

**VCO (Voltage Controlled Oscillator) 0.5 inch
Commercial SMT (Surface Mount), Frequency of
510 MHz to 550 MHz, Phase Noise -106 dBc/Hz**

FMVC14000 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 510 MHz to 550 MHz frequency band with a voltage tuning range from 0.0V to 3.5V. This design features exceptional phase noise performance of -106 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +6.5 dBm and 2nd harmonic output of -22 dBc typical. The VCO has a buffer amplifier for increased design flexibility. 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	510		550	MHz
Tuning Voltage	0		3.5	Vdc
Supply Voltage (DC)	4.5	5	5.5	Vdc
Supply Current (DC)		11.5	13	mA
Phase Noise @1kHz Offset		-82	-80	dBc/Hz
Phase Noise @10kHz Offset		-106	-104	dBc/Hz
Phase Noise @100kHz Offset		-127	-124	dBc/Hz
Output Power	+5	+6.5	+7.5	dBm
Tuning Sensitivity (Kvco)	24		26	MHz/V
Pushing		1.5	2.5	MHz/V
Pulling (pk-pk)		800	1.5	KHz
Tuning Port Capacitance		56		pF
Load Impedance		50		Ohms
2nd Harmonics		-22	-20	dBc

Mechanical Specifications

Size	
Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.125 in [3.18 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 213I
Vibration	MIL-STD-202, Method 204D
Temperature Cycle	MIL-STD-202, Method 107B



Features:

- 510 MHz to 550 MHz Bandwidth
- -106 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 3.5V
- Pout = +6.5 dBm
- Integrated Buffer Amplifier
- Harmonics = -22 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

Fairview Microwave
1130 Junction Dr. #100
Allen, TX 75013
Tel: 1-800-715-4396 / (972) 649-6678
Fax: (972) 649-6689
www.fairviewmicrowave.com
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 for current document)

