PASTERNACK®
THE ENGINEER'S RF SOURCE

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



Voltage Control Oscillators Technical Data Sheet PE1V11000

Features

- 10 to 20 MHz Bandwidth
- -120 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 20V
- Pout = +10 dBm
- Harmonics = -11 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 PE1V11000 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 10 MHz to 20 MHz frequency band with a voltage tuning range from 0V to 20V. This design features exceptional phase noise performance of -120 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +10 dBm and 2nd harmonic output of -11 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	10		20	MHz
Tuning Voltage	0		20	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		16	18	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	+9	+10	+11	dBm
Tuning Sensitivity (Kvco)	0.4		0.6	MHz/V
Pushing		0.02	0.05	MHz/V
Pulling (pk-pk)		50	100	KHz
Tuning Port Capacitance		150		pF
Load Impedance		50		Ohms
2nd Harmonics		-11	-9	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 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11000

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

ISO 9001 : 2008 Registered

© 2016 Pasternack Enterprises All Rights Reserved

PASTERNACK®
THE ENGINEER'S RF SOURCE

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



Voltage Control Oscillators Technical Data Sheet PE1V11000

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:

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 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11000

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

ISO 9001 : 2008 Registered

© 2016 Pasternack Enterprises All Rights Reserved

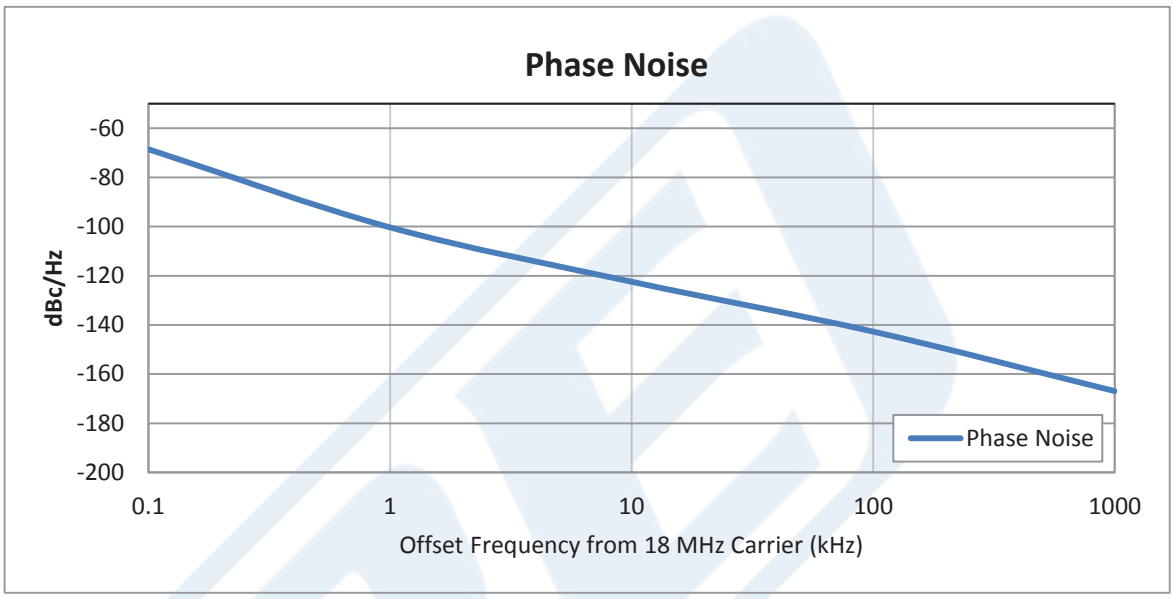
PASTERNACK
THE ENGINEER'S RF SOURCE

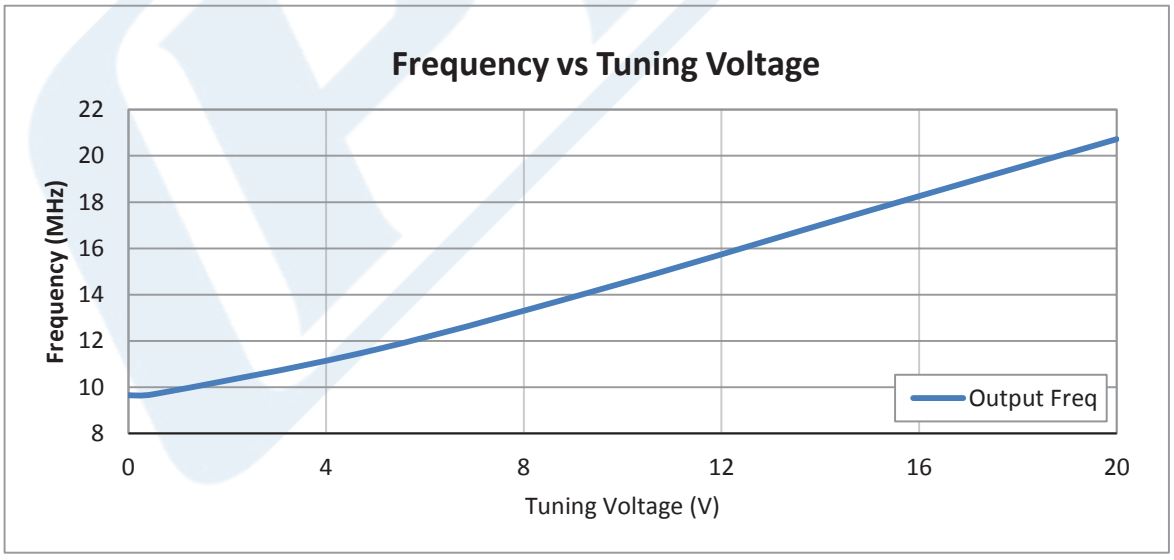
Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



Voltage Control Oscillators Technical Data Sheet PE1V11000

Typical Performance Data





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 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11000

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

ISO 9001 : 2008 Registered

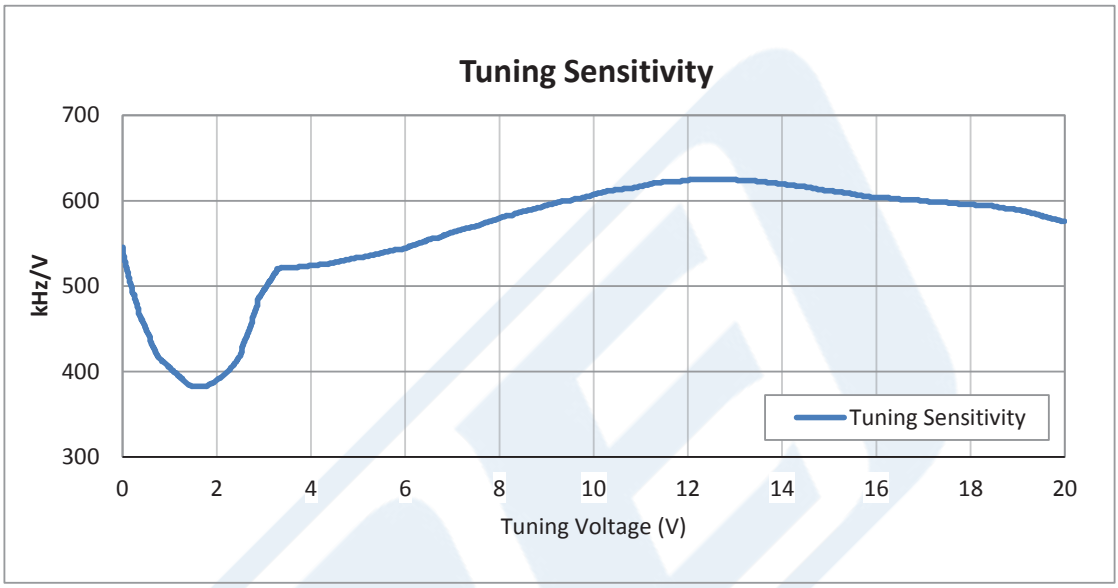
© 2016 Pasternack Enterprises All Rights Reserved

