



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 300 MHz to 400 MHz, Phase Noise of -102 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet

PE1V11012

Features

- 300 to 400 MHz Bandwidth
- -102 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 9v
- Pout = +11.0 dBm
- Harmonics = -18 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 PE1V11012 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 300 MHz to 400 MHz frequency band with a voltage tuning range from 0.0V to 9V. This design features exceptional phase noise performance of -102 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11.0 dBm and 2nd harmonic output of -18 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	300		400	MHz
Tuning Voltage	0		9	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		20	22	mA
Phase Noise @ 1kHz Offset		-72	-70	dBc/Hz
Phase Noise @ 10kHz Offset		-102	-100	dBc/Hz
Phase Noise @ 100kHz Offset		-122	-120	dBc/Hz
Output Power	+10	+11	+12	dBm
Tuning Sensitivity (Kvco)	10		18	MHz/V
Pushing		0.6	1	MHz/V
Pulling (pk-pk)		500	1	KHz
Tuning Port Capacitance		47		pF
Load Impedance		50		Ohms
2nd Harmonics		-18	-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 300 MHz to 400 MHz, Phase Noise of -102 dBc/Hz and 0.5 inch Package PE1V11012](#)



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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

MIL-STD-202, Method 204D

MIL-STD-202, Method 107B

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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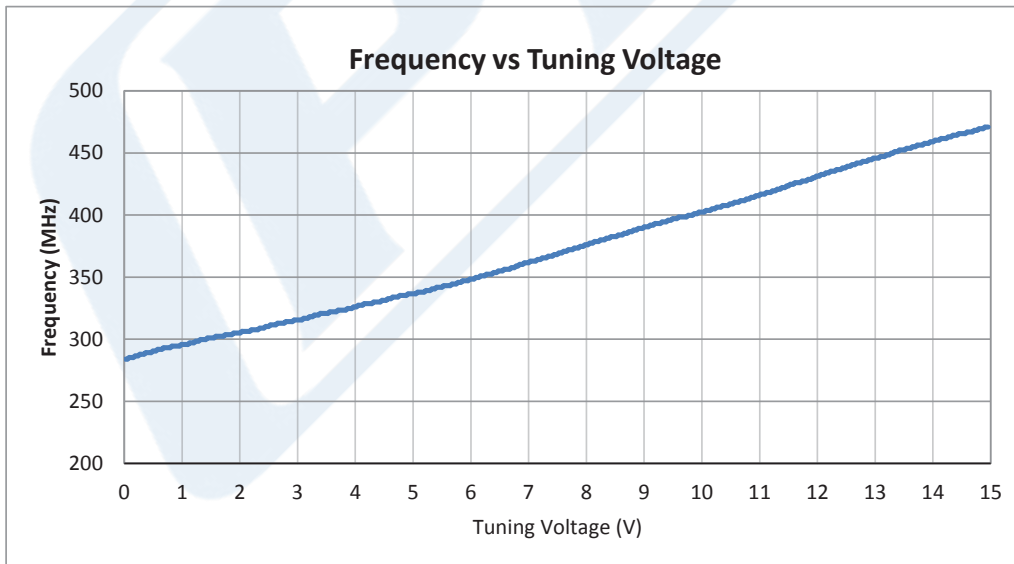
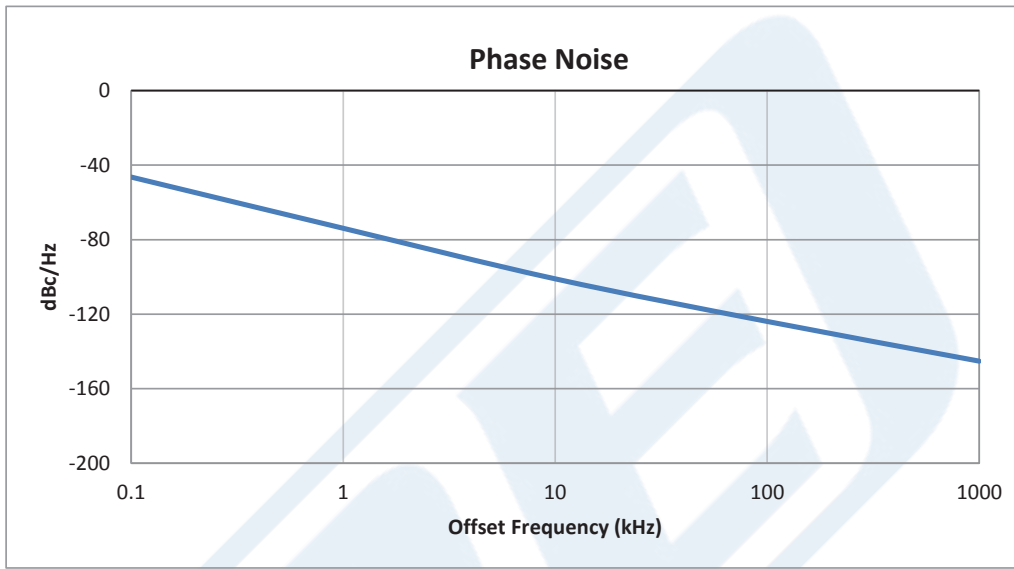


