PASTERNACK®
THE ENGINEER'S RF SOURCE

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 130 MHz to 175 MHz, Phase Noise of -125 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet PE1V12000

Features

- 130 MHz to 175 MHz Bandwidth
- -125 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 15V
- Pout = +6.5 dBm
- Harmonics = -25 dBc
- Seperate Modulation Port
- 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
- Transmit Modulation

Description

The PE1V12000 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 130 MHz to 175 MHz frequency band with a voltage tuning range from 0V to 15V. This design features exceptional phase noise performance of -125 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V with a generated output power level of +6.5 dBm and 2nd harmonic output of -25 dBc typical. The VCO has a separate modulation port for increased design flexibility and ideal for transmit applications. 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	130		175	MHz
Tuning Voltage	0		15	Vdc
Supply Voltage (DC)	4.5	5	5.5	Vdc
Supply Current (DC)		18	22	mA
Phase Noise @ 1kHz Offset		-100	-96	dBc/Hz
Phase Noise @ 10kHz Offset		-125	-123	dBc/Hz
Phase Noise @ 100kHz Offset		-146	-144	dBc/Hz
Modulation Sensitivity		-40 to -20		kHz/Volt
Output Power	+5	+6.5	+7.5	dBm
Output Power Delta @-40 deg C			-0.5	dBm
Output Power Delta @+85 deg C			+0.3	dBm
Tuning Sensitivity (Kvco)	2.5		5	MHz/V
Pushing		0.1	0.2	MHz/V
Pulling (pk-pk)		200	300	KHz

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 130 MHz to 175 MHz, Phase Noise of -125 dBc/Hz and 0.5 inch Package PE1V12000

Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

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Tuning Port Capacitance	330		pF
Load Impedance	50		Ohms
Frequency Drift @-40 deg C		1.6	MHz
Frequency Drift @+85 deg C		-1900	KHz
2nd Harmonics	-25	-20	dBc

Mechanical Specifications

Size

Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.162 in [4.11 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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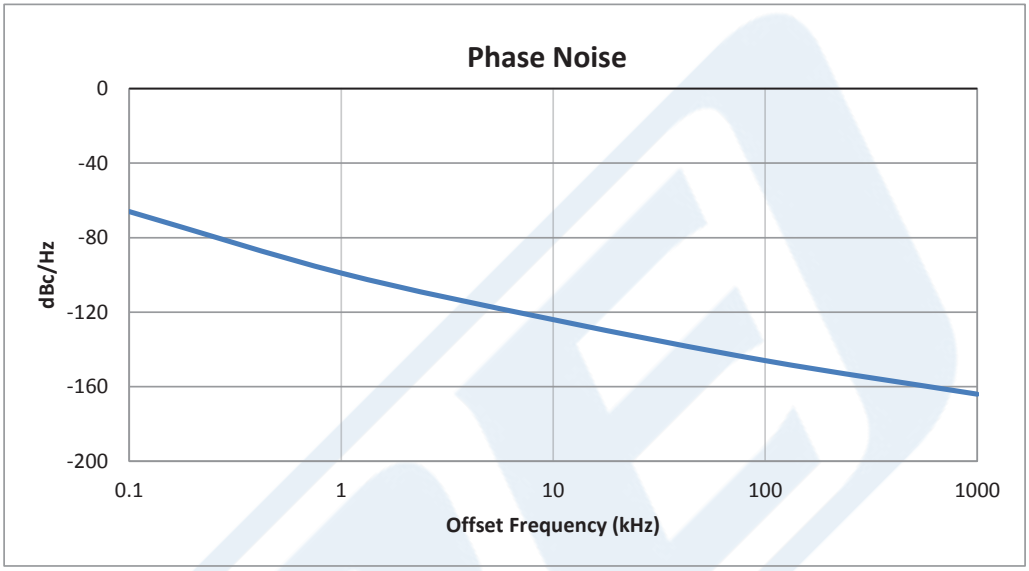
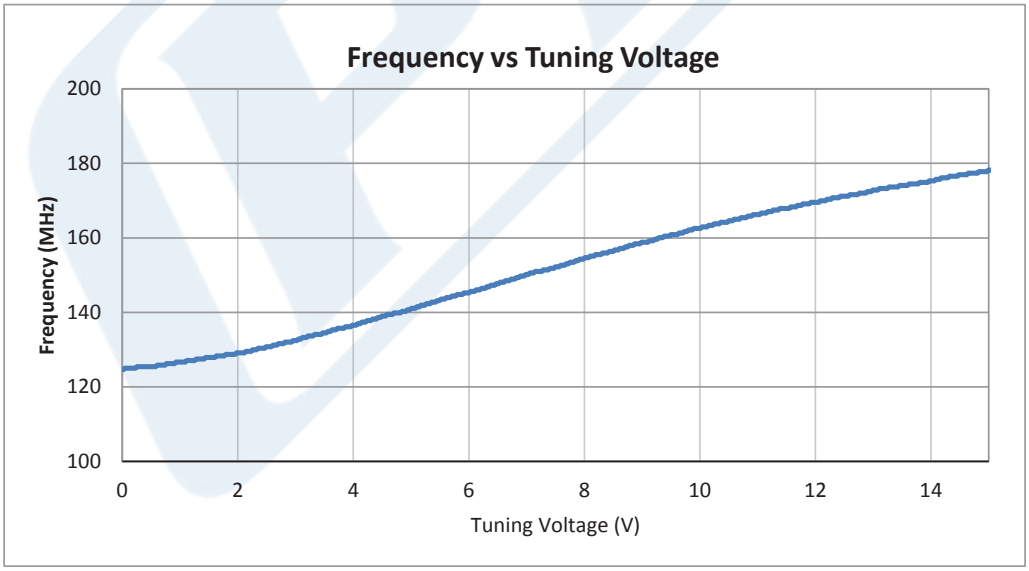
Typical Performance Data





