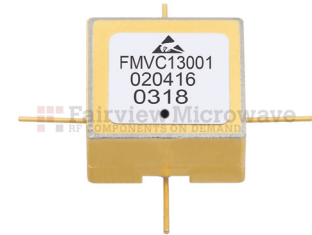


**VCO (Voltage Controlled Oscillator) 0.5 inch  
 Hermetic SMT (Surface Mount), Frequency of 18 MHz  
 to 30 MHz, Phase Noise -120 dBc/Hz**

The FMVC13001 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 18 MHz to 30 MHz frequency band with a voltage tuning range from 0V to 12V. This design features exceptional phase noise performance of -120 dBc/Hz @ 10 kHz offset. Supply Voltage is +12V with a generated output power level of +12.0 dBm and 2nd harmonic output of -13 dBc typical. The assembly is RoHs compliant and available in a hermetically sealed 0.5" surface mount package with exposed leads that MIL-STD-883, Method 1014 fine & Gross leak conditions. This rugged package operates over a temperature range of -40°C to +85°C and is designed to also meet a variety of MIL-STD-202 test conditions including Humidity, Shock, and Vibration.



**Electrical Specifications**

Description	Min	Typ	Max	Units
Frequency Range	18		30	MHz
Tuning Voltage	0		12	Vdc
Supply Voltage (DC)	11	12	13	Vdc
Supply Current (DC)		16	19	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	+10	+12	+13.5	dBm
Tuning Sensitivity (Kvco)	0.9		1.8	MHz/V
Pushing		0.03	0.05	MHz/V
Pulling (pk-pk)		70	100	KHz
Tuning Port Capacitance		100		pF
Load Impedance		50		Ohms
2nd Harmonics		-13	-12	dBc

**Features:**

- 18 to 30 MHz Bandwidth
- -120 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 12V
- Pout = +12 dBm
- Harmonics = -13 dBm
- RoHs Compliant Assembly
- Hermetically Sealed Rugged SMT Package
- Designed to meet Fine & Gross leak per MIL-STD-883 Method 1014
- 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

**Mechanical Specifications**

Size	
Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.215 in [5.46 mm]
Weight	0.0278 lbs [12.61 g]
Body Material and Plating	Kovar, Nickel, Gold
Design	Hermetic
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
Hermetic Seal	Fine Leak MIL-STD-883 Method 1014C/Gross Leak MIL-STD-883, Method 1014A, 1 x 10-8 atm cc/s

Fairview Microwave  
 1130 Junction Dr. #100  
 Allen, TX 75013  
 Tel: 1-800-715-4396 / (972) 649-6678  
 Fax: (972) 649-6689  
[www.fairviewmicrowave.com](http://www.fairviewmicrowave.com)  
[sales@fairviewmicrowave.com](mailto:sales@fairviewmicrowave.com)

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)