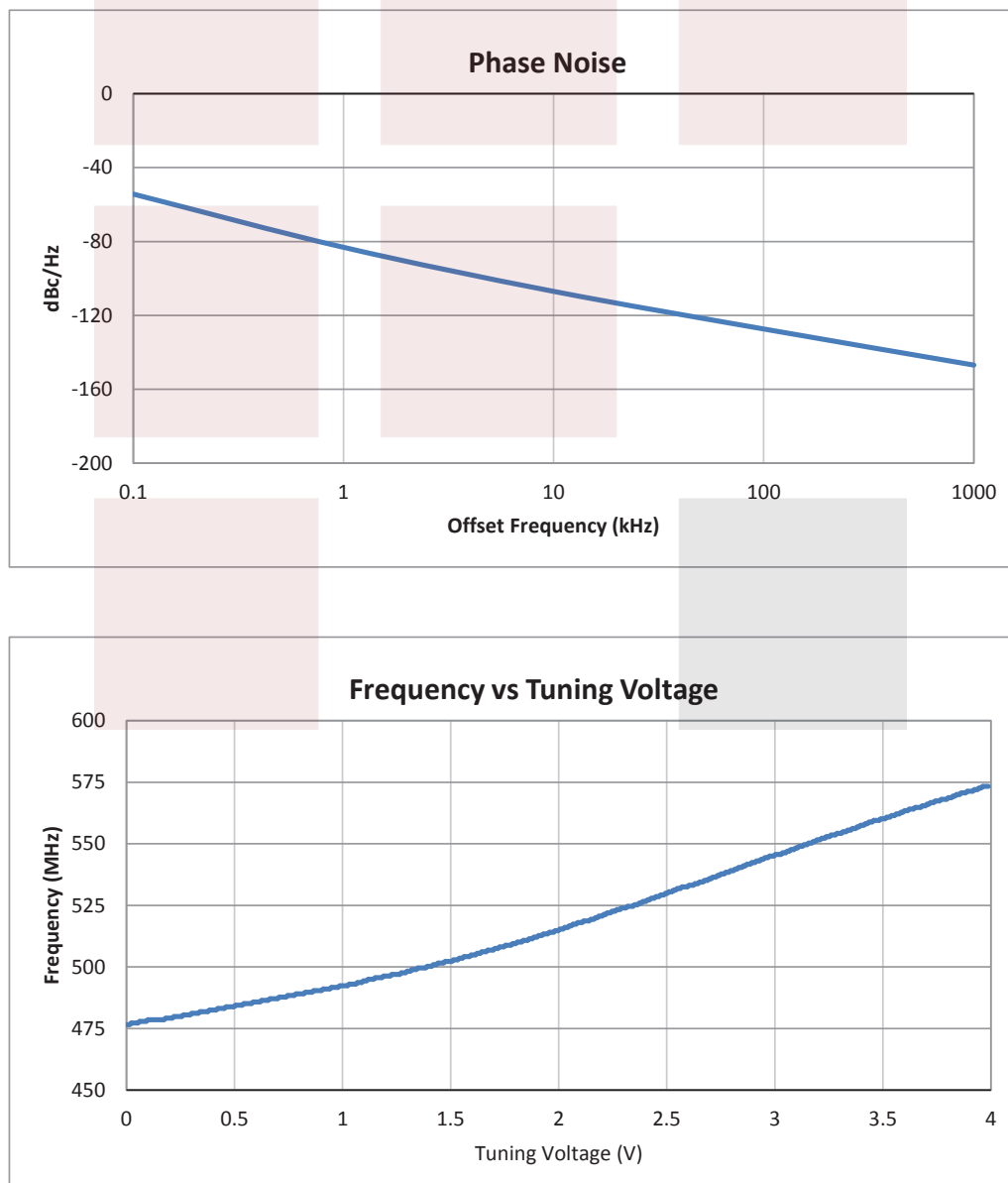
RoHS Compliant
REACH Compliant

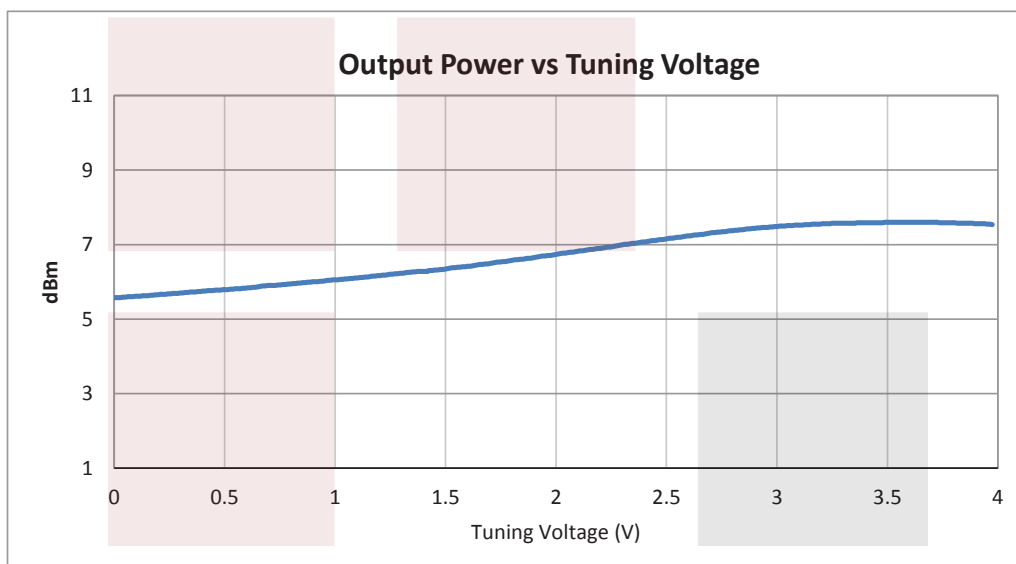
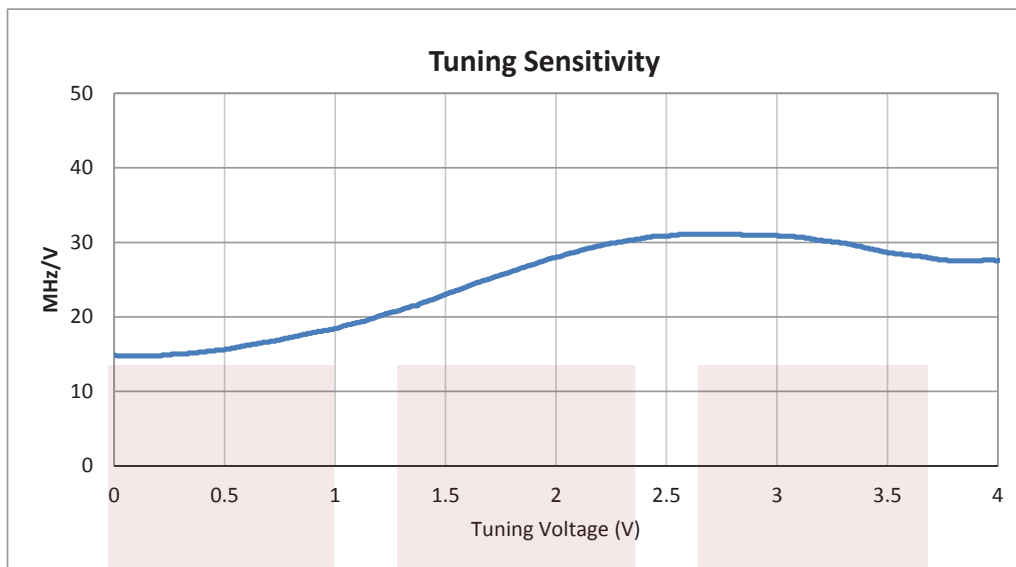
