

**VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 30 MHz to 60 MHz, Phase Noise -119 dBc/Hz**

FMVC11003 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 30 MHz to 60 MHz frequency band with a voltage tuning range from 0V to 15V. This design features exceptional phase noise performance of -119 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11 dBm and 2nd harmonic output of -14 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	Min	Typ	Max	Units
Frequency Range	30		60	MHz
Tuning Voltage	0		15	Vdc
Supply Voltage (DC)	14	15	16	Vdc
Supply Current (DC)		16	18	mA
Phase Noise @1kHz Offset		-92	-90	dBc/Hz
Phase Noise @10kHz Offset		-119	-117	dBc/Hz
Phase Noise @100kHz Offset		-139	-137	dBc/Hz
Output Power	+10	+11	+12	dBm
Tuning Sensitivity (Kvco)	1.5		3.5	MHz/V
Pushing		0.05	0.1	MHz/V
Pulling (pk-pk)		50	100	KHz
Tuning Port Capacitance		100		pF
Load Impedance		50		Ohms
2nd Harmonics		-14	-12	dBc

**Mechanical Specifications**

Size	
Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.13 in [3.3 mm]
Body 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 2131
Vibration	MIL-STD-202, Method 204D
Temperature Cycle	MIL-STD-202, Method 107B

**Features:**

- 30 to 60 MHz Bandwidth
- -119 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 15V
- Pout = +11 dBm
- Harmonics = -14 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

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ESD Sensitivity

ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.



**Compliance Certifications** (visit [www.FairviewMicrowave.com](http://www.FairviewMicrowave.com) for current document)

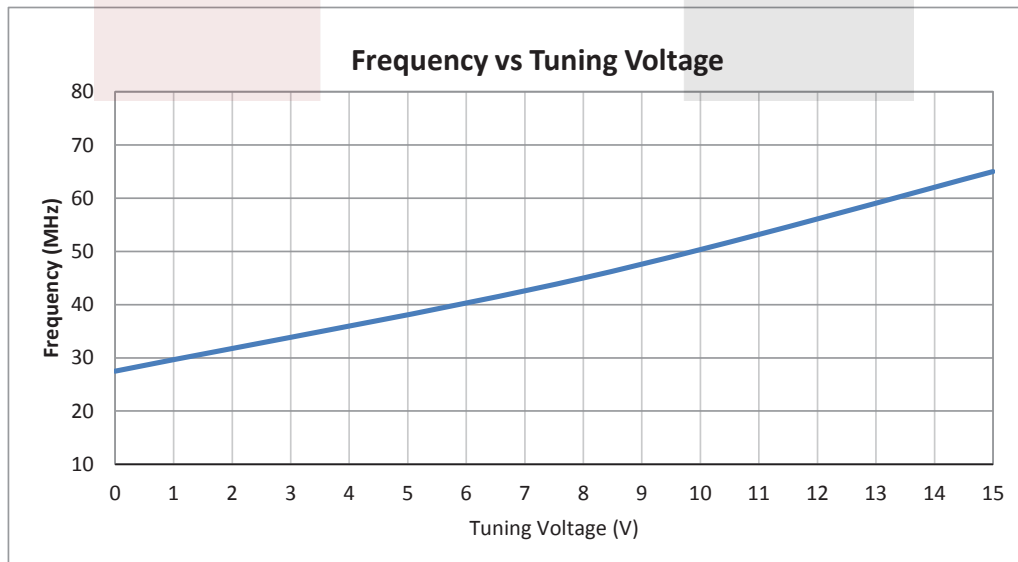
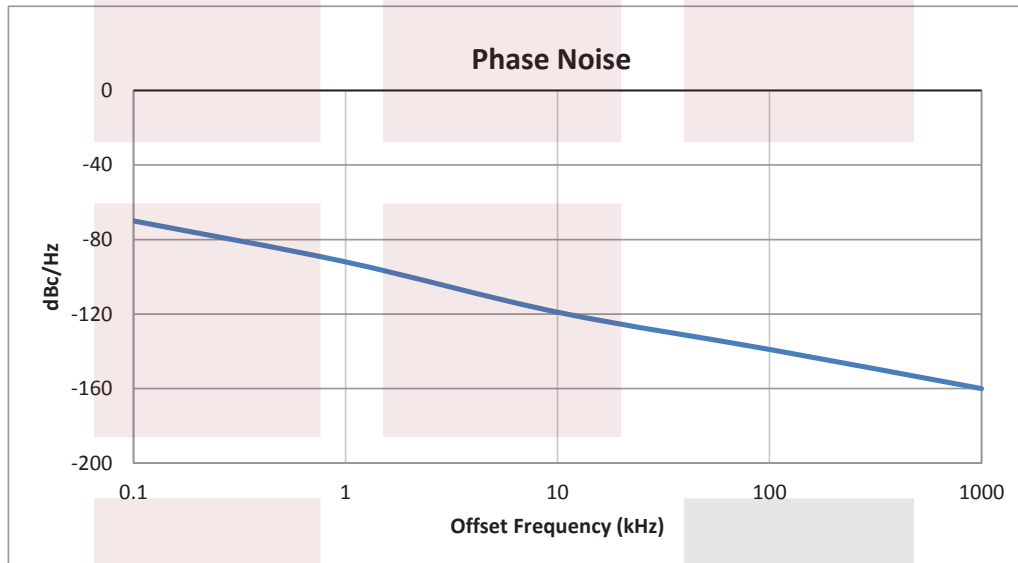
RoHS Compliant  
 REACH Compliant