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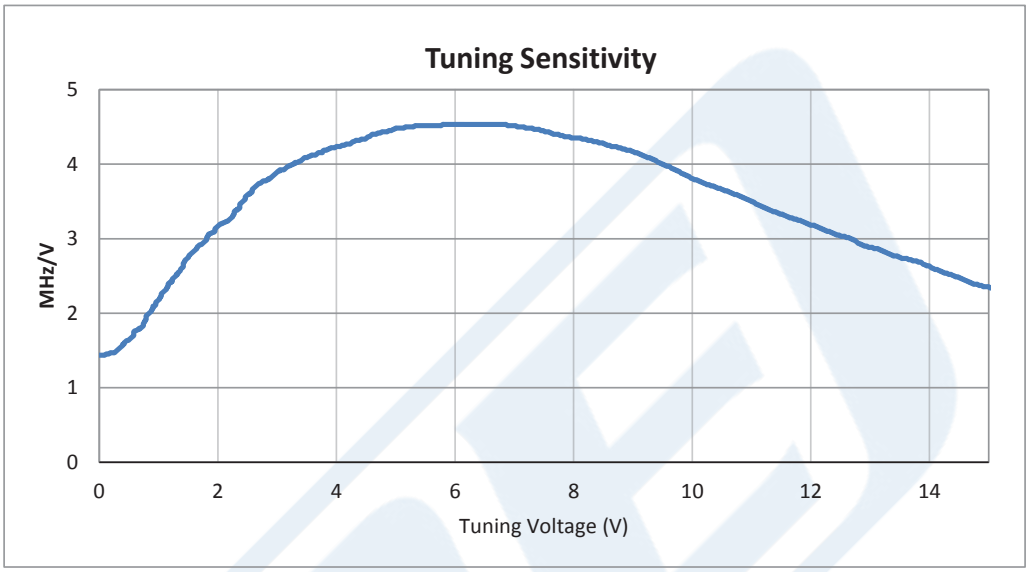

