



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 1.2 GHz to 1.8 GHz, Phase Noise of -89 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet

PE1V11018

Features

- 1200 to 1800 MHz Bandwidth
- -89 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 20V
- Pout = +11.0 dBm
- Harmonics = -12 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 PE1V11018 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 1200 MHz to 1800 MHz frequency band with a voltage tuning range from 0.0V to 20V. This design features exceptional phase noise performance of -89 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11.0 dBm and 2nd harmonic output of -12 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	1.2		1.8	GHz
Tuning Voltage	0		20	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		20	23	mA
Phase Noise @ 10kHz Offset		-89	-87	dBc/Hz
Phase Noise @ 100kHz Offset		-110	-108	dBc/Hz
Output Power	+9.5	+11	+13.5	dBm
Tuning Sensitivity (Kvco)	12		85	MHz/V
Pushing		0.5	1	MHz/V
Pulling (pk-pk)		3	5	MHz
Tuning Port Capacitance		22		pF
Load Impedance		50		Ohms
2nd Harmonics		-12	-10	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 1.2 GHz to 1.8 GHz, Phase Noise of -89 dBc/Hz and 0.5 inch Package PE1V11018](#)



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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	0.011 lbs [4.99 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.



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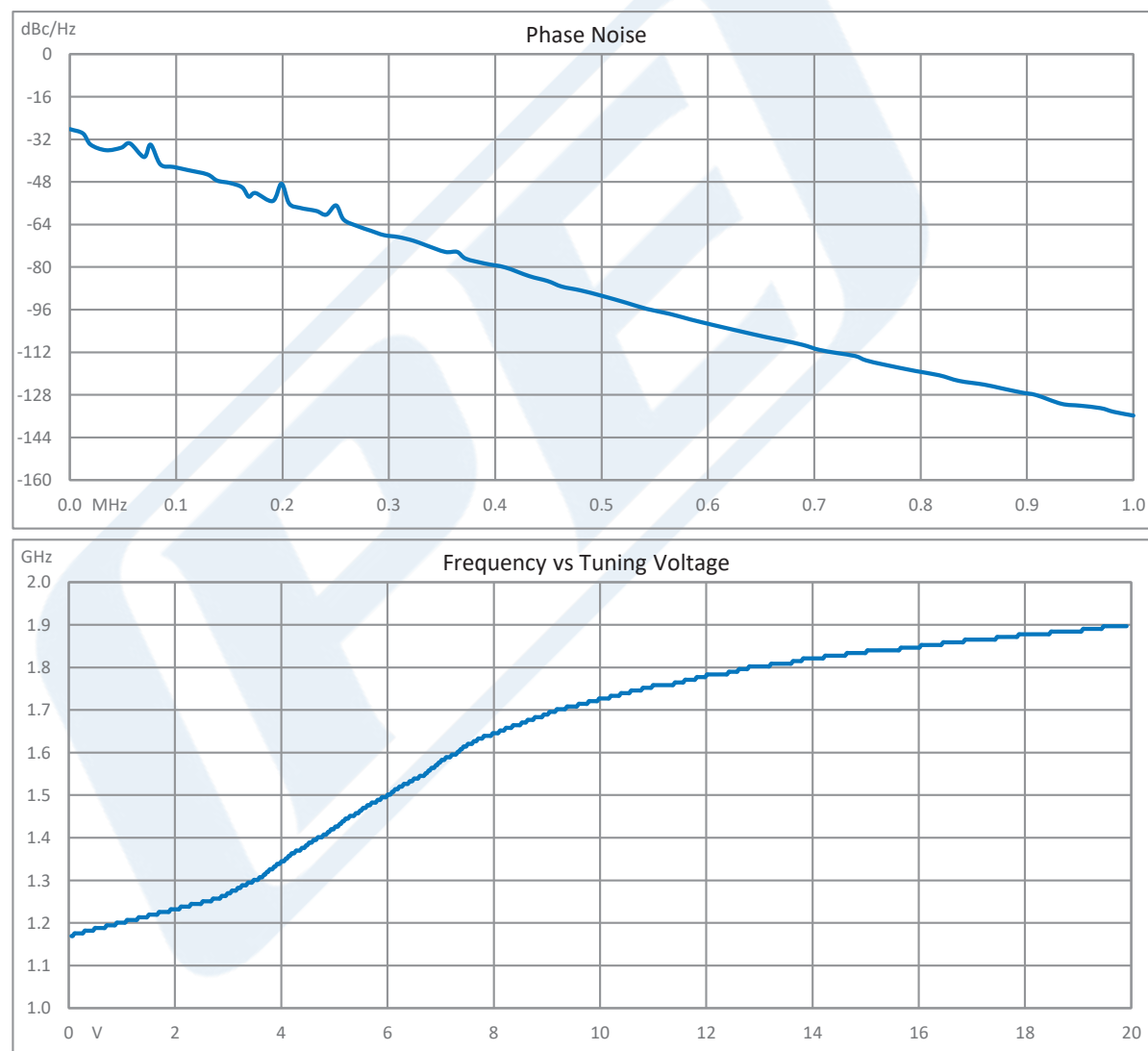
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Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Typical Performance Data



