



0.175 inch Commercial Surface Mount (SMT)
 Voltage Controlled Oscillator (VCO) From 9 GHz
 to 10 GHz With Phase Noise of -78 dBc/Hz

Voltage Control Oscillators Technical Data Sheet

PE1V21018

Features

- 9000 MHz to 10000 MHz Bandwidth
- -78 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 11V
- Pout = +7.0 dBm
- Harmonics = -30 dBc
- RoHs Compliant Assembly
- 0.175" 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 PE1V21018 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 9000 MHz to 10000 MHz frequency band with a voltage tuning range from 0V to 11V. This design features exceptional phase noise performance of -78 dBc/Hz @ 10 kHz offset. Supply Voltage is +12V with a generated output power level of +7.0 dBm and 2nd harmonic output of -30 dBc typical. The assembly is RoHs compliant and available in a compact 0.175 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	9		10	GHz
Tuning Voltage	0		11	Vdc
Supply Voltage (DC)	11	12	13	Vdc
Supply Current (DC)		20	25	mA
Phase Noise @ 10kHz Offset		-78	-70	dBc/Hz
Phase Noise @ 100kHz Offset		-100	-92	dBc/Hz
Output Power	+6	+7	+9.5	dBm
Tuning Sensitivity (Kvco)	50		250	MHz/V
Pushing		15	30	MHz/Volt
Pulling (pk-pk)		50	80	MHz
Load Impedance		50		Ohms
2nd Harmonics		-30	-20	dBc

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [0.175 inch Commercial Surface Mount \(SMT\) Voltage Controlled Oscillator \(VCO\) From 9 GHz to 10 GHz With Phase Noise of -78 dBc/Hz PE1V21018](#)



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Mechanical Specifications

Size

Length	0.175 in [4.45 mm]
Width	0.175 in [4.45 mm]
Height	0.075 in [1.91 mm]

Mounting Surface Material and Plating	Copper Clad, Nickel, Gold
Design	Commercial
Package Style	Surface Mount

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

Plotted and Other Data

Notes:

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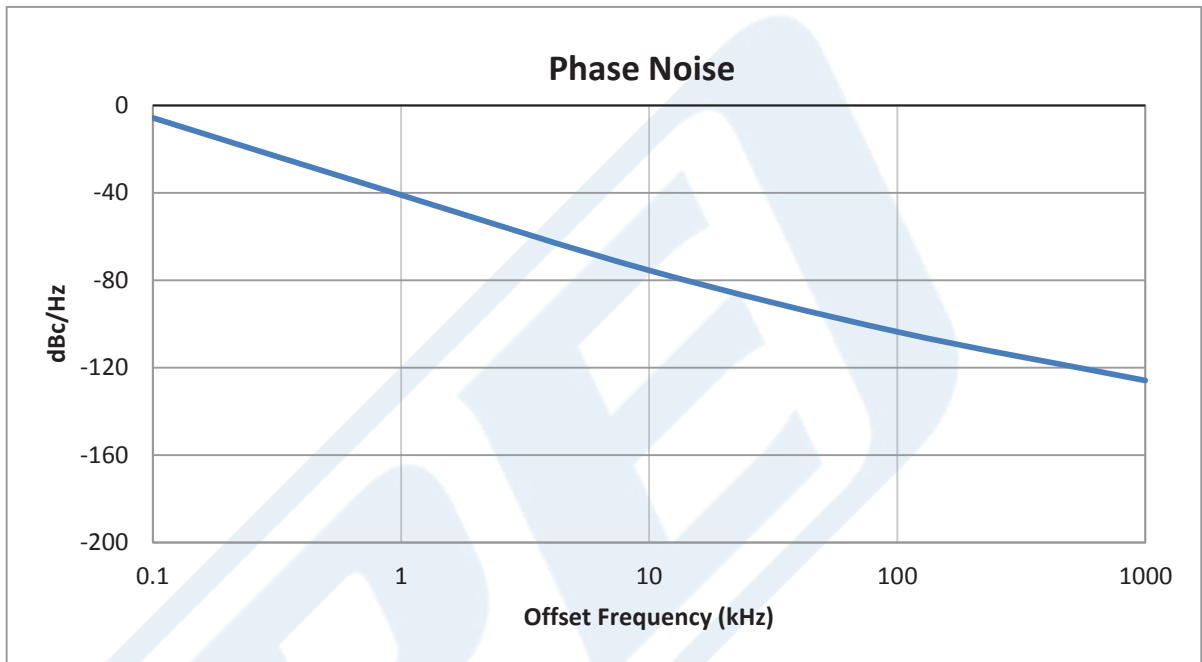


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Typical Performance Data



0.175 inch Commercial Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 9 GHz to 10 GHz With Phase Noise of -78 dBc/Hz 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.