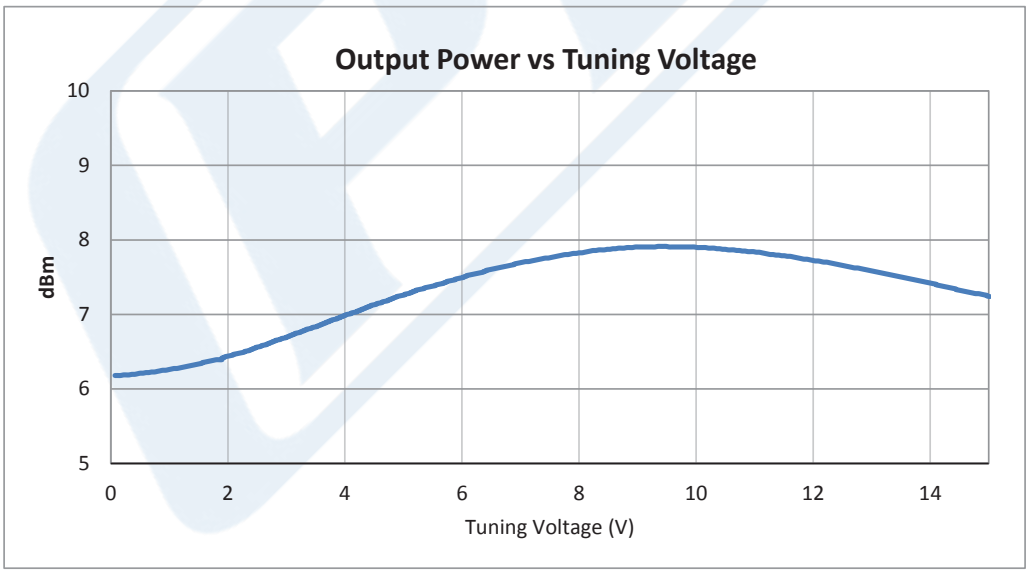

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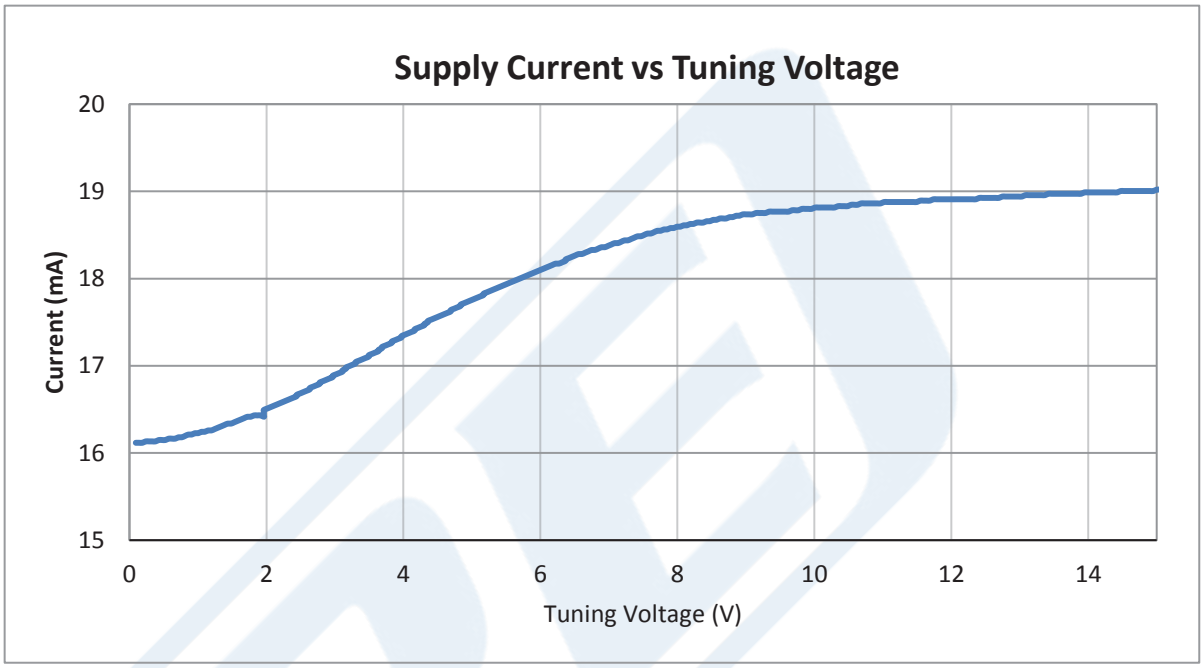

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 130 MHz to 175 MHz, Phase Noise of -125 dBc/Hz and 0.5 inch Package from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99% availability and are part of the broadest selection in the industry.