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Typical Performance Data



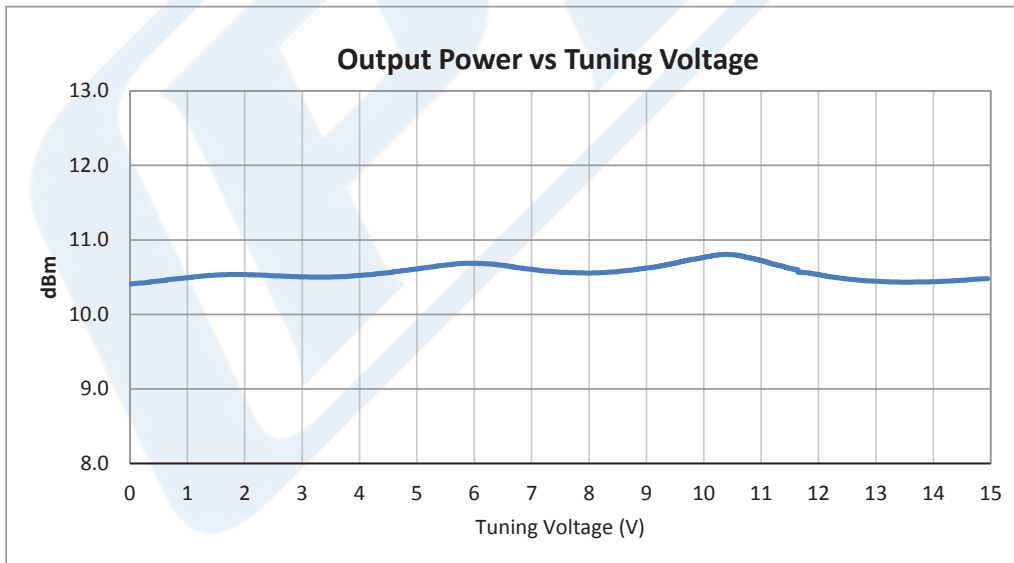
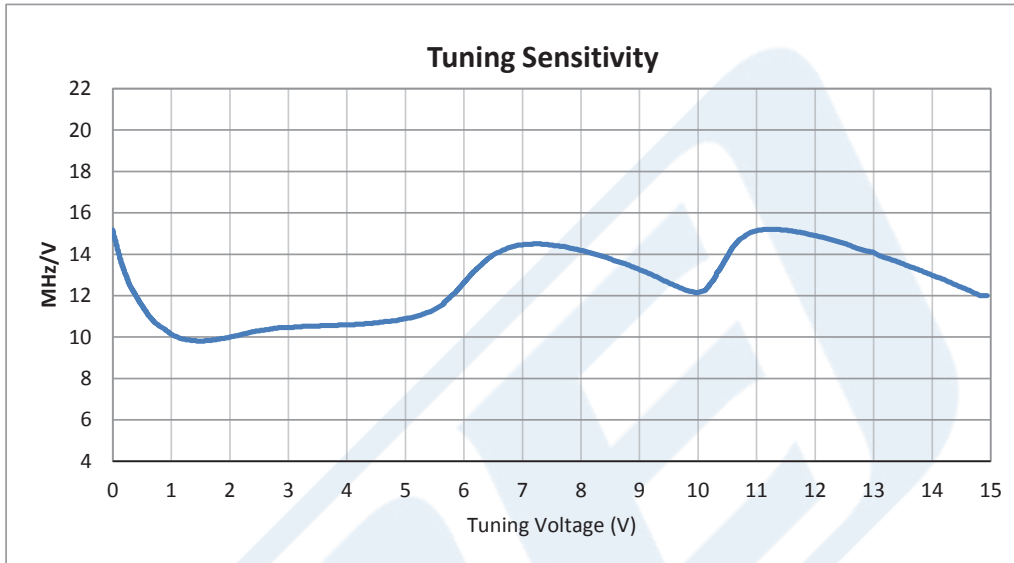