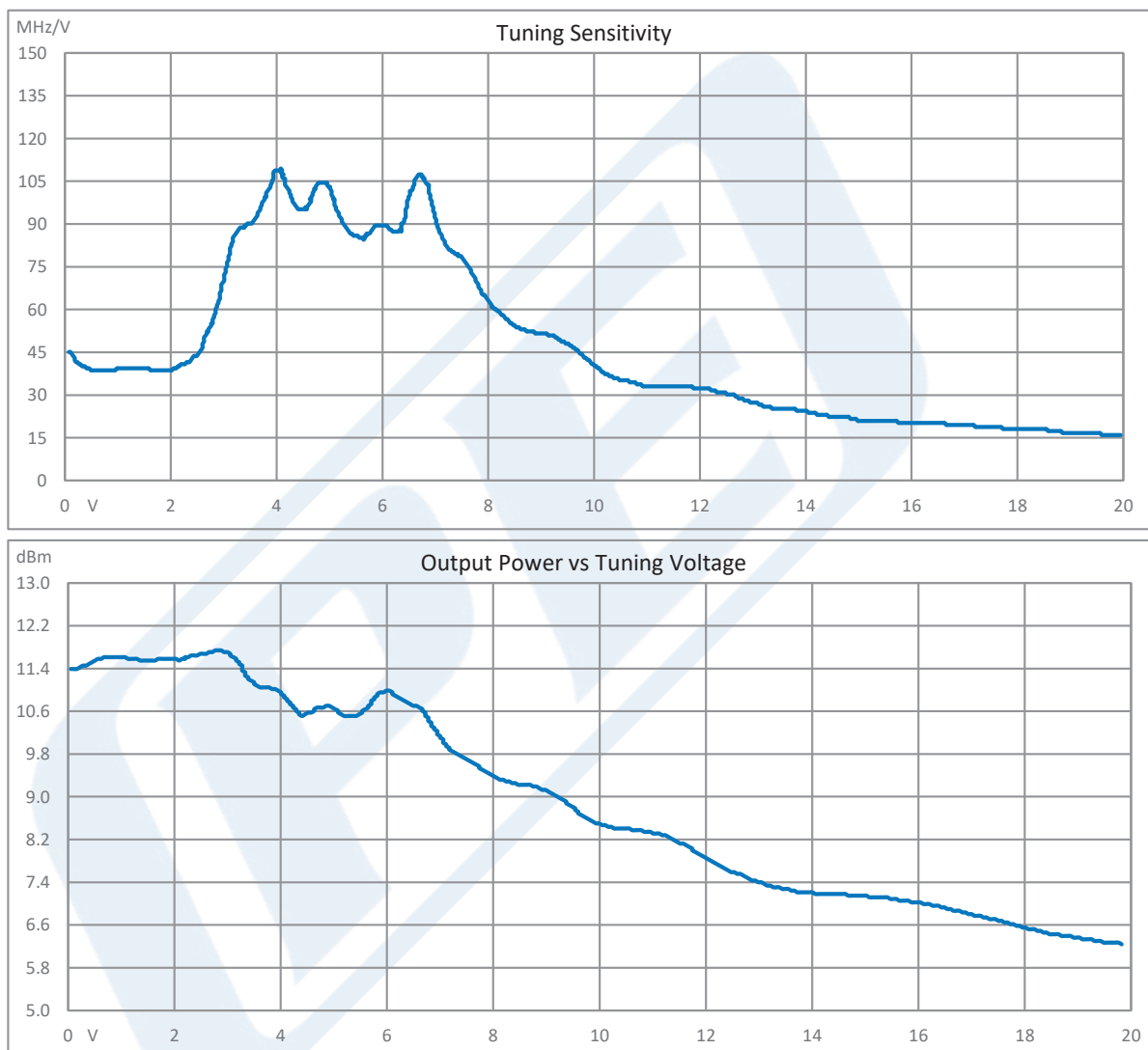
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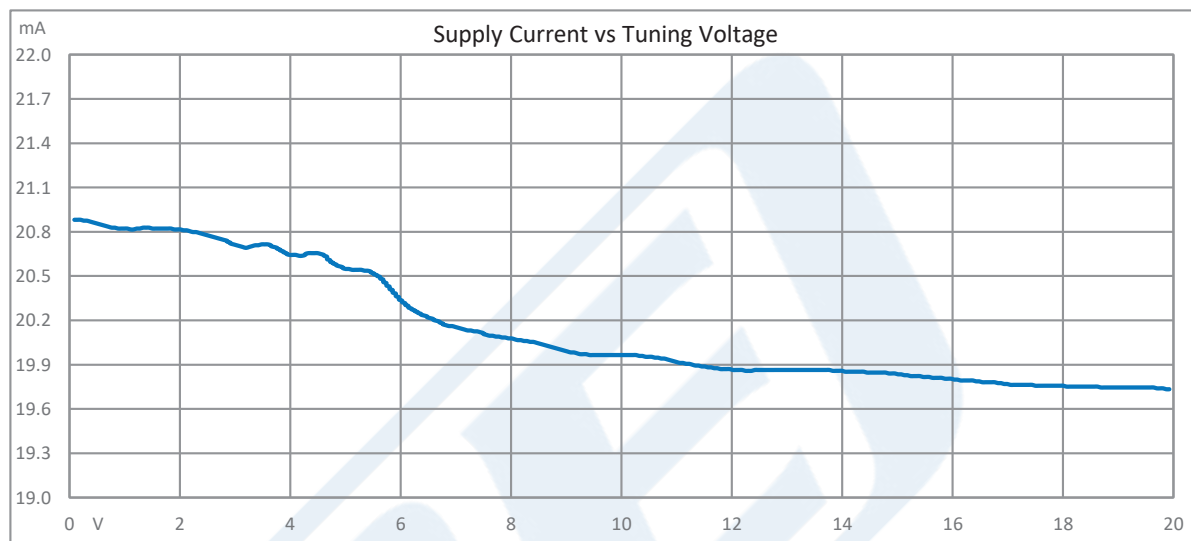
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