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URL: http://www.pasternack.com/surface-mount-smt-voltage-controlled-oscillator-vco-175-mhz-pe1v12000-p.aspx

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PE1V12000 CAD Drawing

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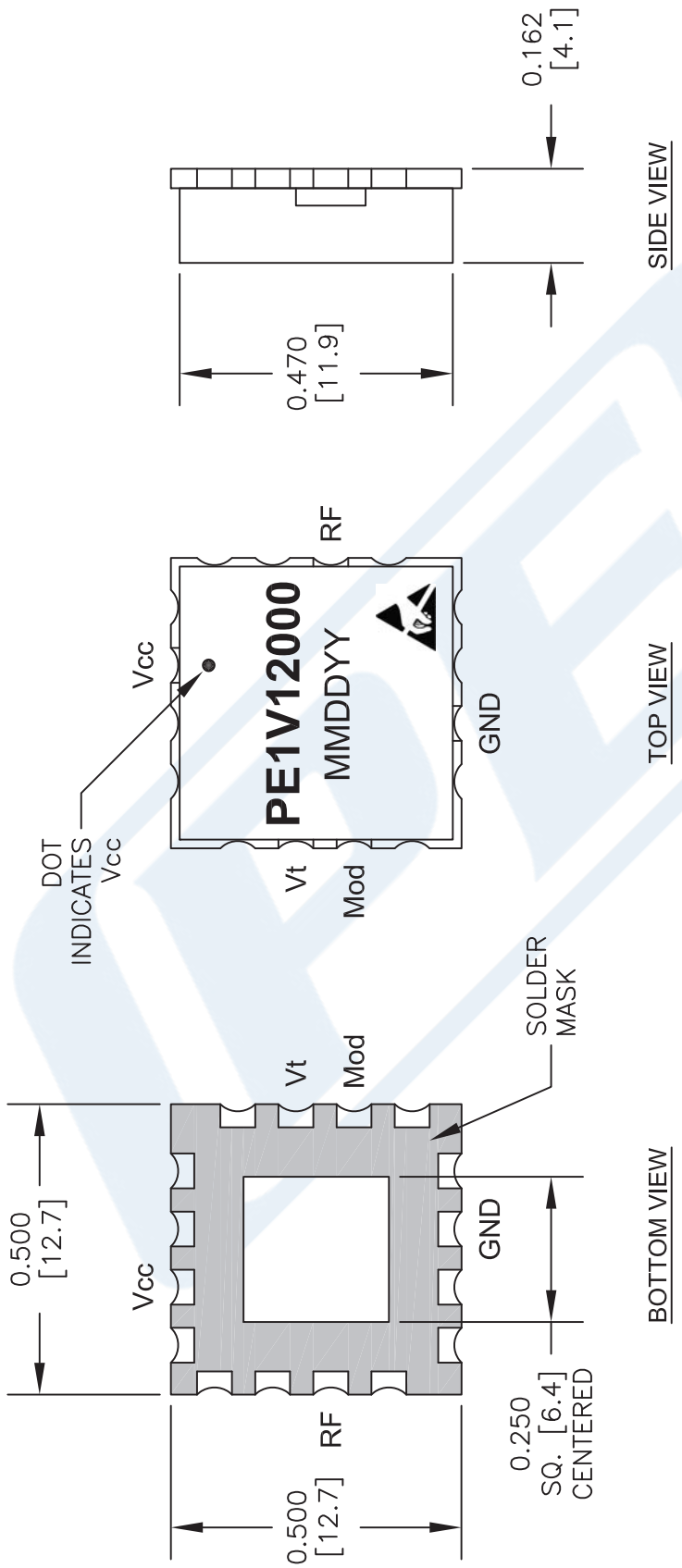

NOTES:
1. THE CASE IS GROUND.
2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES [mm].
3. UNLESS OTHERWISE SPECIFIED FINISH IS 150-250 MICRO INCHES ELECTROLESS NICKEL OVER COPPER CLAD PCB, 2-5 MICRO INCHES IMMERSION GOLD, OVER NICKEL.
4. MOD PORT NOT AVAILABLE ON ALL MODELS.