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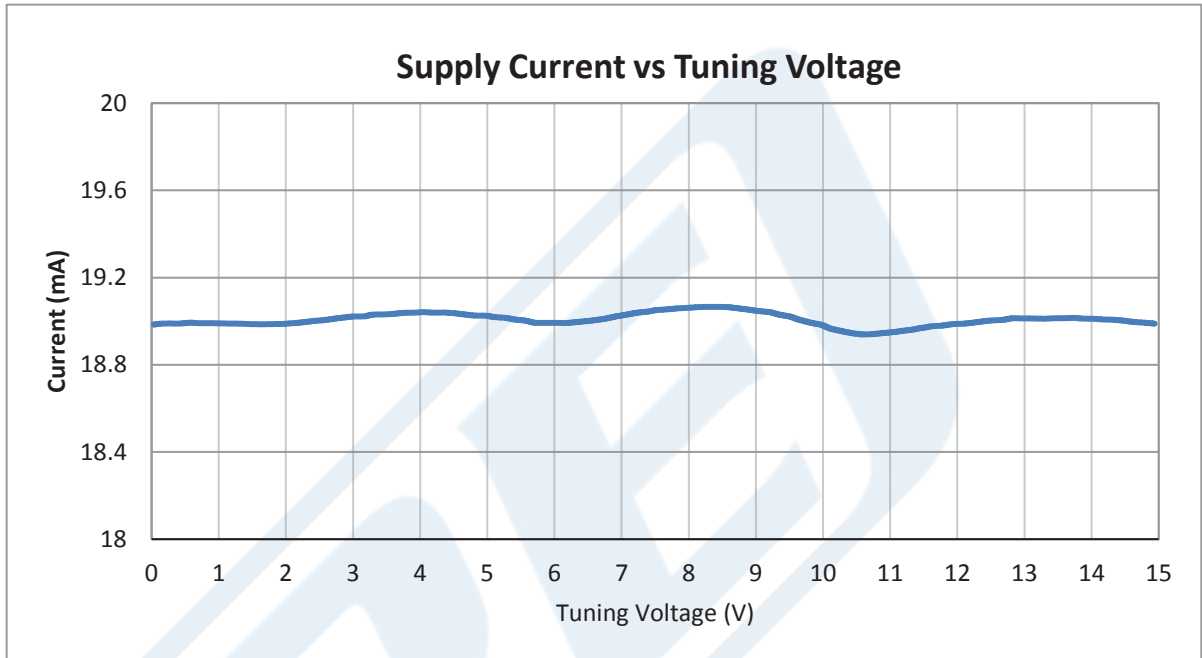
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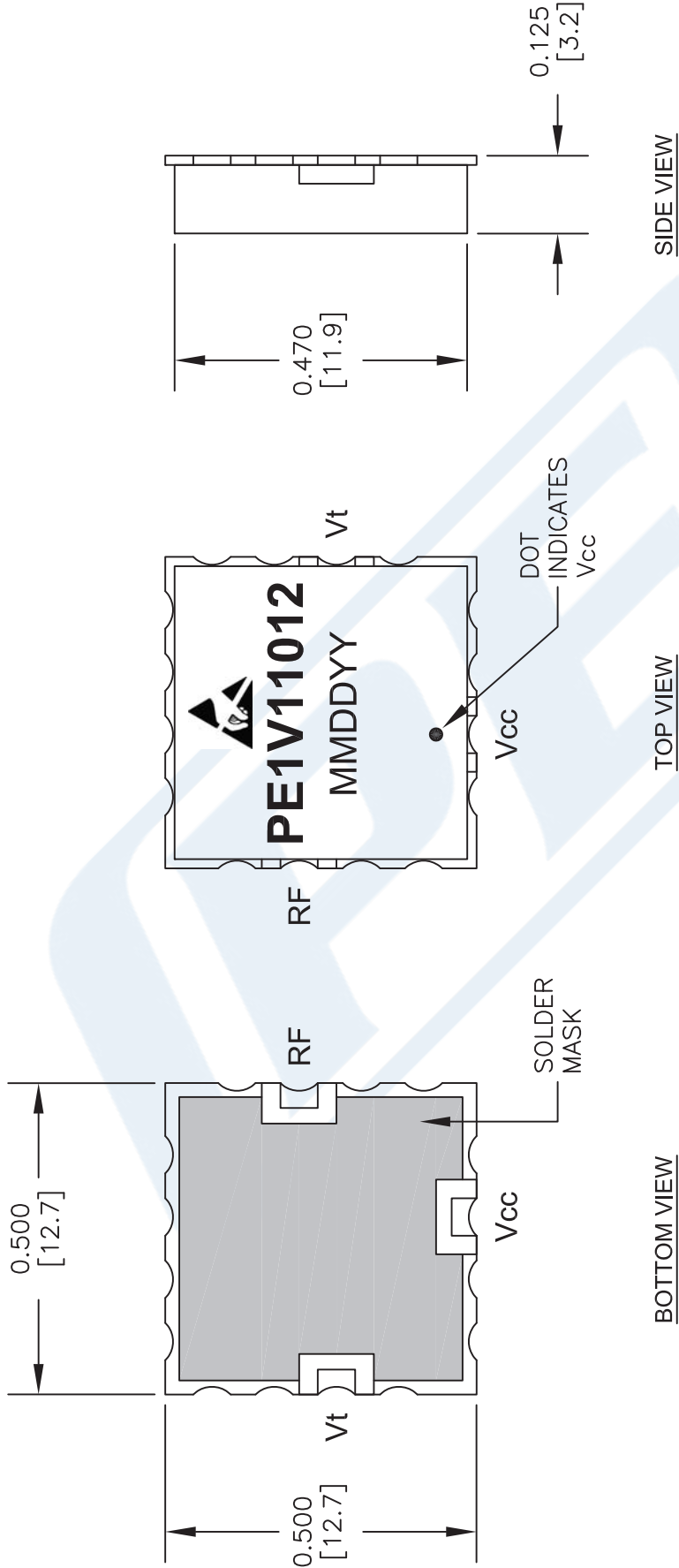
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PE1V11012 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 300 MHz to 400 MHz, Phase Noise of -102 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