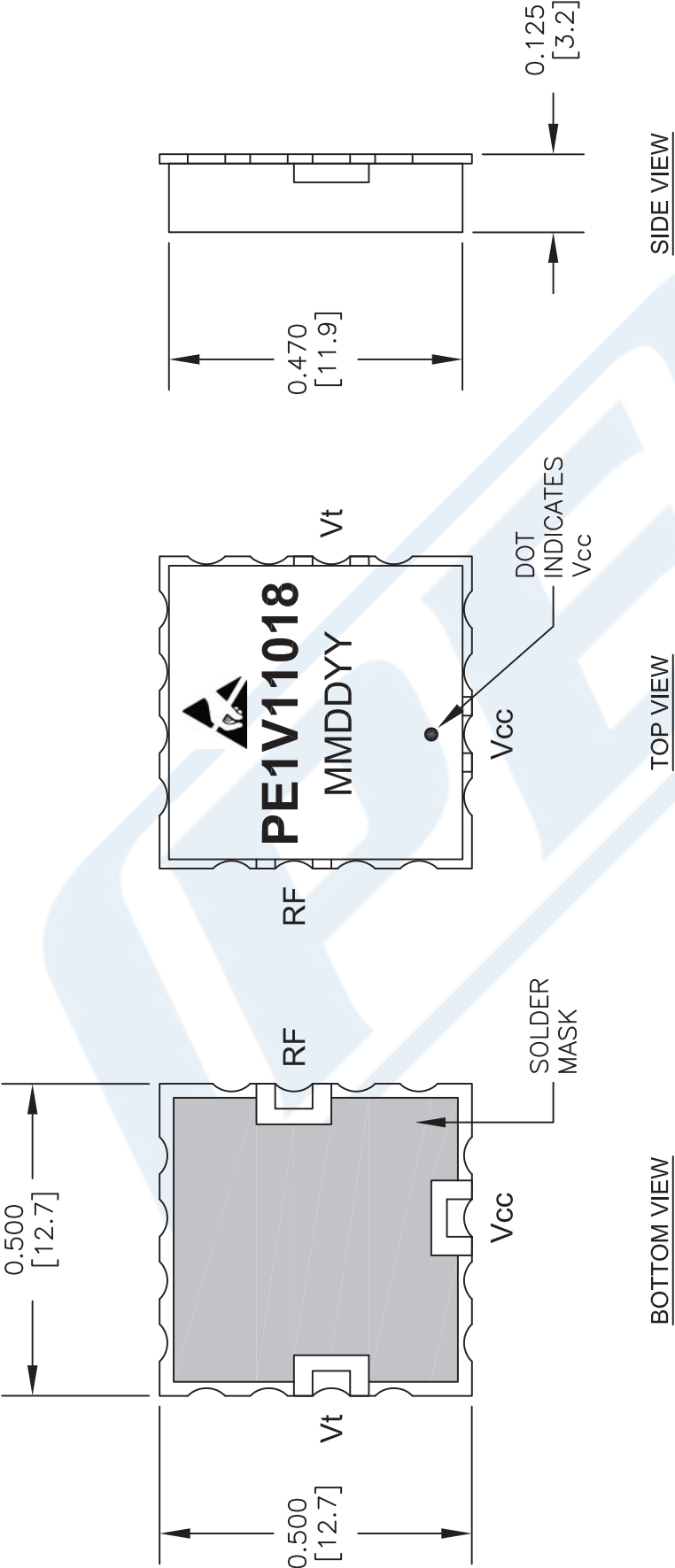
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements.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