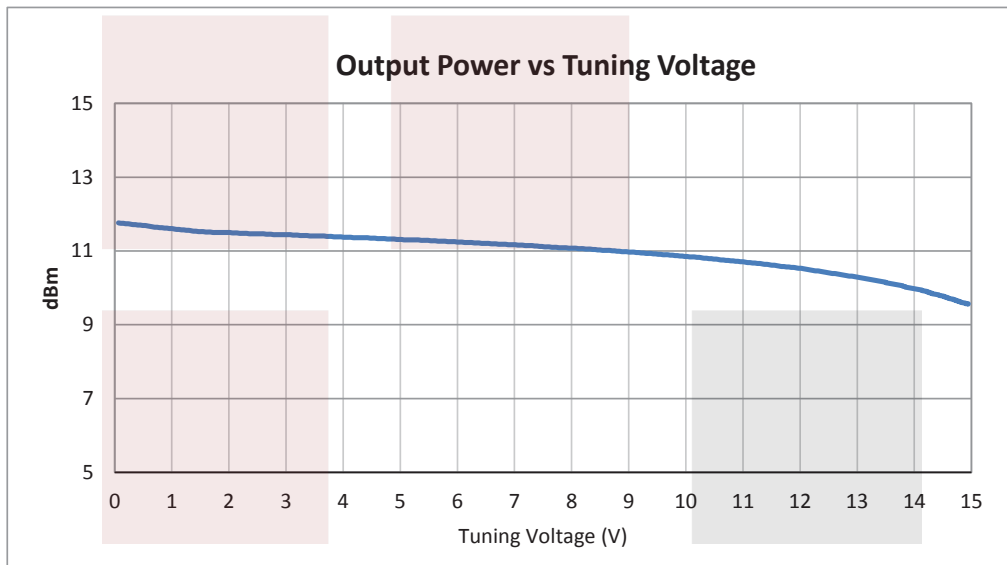
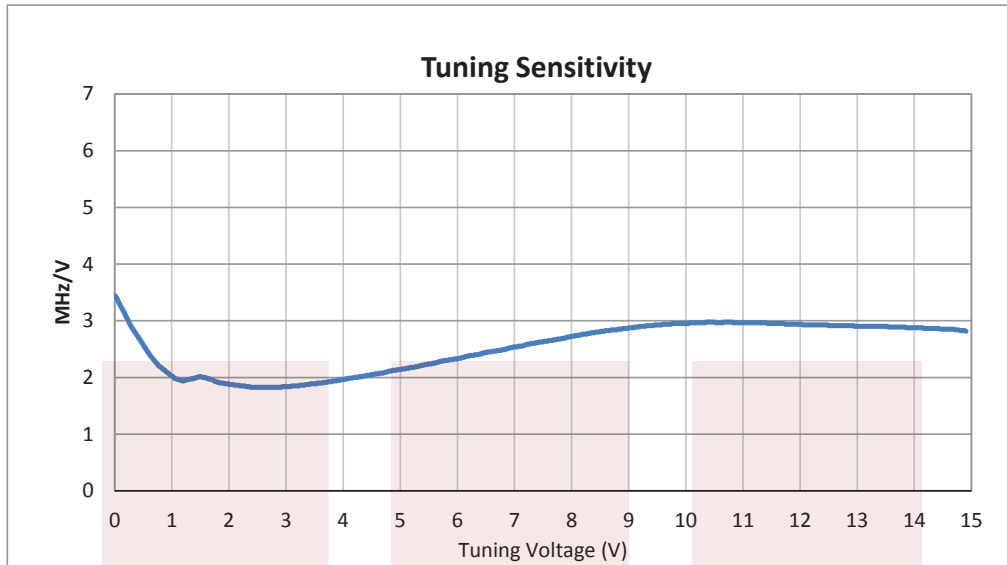
Yes  
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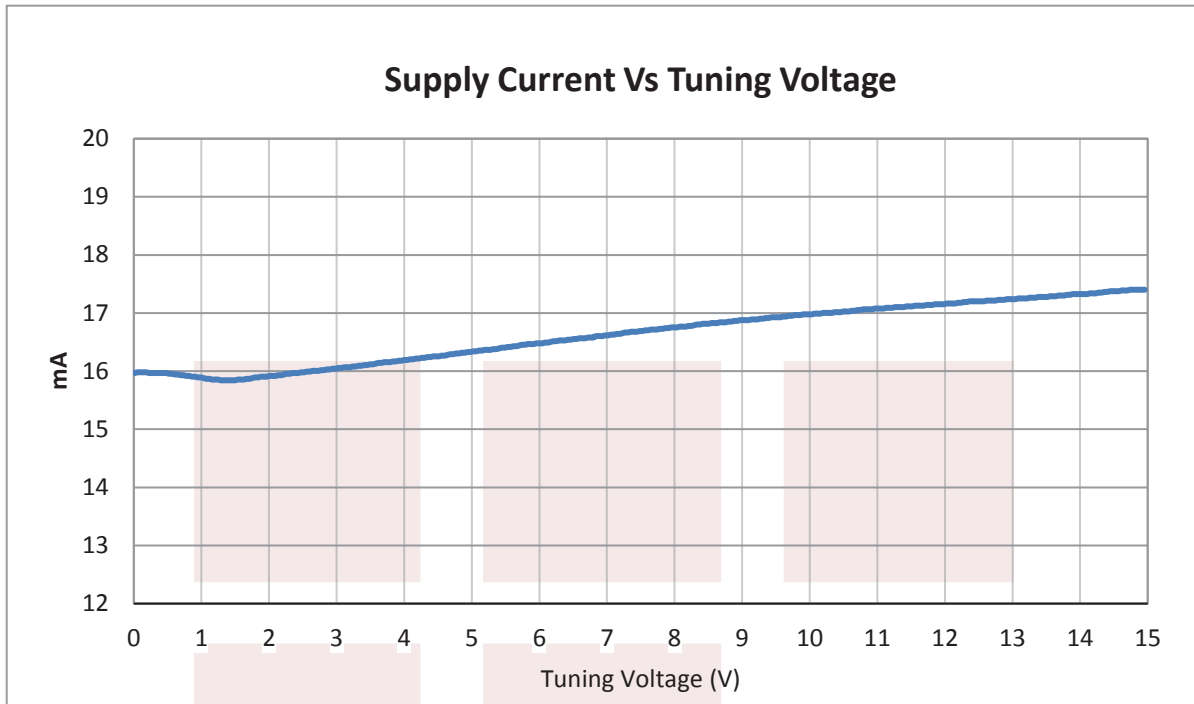
**Plotted and Other Data**