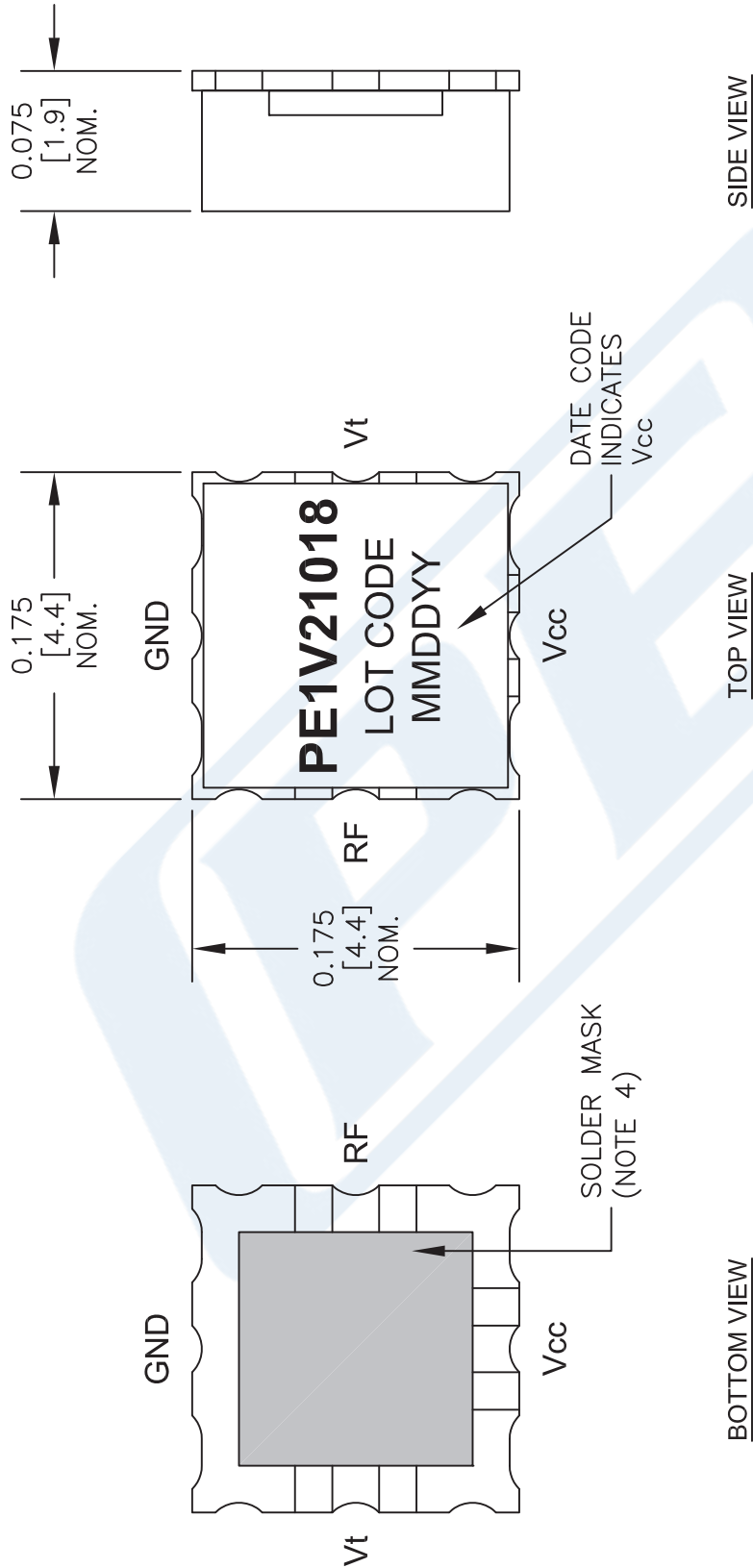
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The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements.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

PE1V21018 CAD Drawing

0.175 inch Commercial Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 9 GHz to 10 GHz With Phase Noise of -78 dBc/Hz



- 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. SOLDER MASK NOT USED FOR APPLICATIONS GREATER THAN 6GHZ.