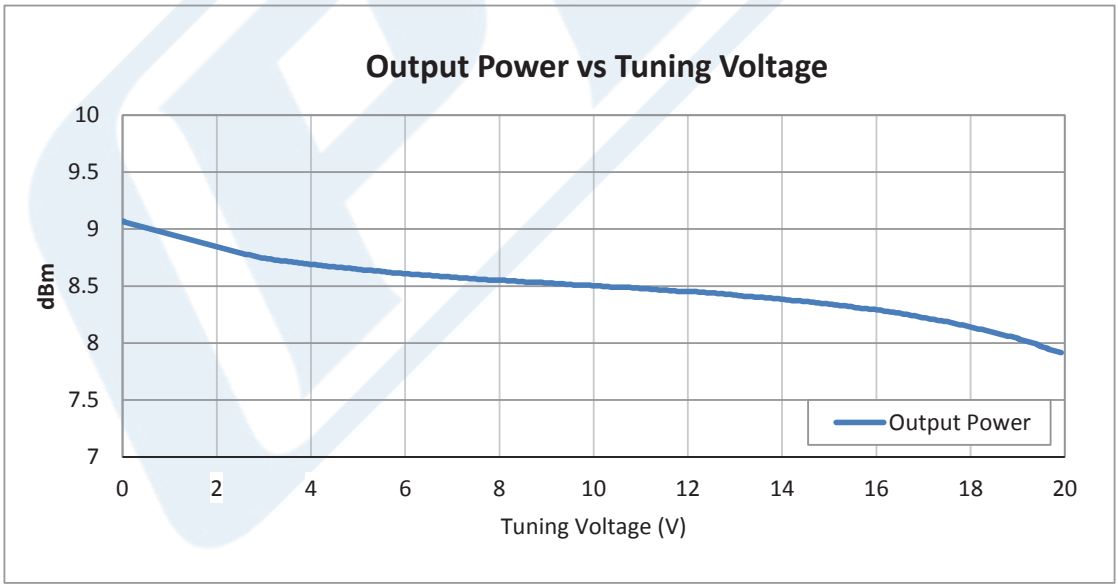
PASTERNACK
THE ENGINEER'S RF SOURCE



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package

Voltage Control Oscillators Technical Data Sheet PE1V11000





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 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11000

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

ISO 9001 : 2008 Registered

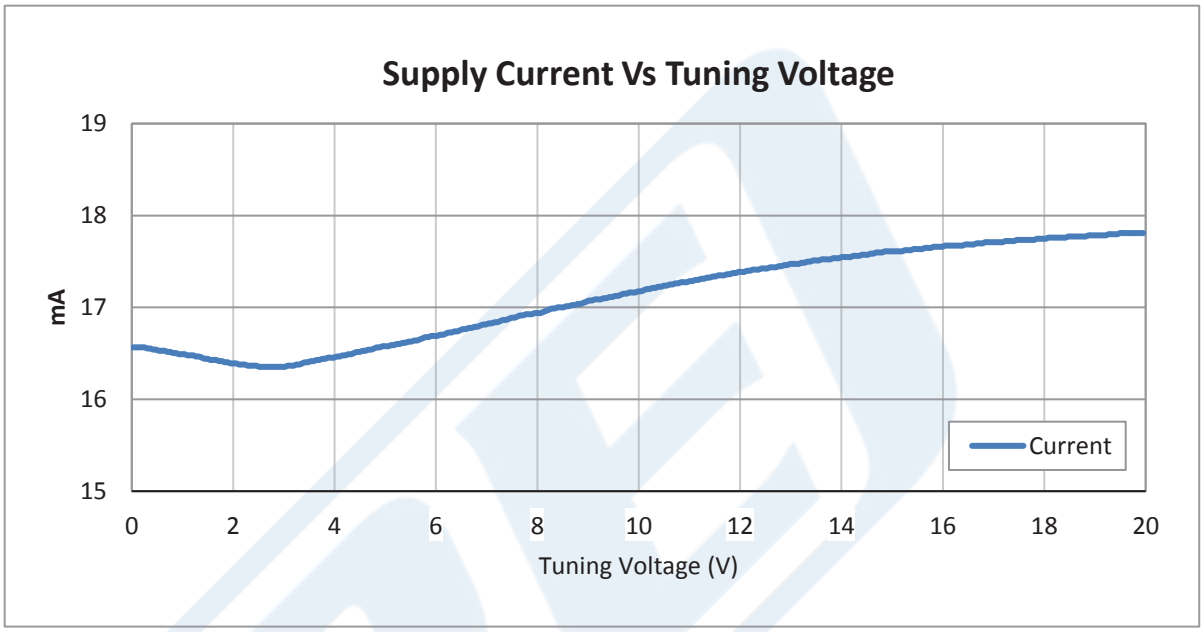
© 2016 Pasternack Enterprises All Rights Reserved

PASTERNACK
THE ENGINEER'S RF SOURCE

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



Voltage Control Oscillators Technical Data Sheet PE1V11000



Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 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.