NOTES:
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FSCM NO. 53919 | CAD FILE 021216 | SCALE N/A | SIZE A | 2233

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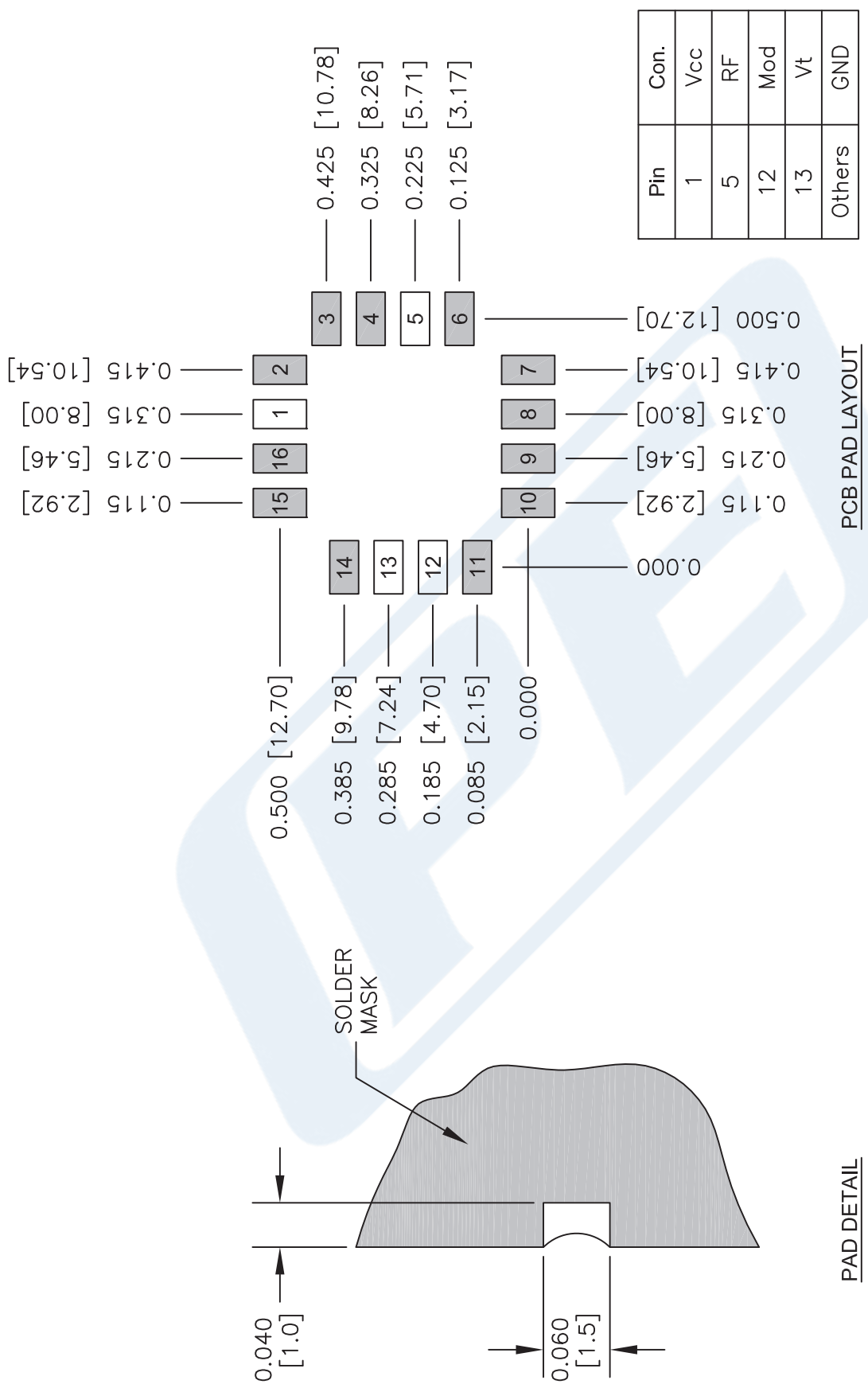