Notes:

**Typical Performance Data**





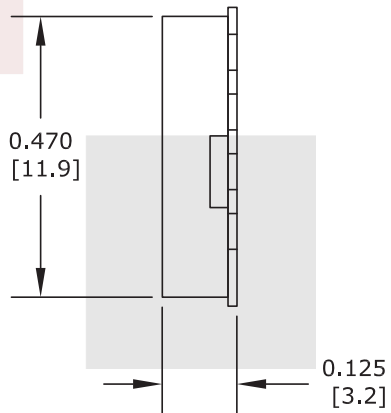
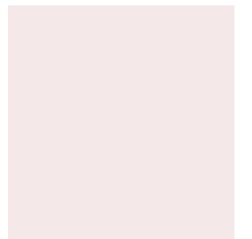
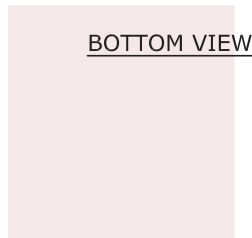
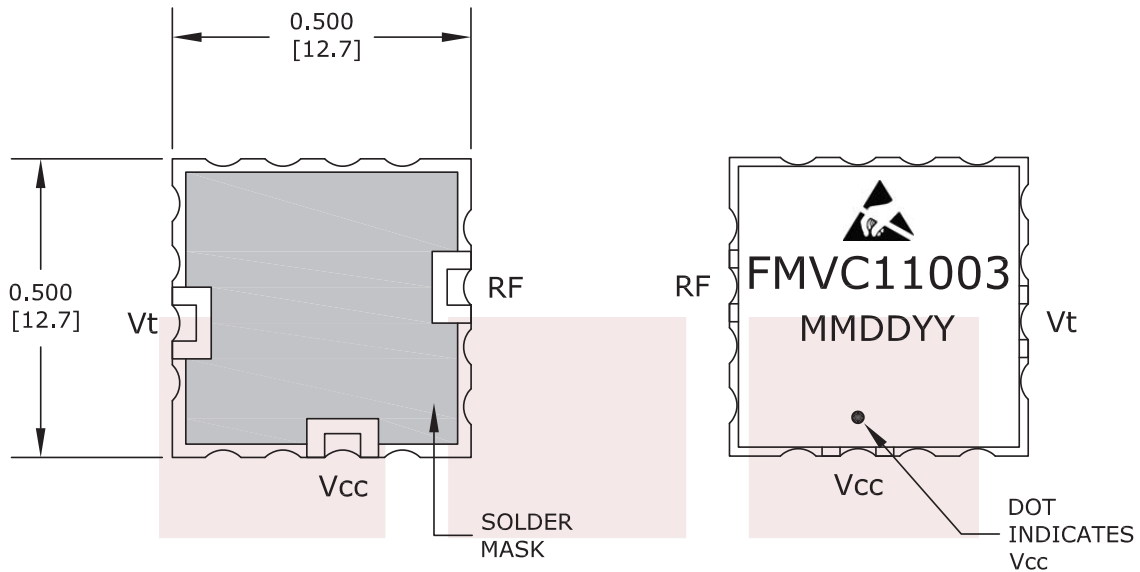


VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 30 MHz to 60 MHz, Phase Noise -119 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [VCO \(Voltage Controlled Oscillator\) 0.5 inch Commercial SMT \(Surface Mount\), Frequency of 30 MHz to 60 MHz, Phase Noise -119 dBc/Hz FMVC11003](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-60-mhz-fmvc11003-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. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.