DWG TITLE

PE1V21018

- 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].

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FSCM NO. 53919

CAD FILE 081815

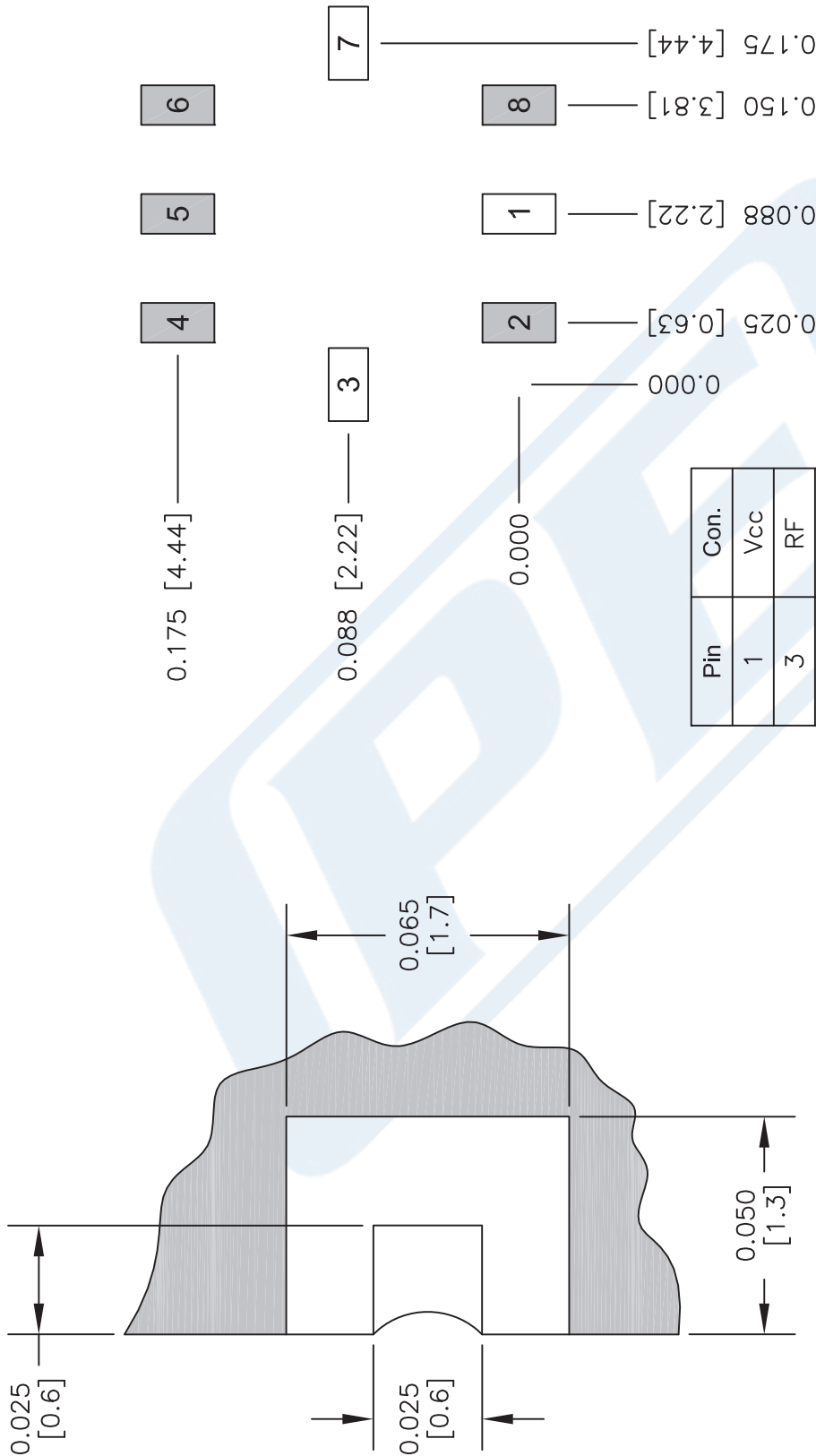
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SIZE A

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Pin	Con.
1	Vcc
3	RF
7	Vt
Others	GND

