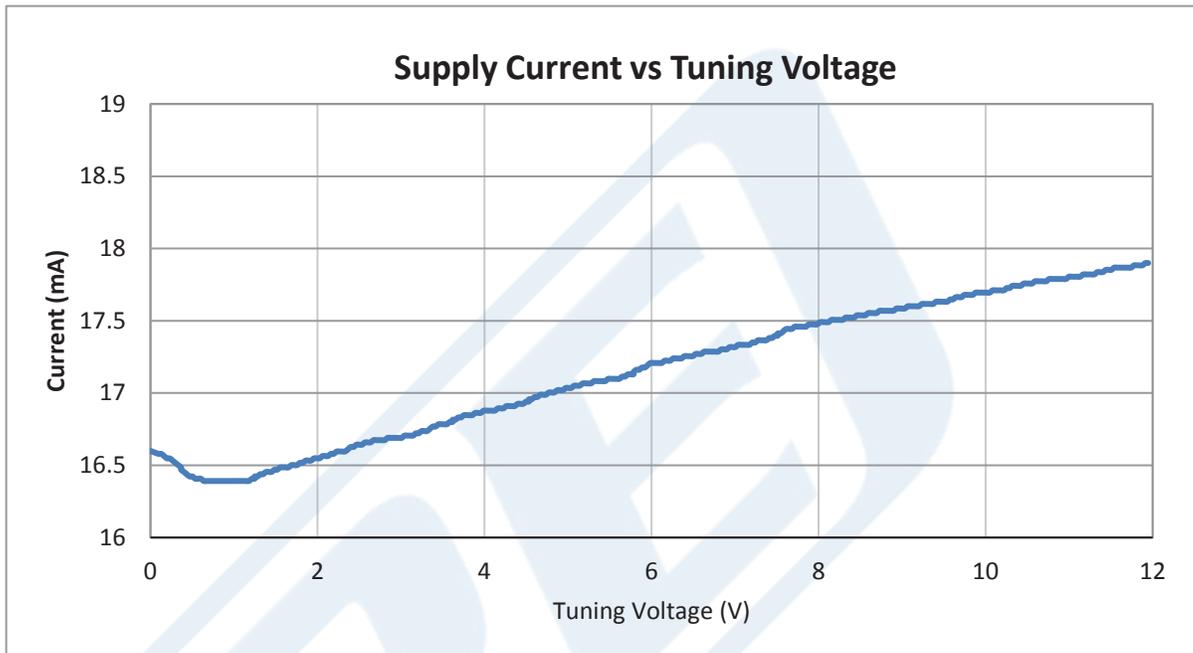
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Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 18 MHz to 30 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

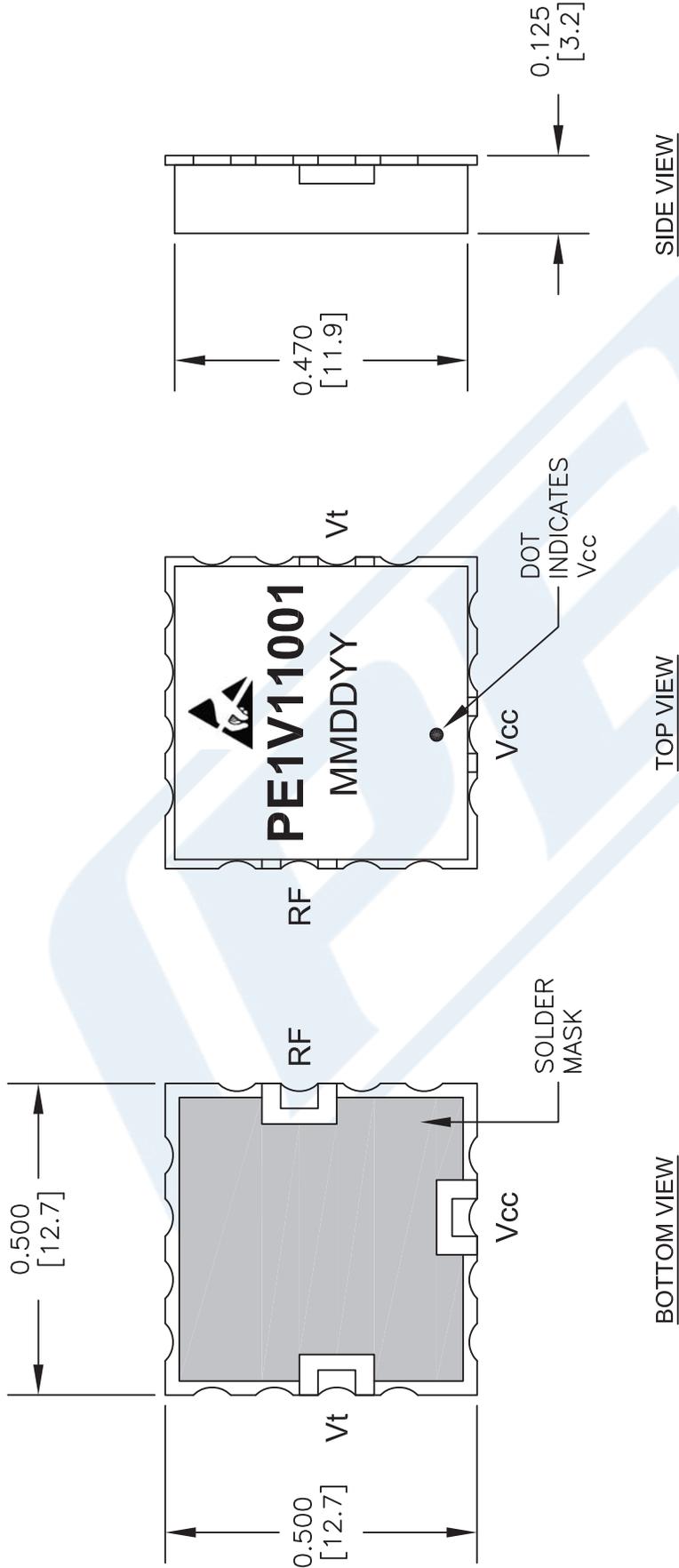
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PE1V11001 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 18 MHz to 30 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