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 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package PE1V11000

URL: http://www.pasternack.com/surface-mount-smt-voltage-controlled-oscillator-vco-20-mhz-pe1v11000-p.aspx

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.

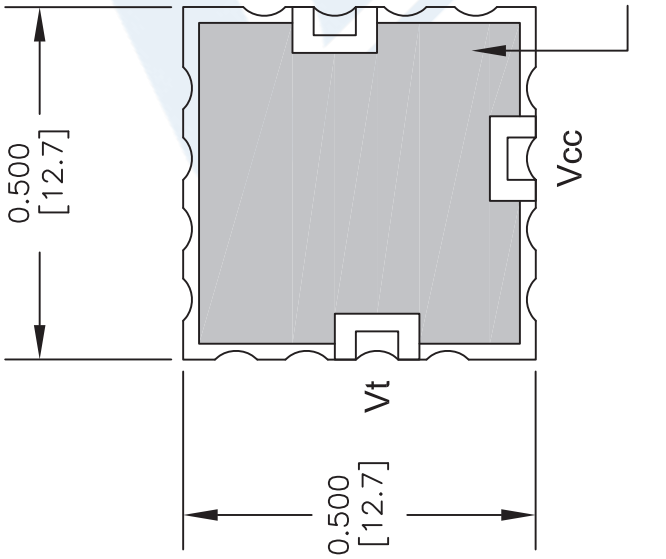
Pasternack Enterprises, Inc. • P.O. Box 16759, Irvine, CA 92623
Phone: (866) 727-8376 or (949) 261-1920 • **Fax:** (949) 261-7451
Sales@Pasternack.com • Techsupport@Pasternack.com

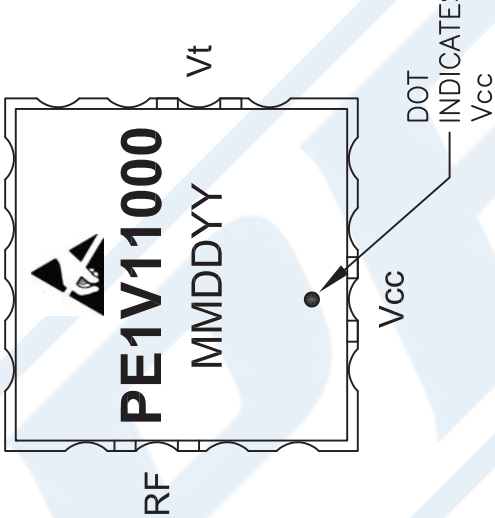
ISO 9001 : 2008 Registered

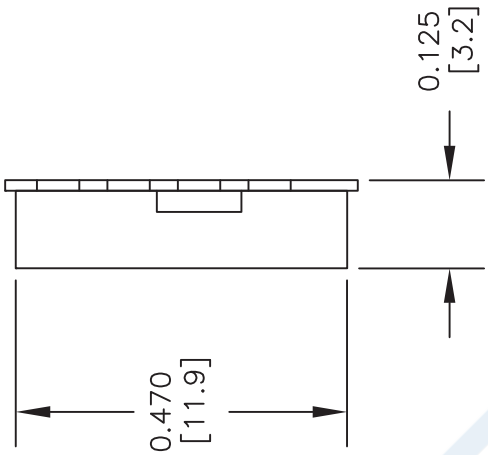
© 2016 Pasternack Enterprises All Rights Reserved

PE1V11000 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 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.