PCB PAD LAYOUT

PAD DETAIL

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<p>Pasternack Enterprises, Inc. P.O. Box 16759 Irvine CA 92623</p> <p>Phone: (949) 261-1920 Fax: (949) 261-7451 Website: www.pasternack.com E-Mail: sales@pasternack.com</p>		<p>CAD FILE</p> <p>081815</p>	<p>SCALE</p> <p>N/A</p>
<p>FSCM NO. 53919</p>		<p>SIZE</p> <p>A</p>	<p>2233</p>

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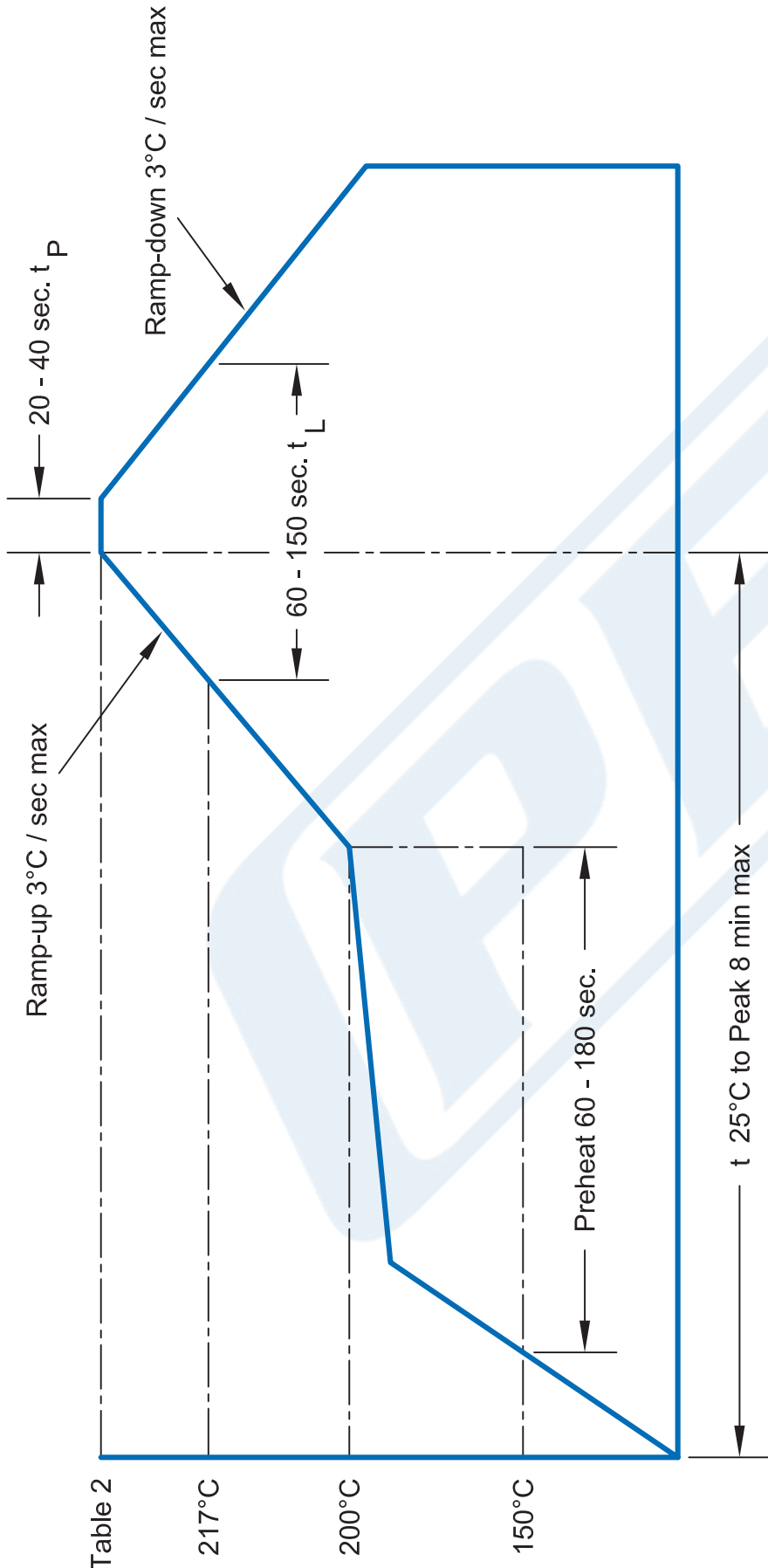


Table 2

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)
VS	260
MMS	260
MS	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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