PE1V11012

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

CAD FILE 021216

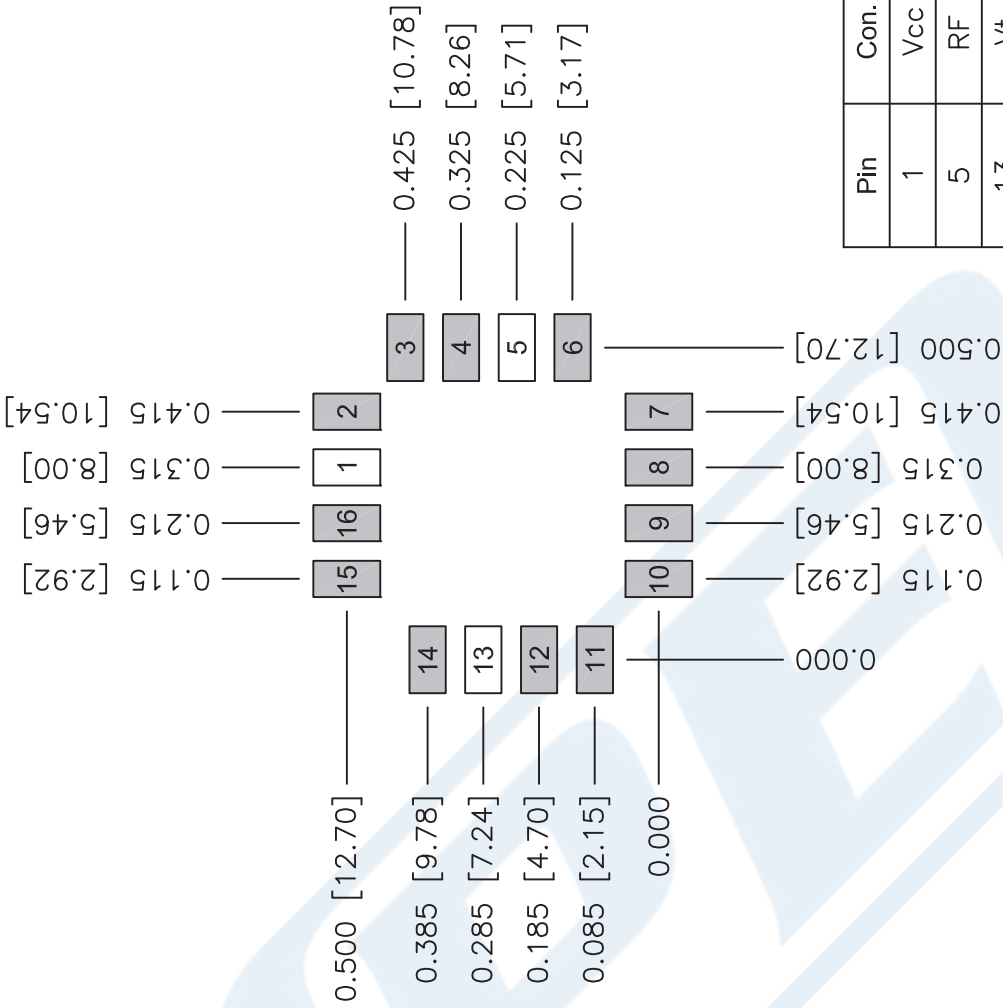
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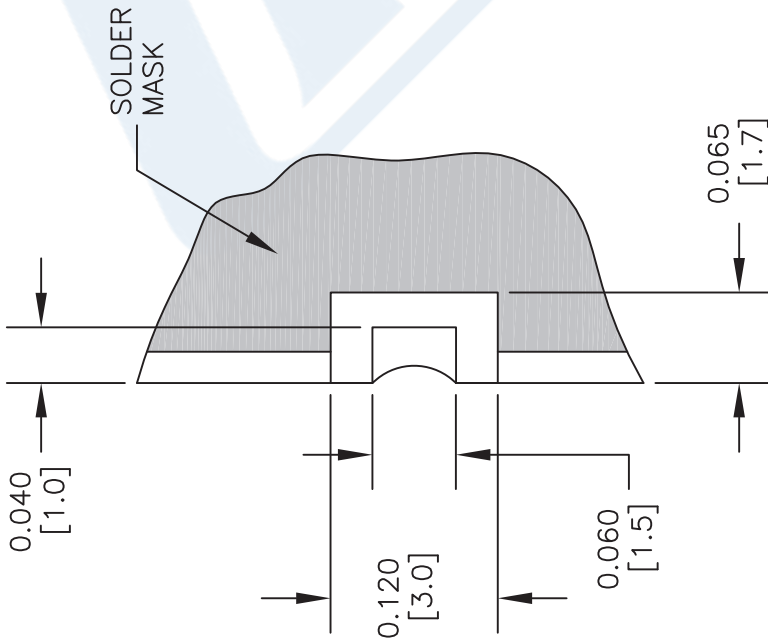
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Pin	Con.
1	V _{CC}
5	RF
13	V _t
Others	GND