PE1V11018 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.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].

DWG TITLE
PE1V11018

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FSCM NO. 53919

CAD FILE

021216

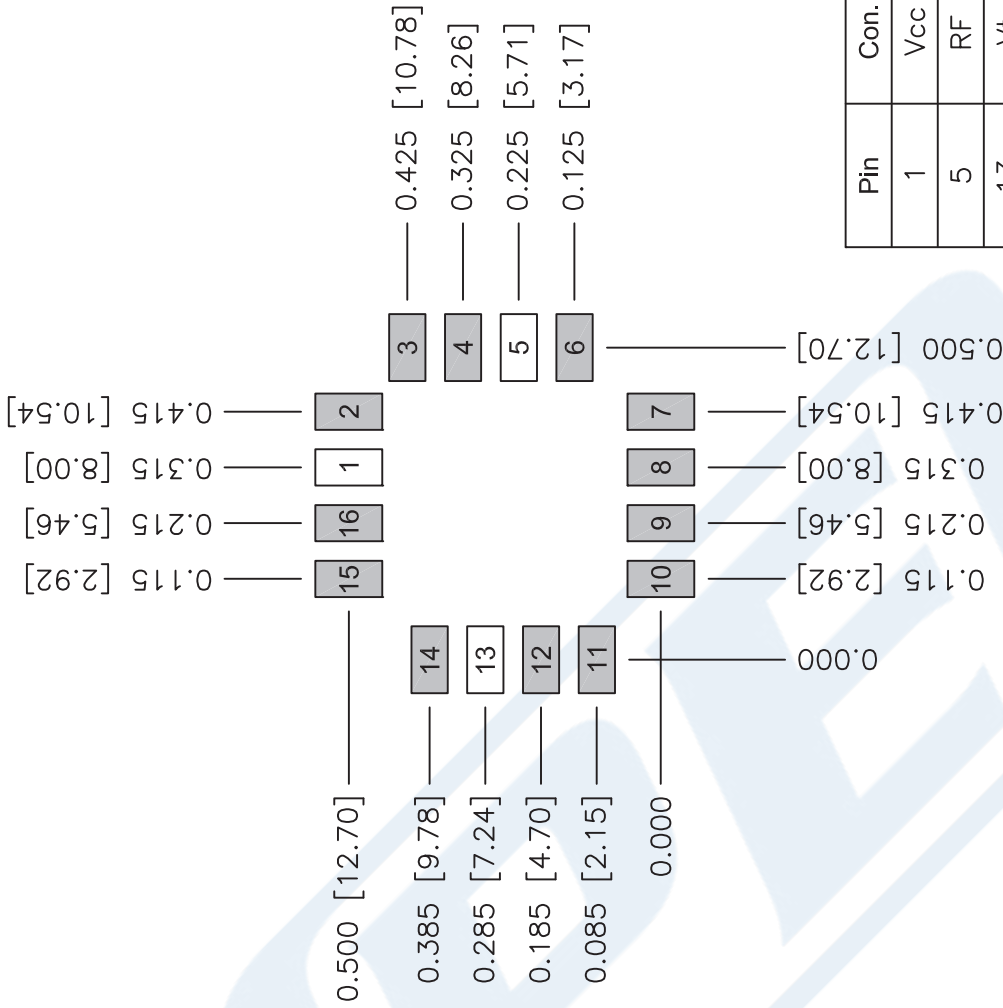
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SIZE A