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.

DWG TITLE

PE1V11001

- NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
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FSCM NO. 53919

CAD FILE 021216

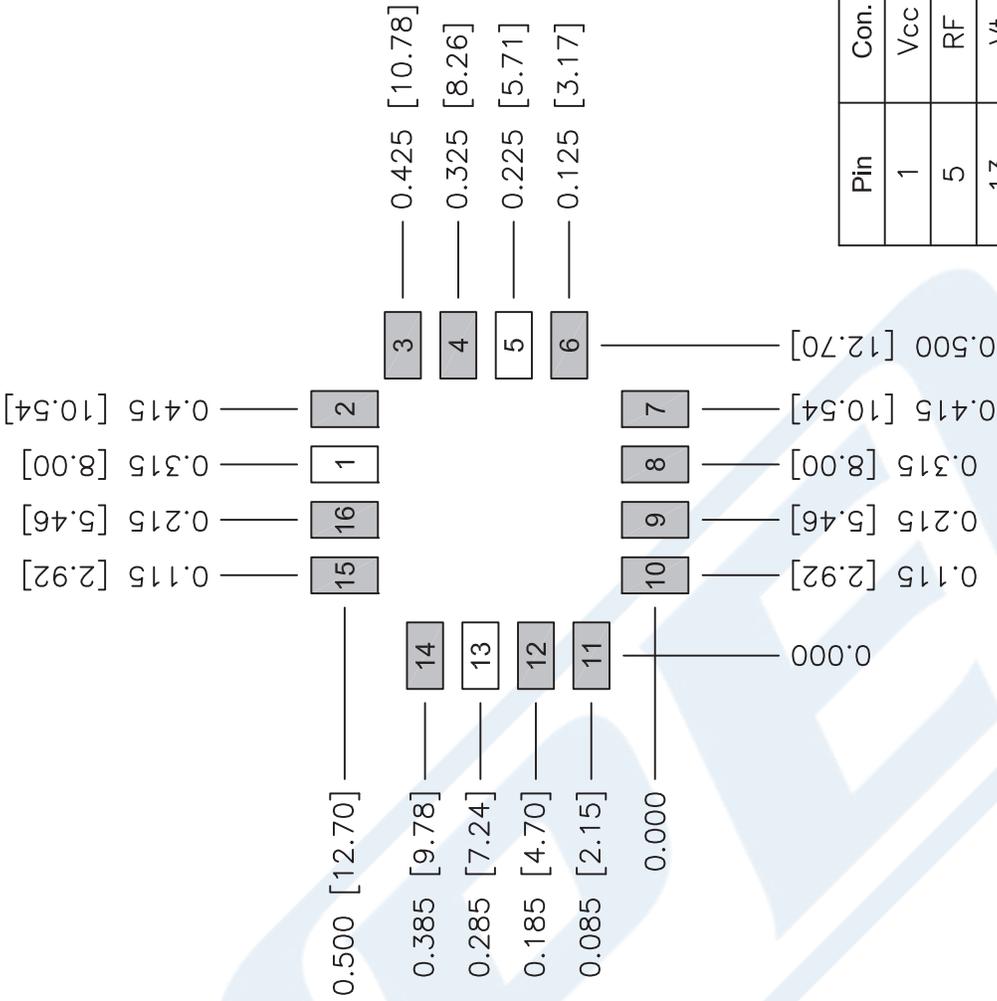
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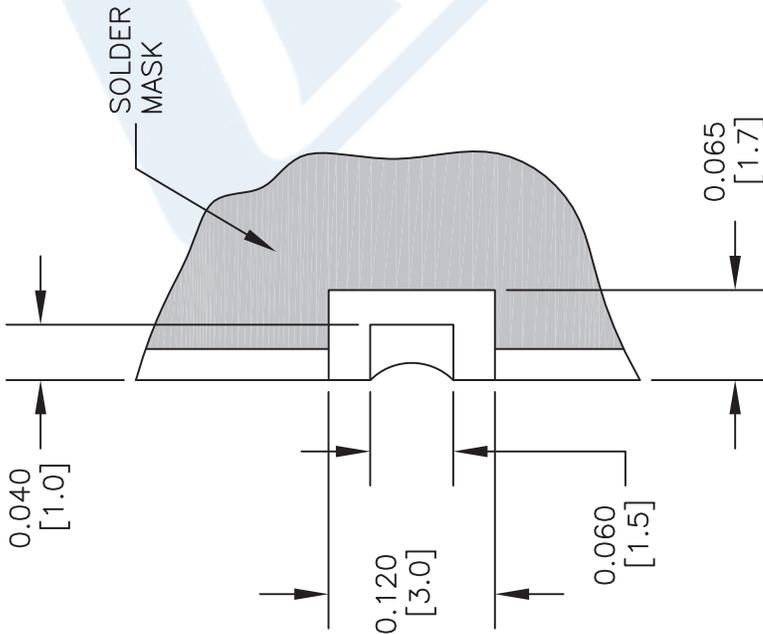
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Pin	Con.
1	V _{CC}
5	RF
13	V _t
Others	GND