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: PE1V11000

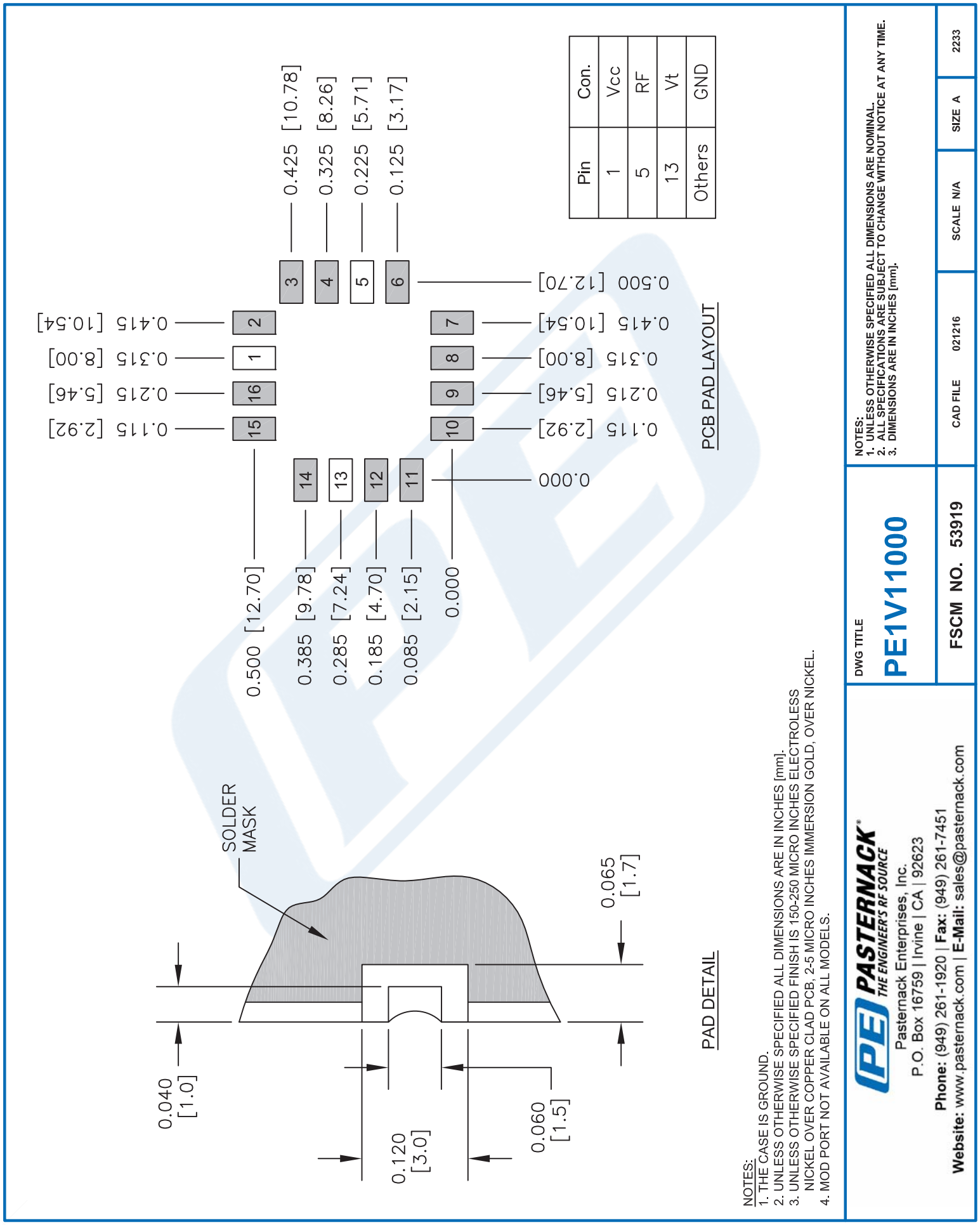
FSCM NO. 53919 | CAD FILE 021216 | SCALE N/A | SIZE A | 2233

PASTERNACK® THE ENGINEER'S RF SOURCE
Pasternack Enterprises, Inc.
P.O. Box 16759 | Irvine | CA | 92623
Phone: (949) 261-1920 | **Fax:** (949) 261-7451
Website: www.pasternack.com | **E-Mail:** sales@pasternack.com

© 2016 Pasternack Enterprises All Rights Reserved

PE1V11000 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package



© 2016 Pasternack Enterprises All Rights Reserved

PE1V11000 CAD Drawing

Surface Mount (SMT) Voltage Controlled Oscillator (VCO) From 10 MHz to 20 MHz, Phase Noise of -120 dBc/Hz and 0.5 inch Package