2233

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PAD DETAIL

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PCB PAD LAYOUT

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

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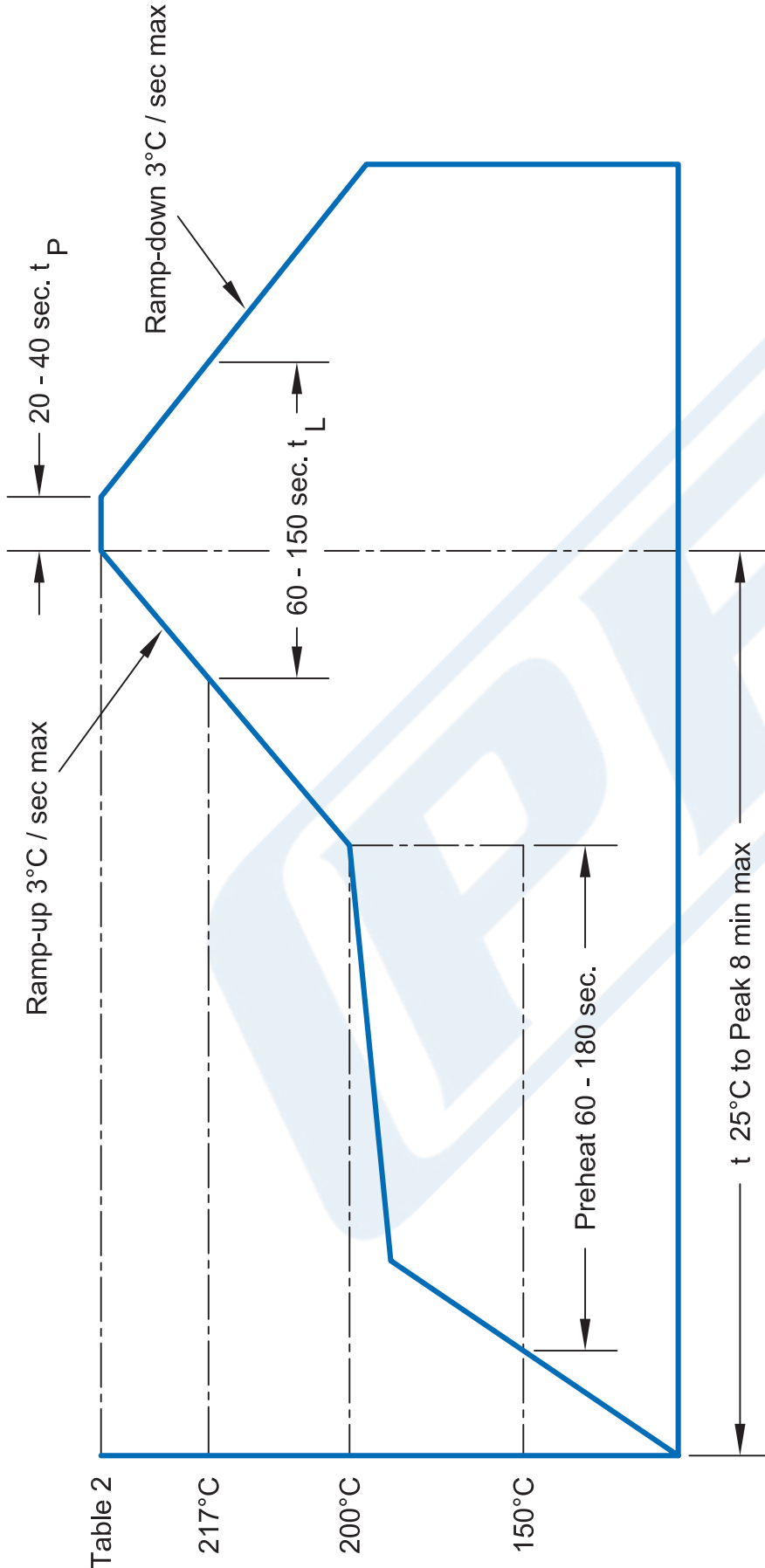


Table 2	
Package re-flow temp	
Pkg.	tp (°C)
PE2V Series	260
PE1V11 Series	245
All Others	245

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

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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