PCB PAD LAYOUT



PAD DETAIL

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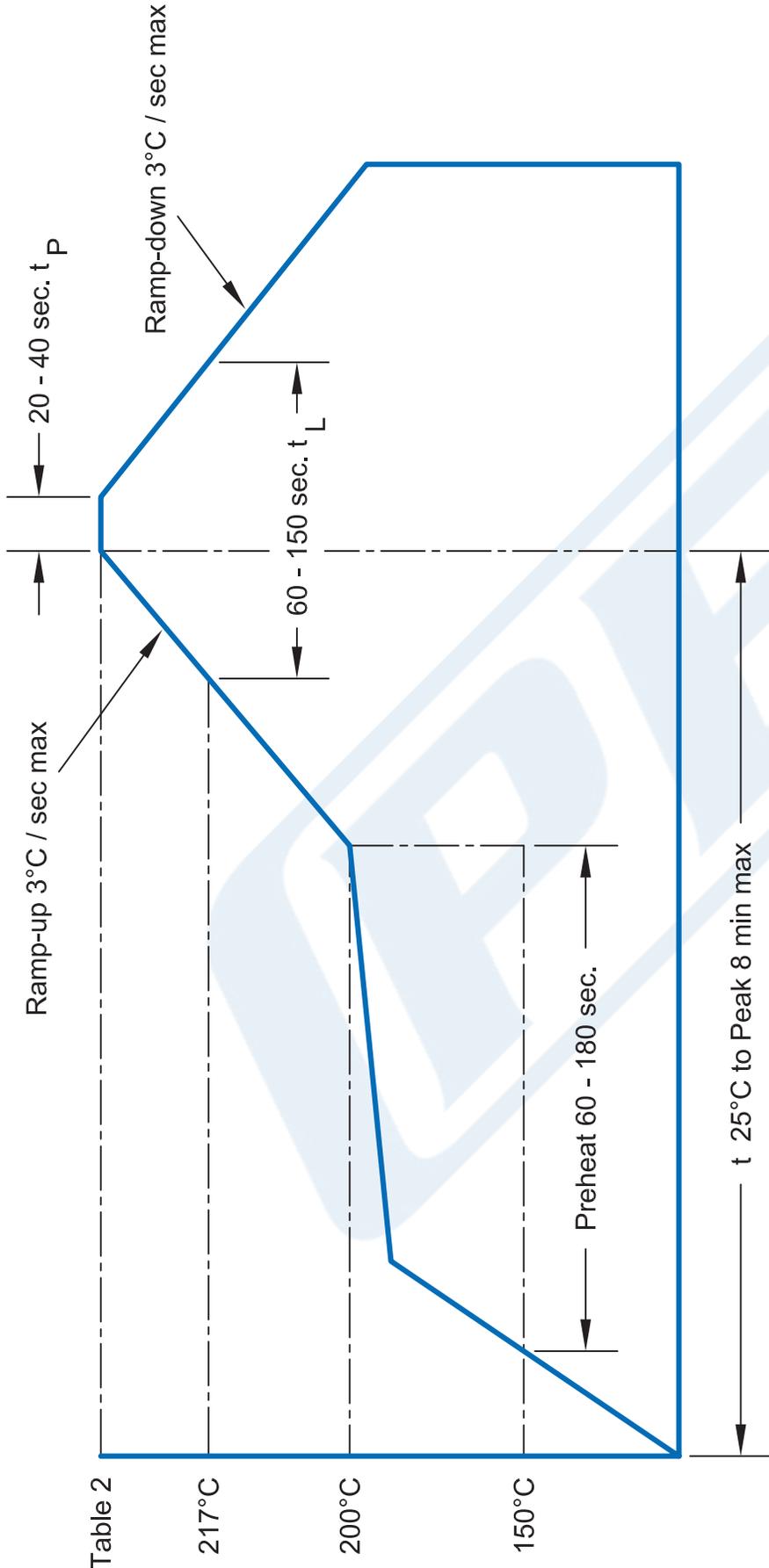


Table 2

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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