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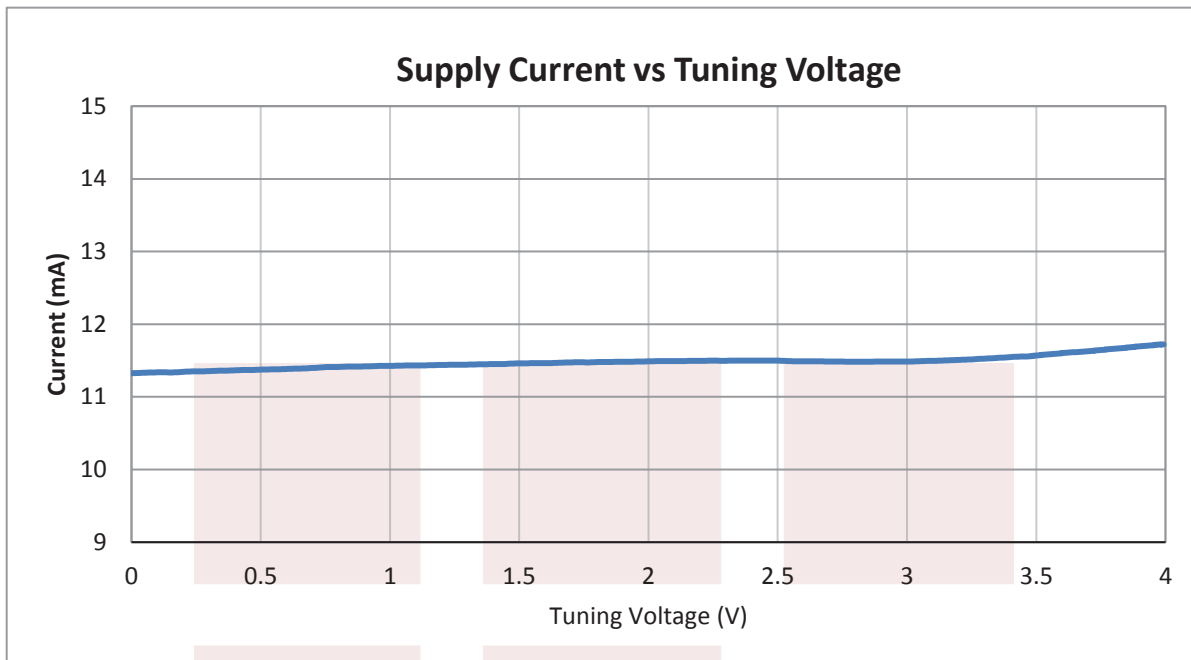
Plotted and Other Data