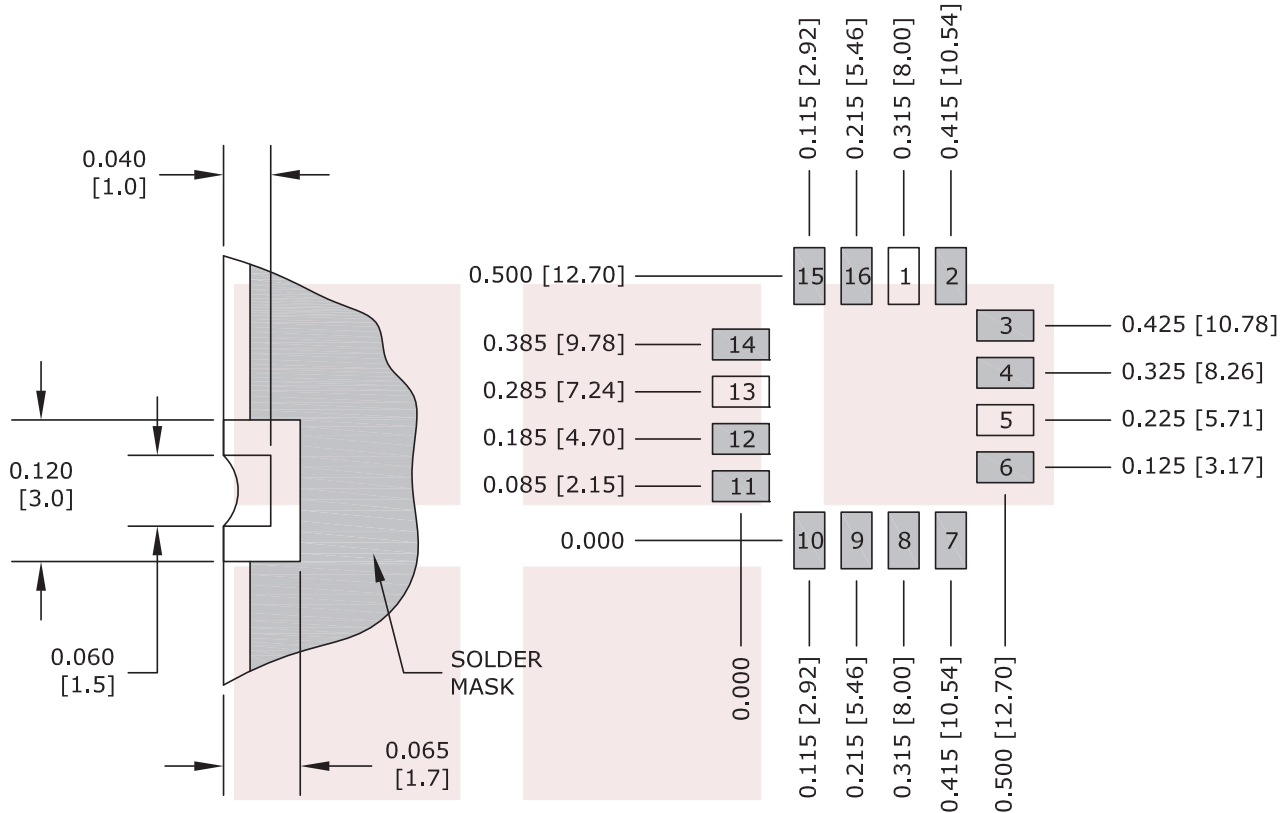


SIDE VIEW

**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.

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CAD FILE	101515	SHEET	SCALE	N/A	SIZE A 2233



PAD DETAIL

Pin	Con.
1	Vcc
5	RF
13	Vt
Others	GND

PCB PAD LAYOUT