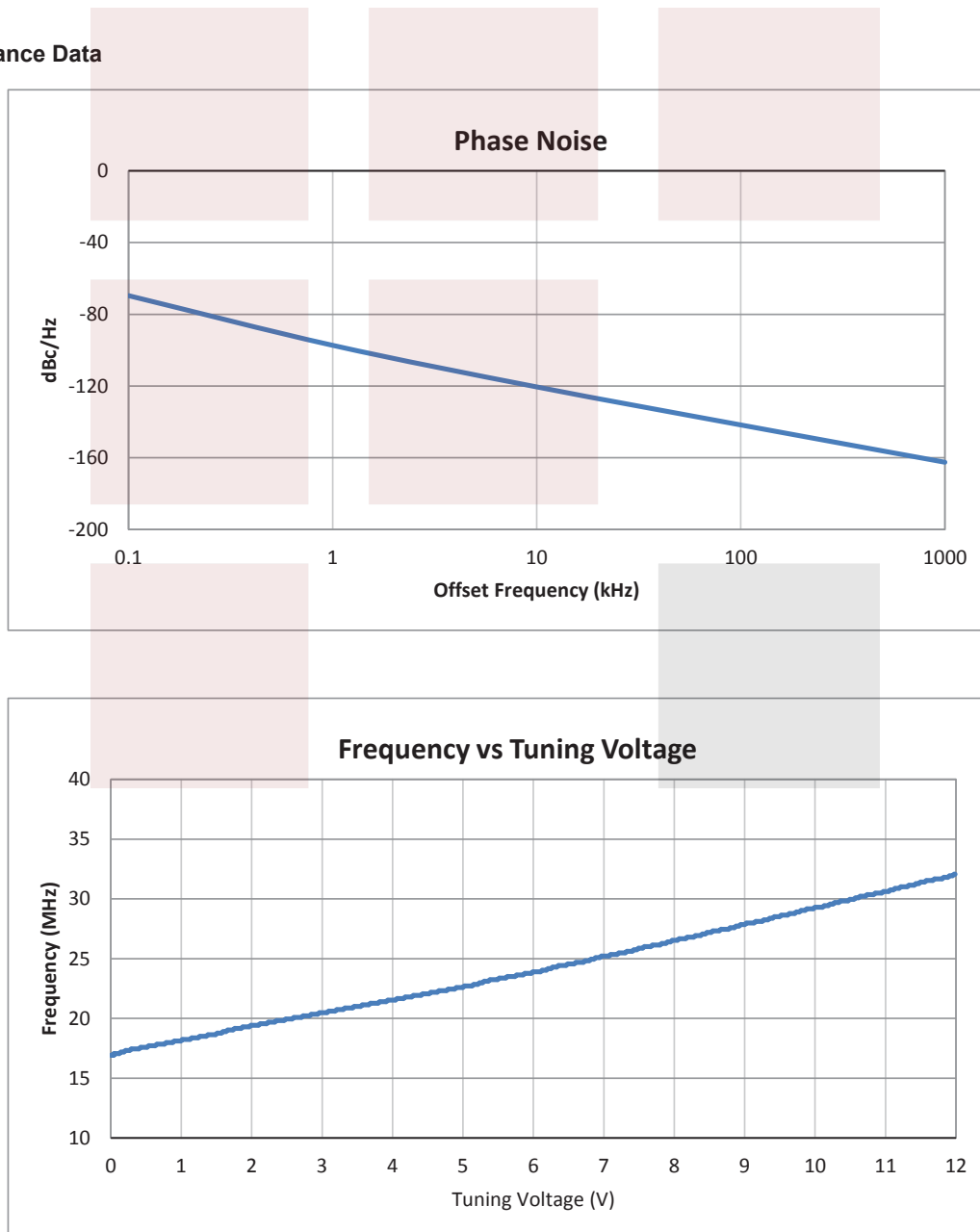
RoHS Compliant  
 REACH Compliant

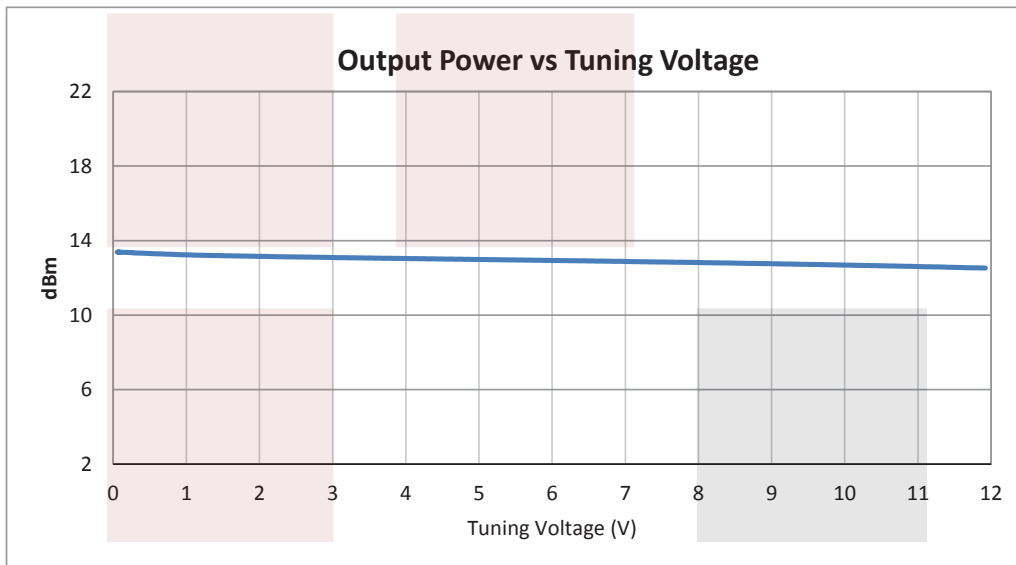
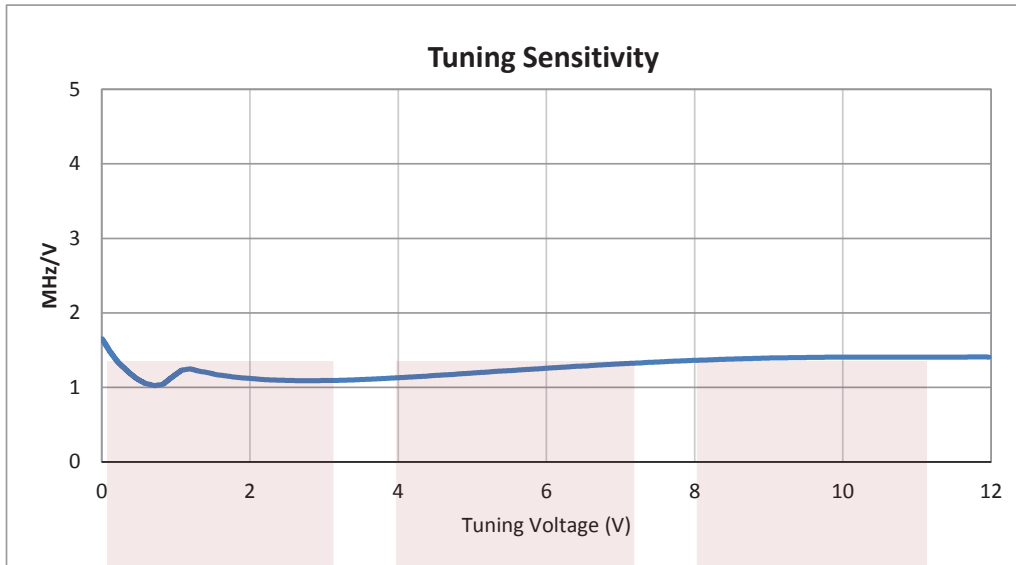