PCB PAD LAYOUT



PAD DETAIL

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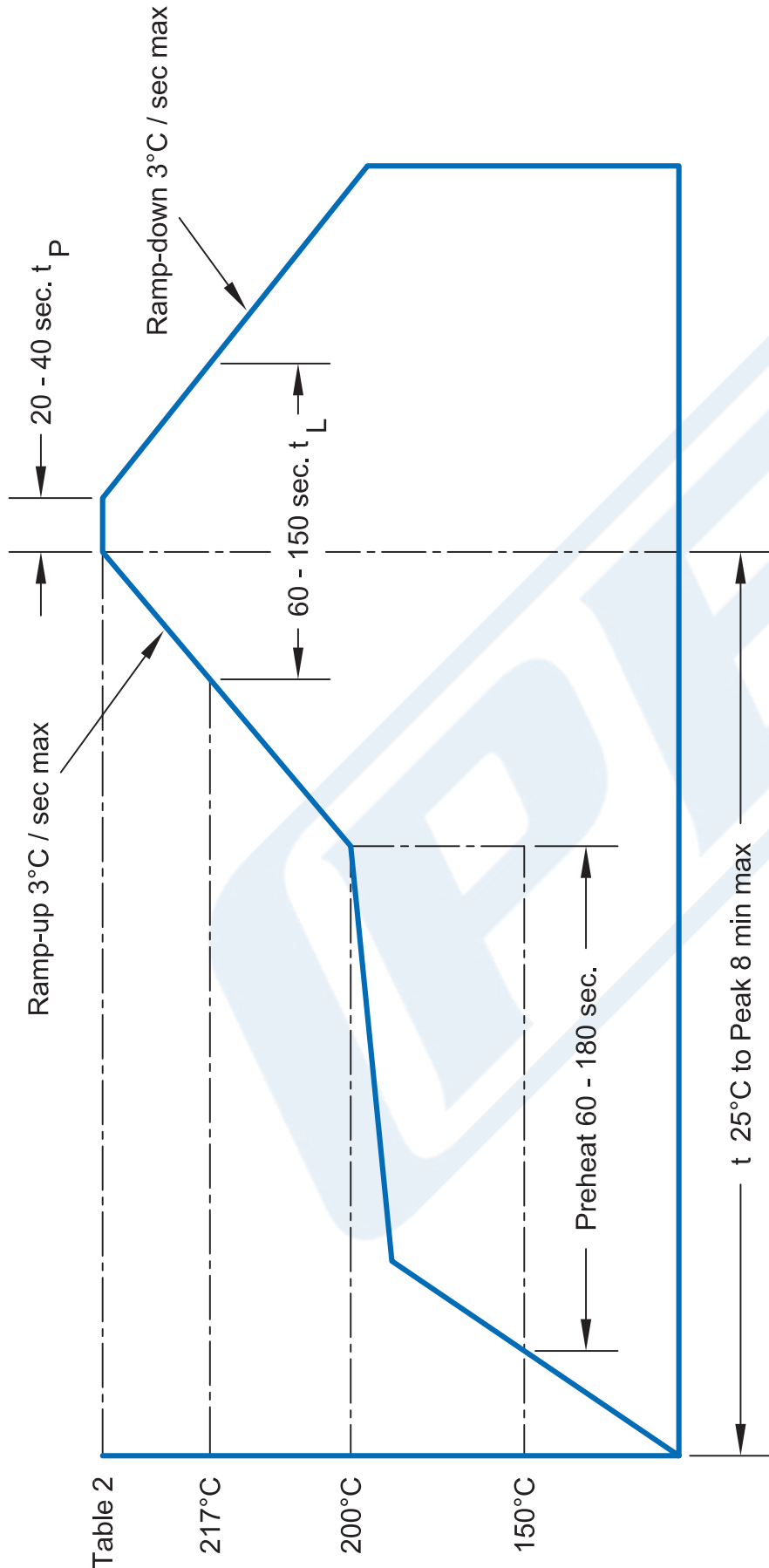


Table 2

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.

DWG TITLE

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