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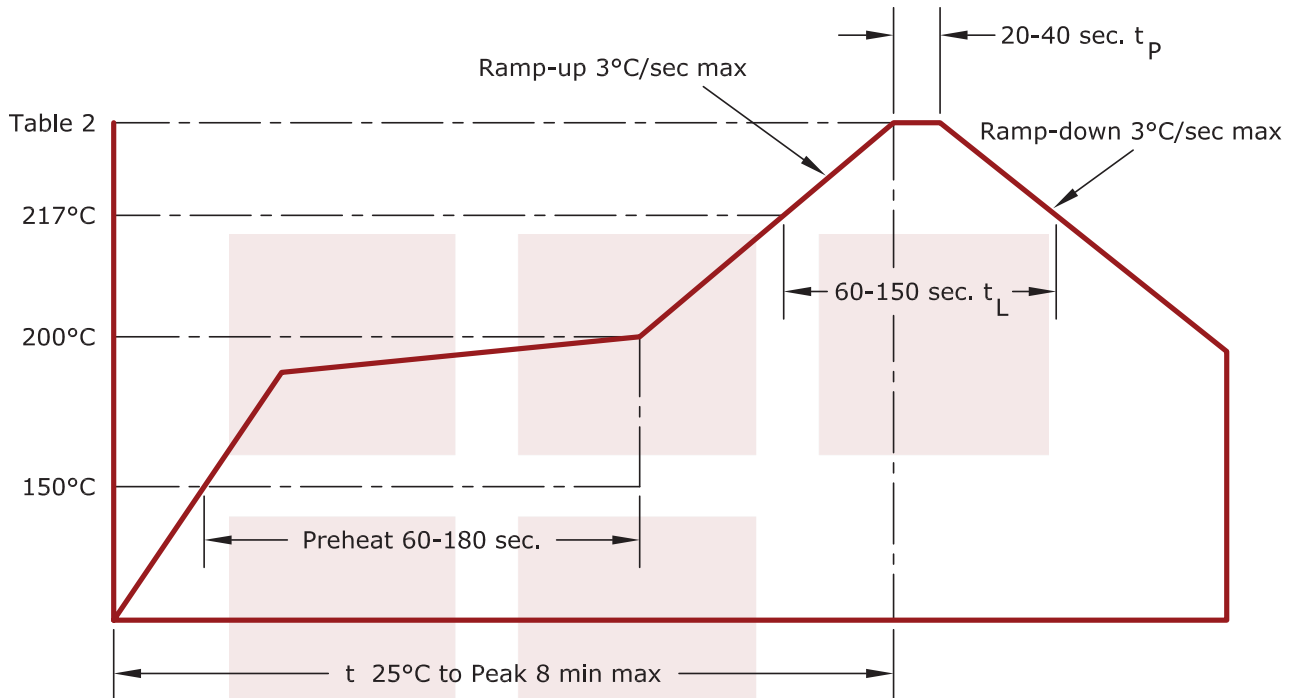


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

Table 2 Package re-flow temp	
Pkg.	tp (°C)
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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