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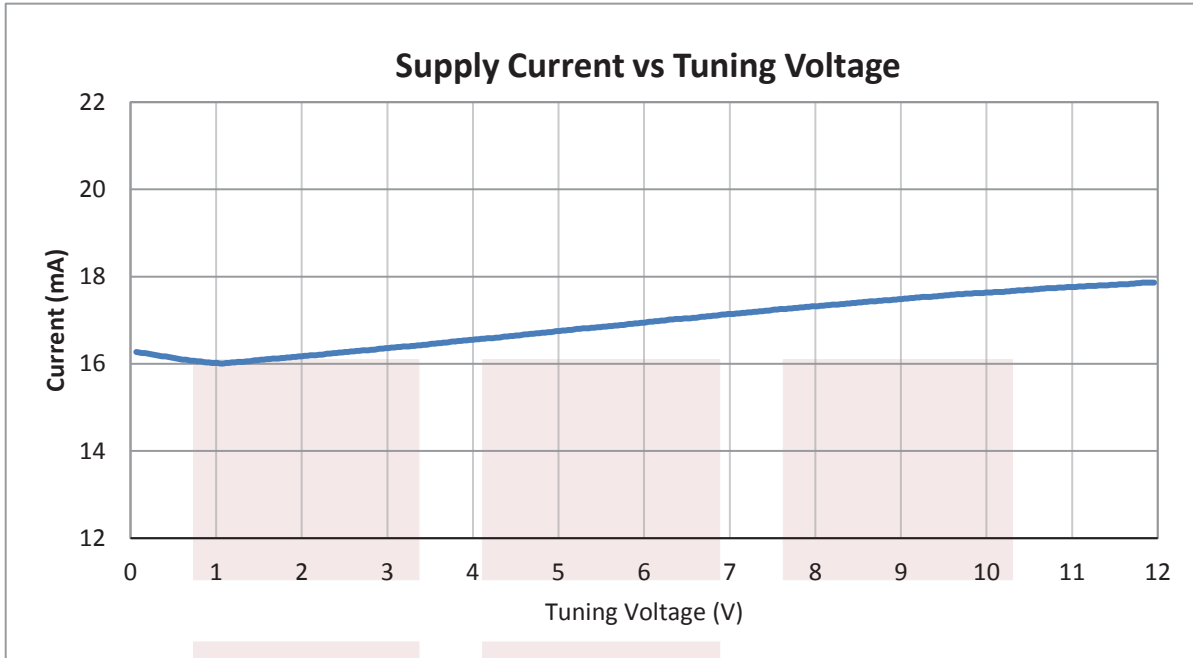
**Plotted and Other Data**