Notes:

Typical Performance Data





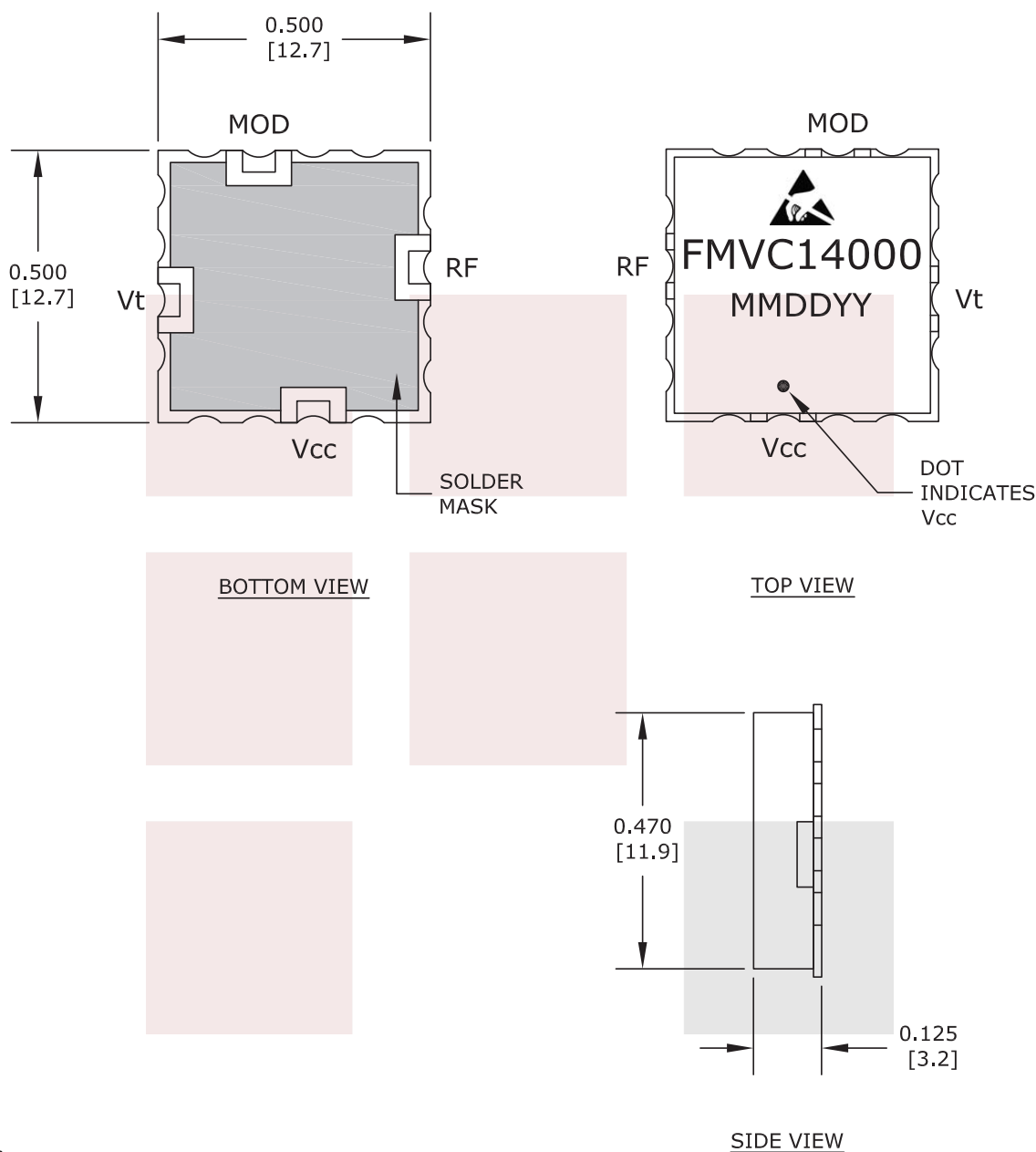


VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 510 MHz to 550 MHz, Phase Noise -106 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 510 MHz to 550 MHz, Phase Noise -106 dBc/Hz FMVC14000](http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-550-mhz-fmvc14000-p.aspx)