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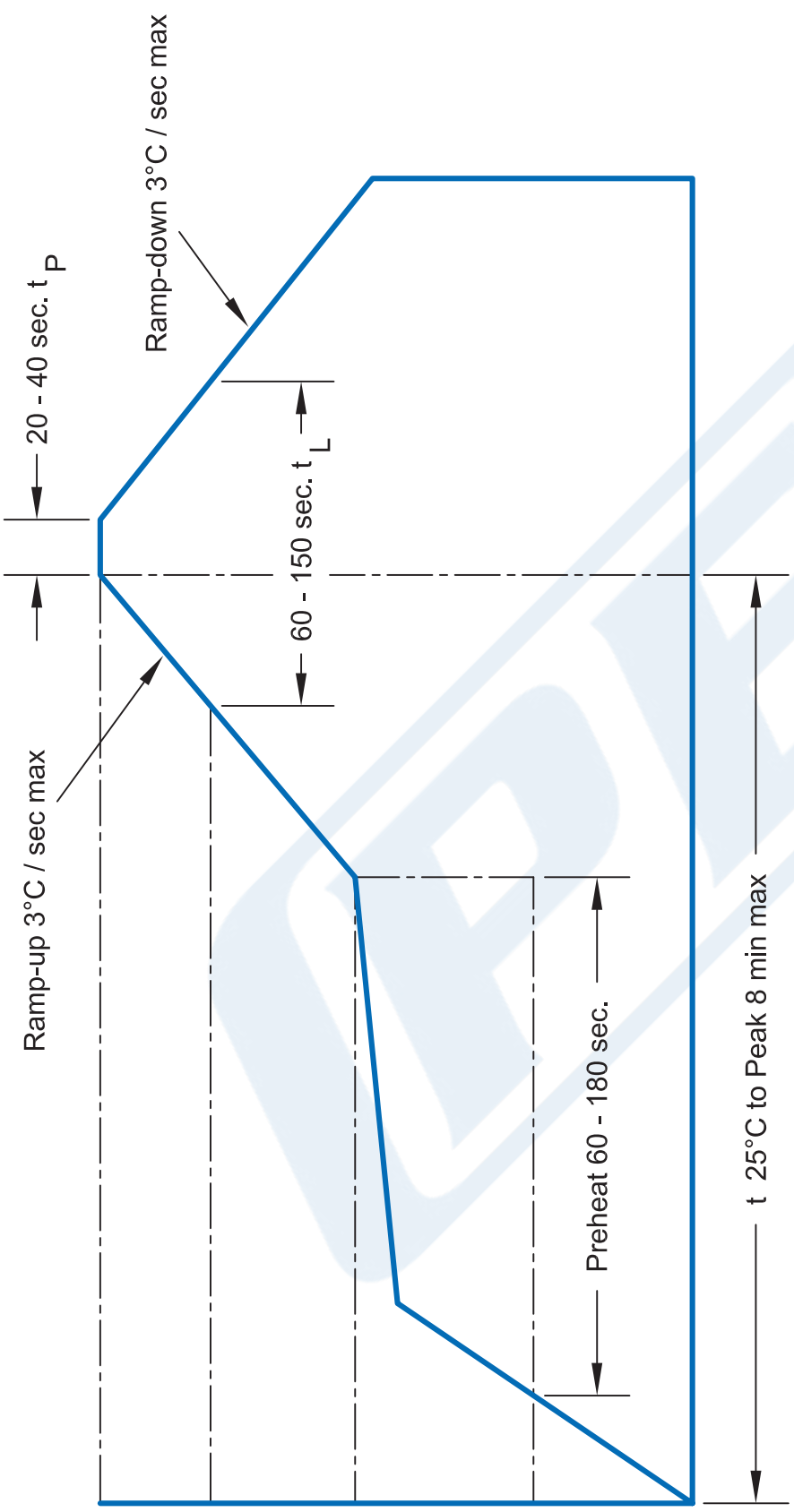

Table 1
Hand Soldering

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.

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