Notes:

**Typical Performance Data**





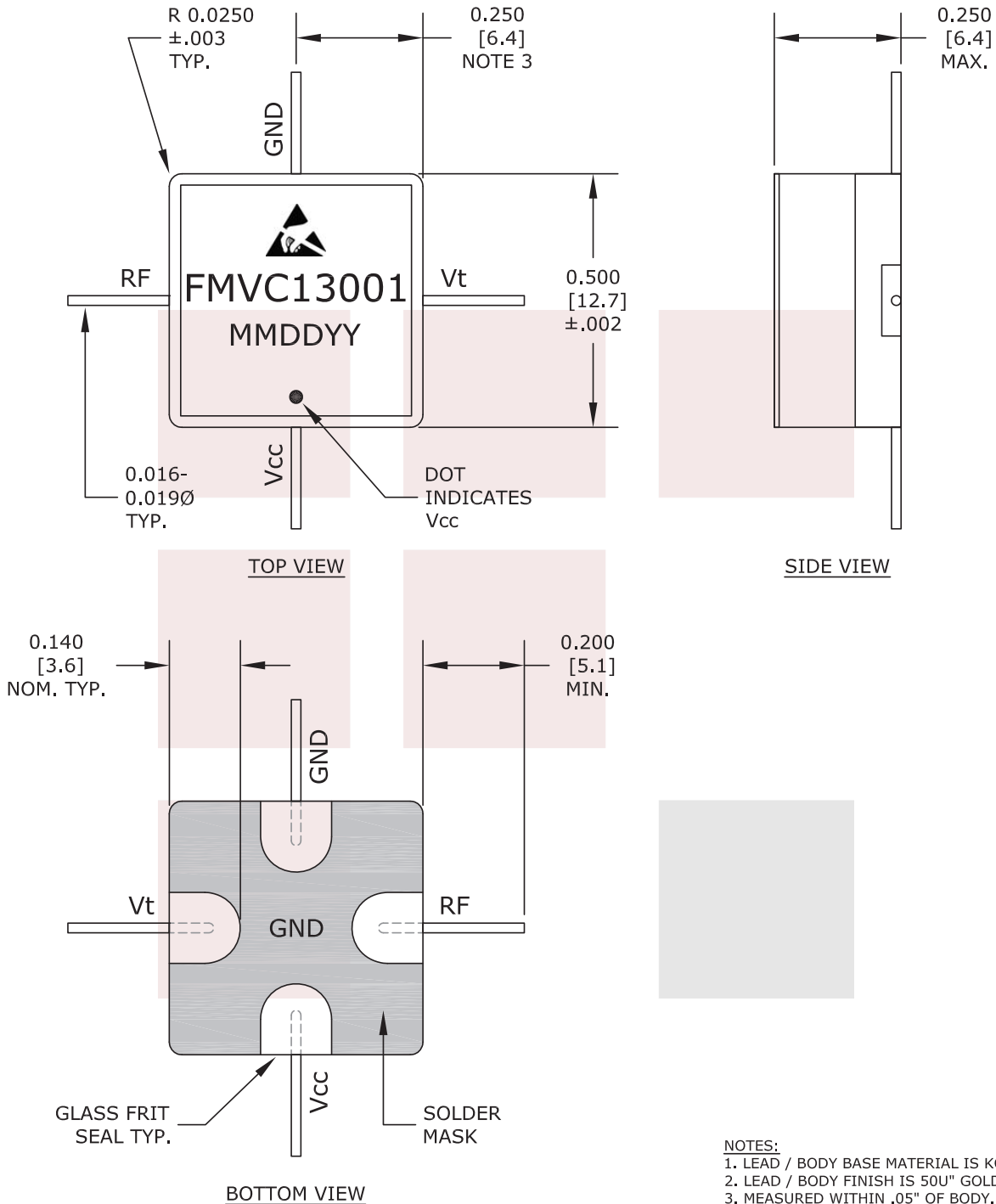


VCO (Voltage Controlled Oscillator) 0.5 inch Hermetic SMT (Surface Mount), Frequency of 18 MHz to 30 MHz, Phase Noise -120 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 Hermetic SMT \(Surface Mount\), Frequency of 18 MHz to 30 MHz, Phase Noise -120 dBc/Hz FMVC13001](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-30-mhz-fmvc13001-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.



- 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].