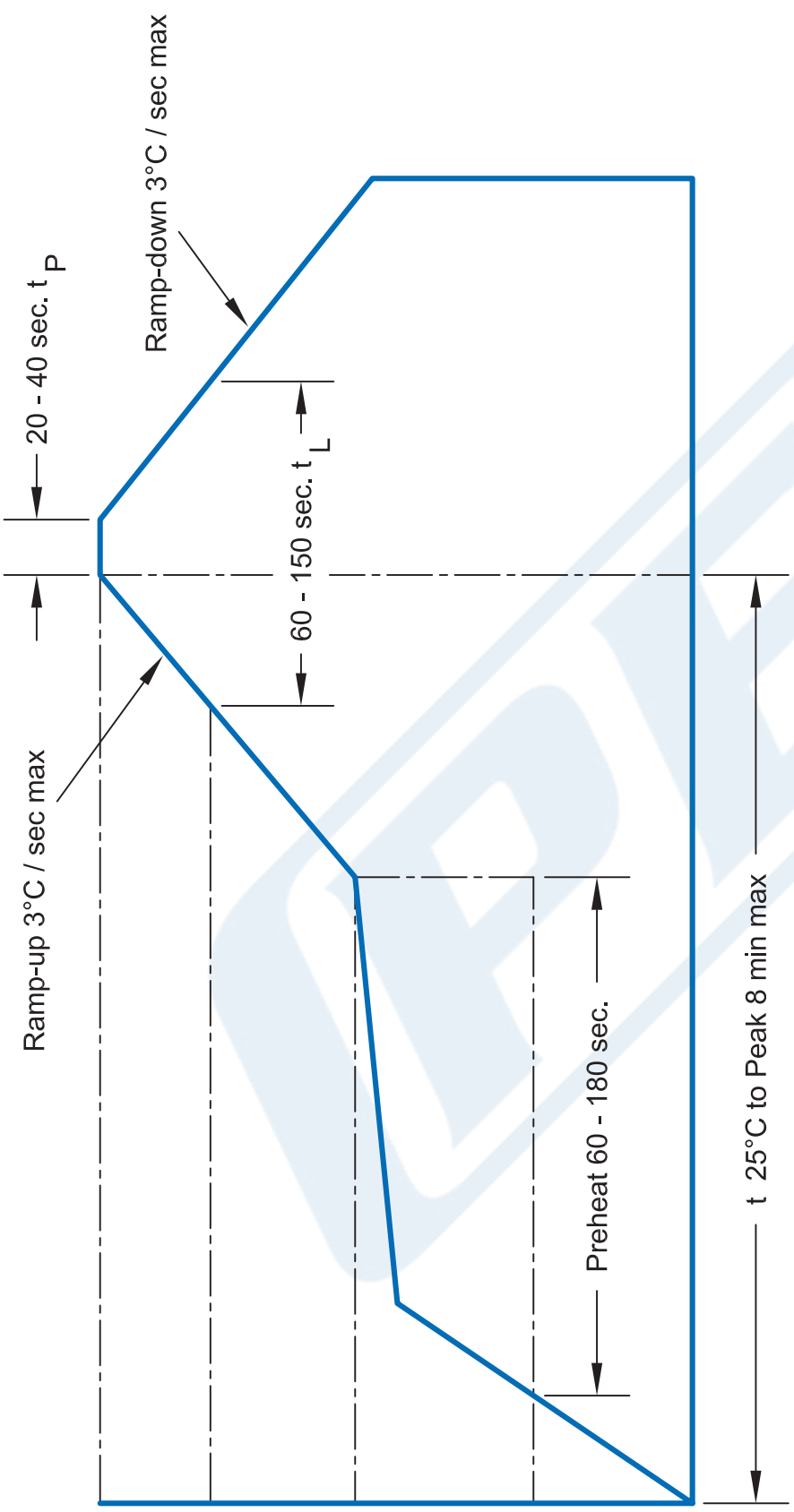


Table 1
Hand Soldering

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.

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
PE1V11000

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

PASTERNACK® THE ENGINEER'S RF SOURCE
Pasternack Enterprises, Inc.
P.O. Box 16759 | Irvine | CA | 92623
Phone: (949) 261-1920 | **Fax:** (949) 261-7451
Website: www.pasternack.com | **E-Mail:** sales@pasternack.com

© 2016 Pasternack Enterprises All Rights Reserved