<b>FAIRVIEW MICROWAVE INC.</b> ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM		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].	
TITLE VCO (Voltage Controlled Oscillator) 0.5 inch Hermetic SMT (Surface Mount), Frequency of 18 MHz to 30 MHz, Phase Noise -120 dBc/Hz		DWG NO FMVC13001	CAGE CODE 3FKR5
CAD FILE	020816	SHEET	SCALE N/A SIZE A 2233

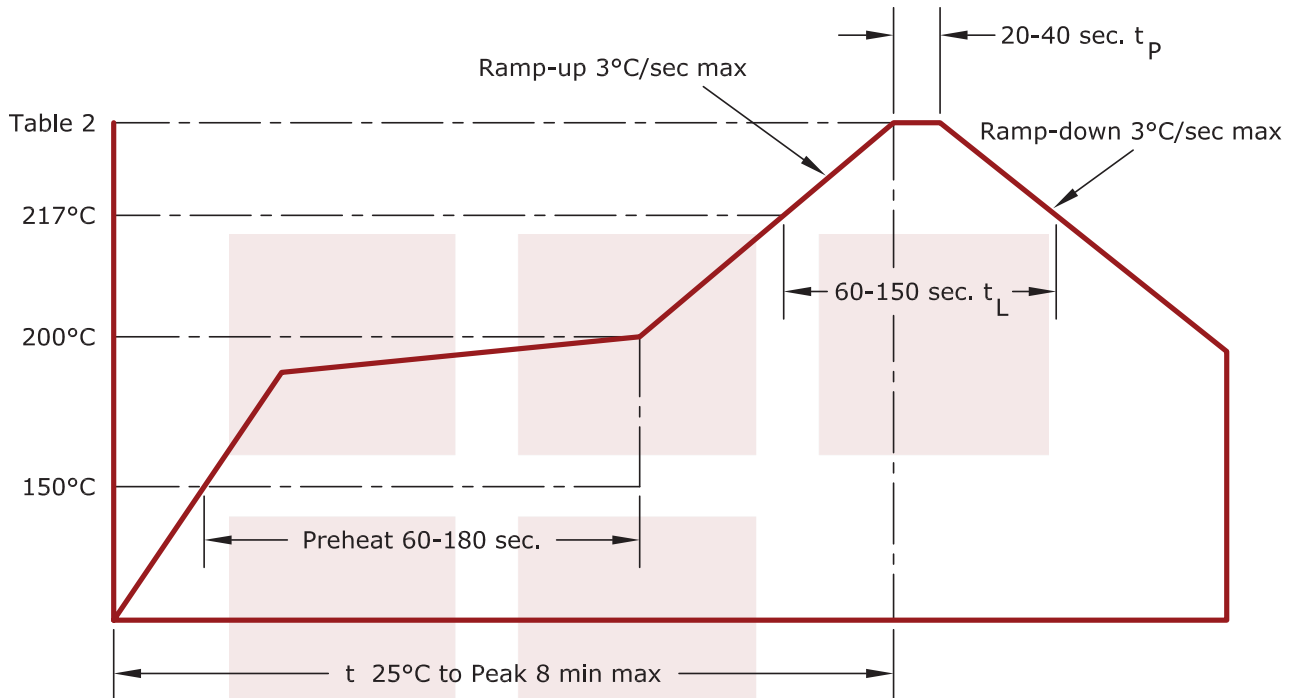


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

Table 2 Package re-flow temp	
Pkg.	tp (°C)
FMVC Series	260
FMVC11 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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