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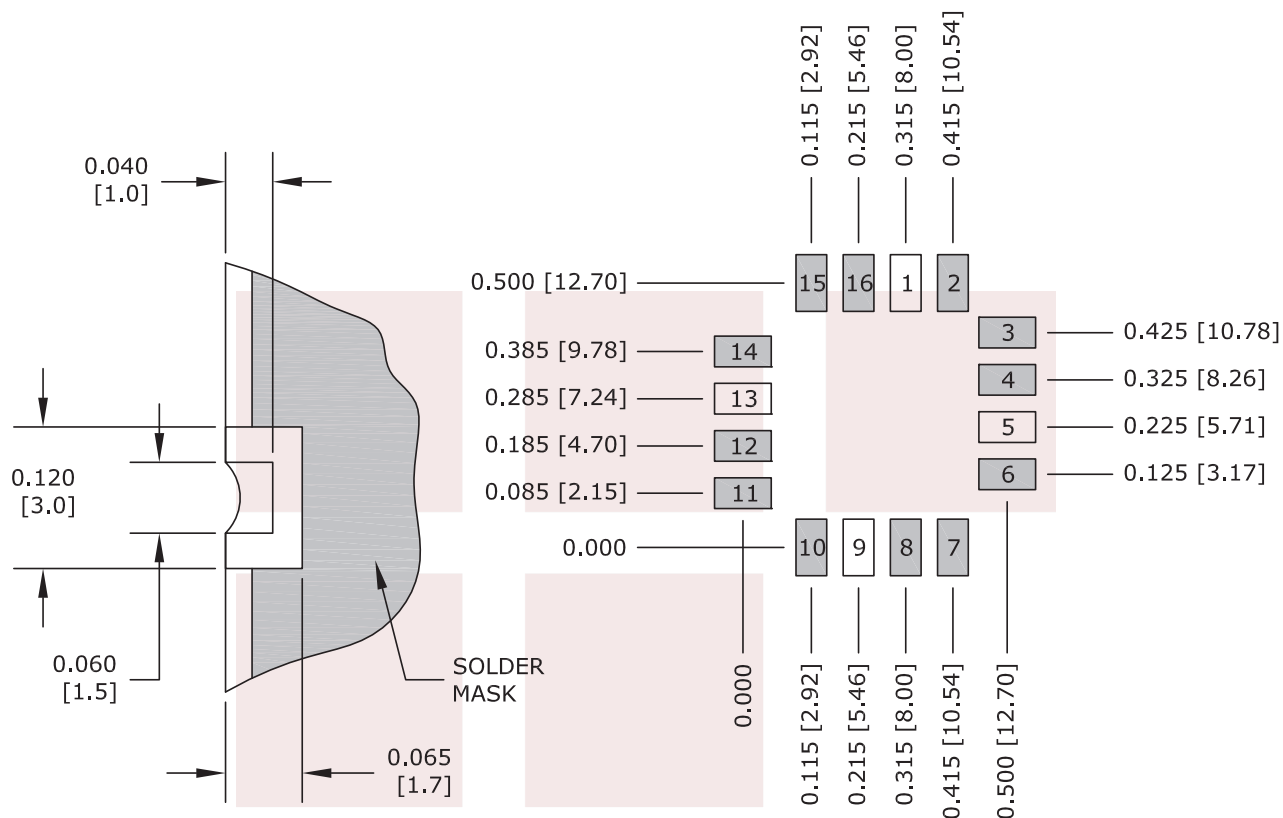
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NOTES:

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.

FAIRVIEW MICROWAVE INC. 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 Commercial SMT (Surface Mount), Frequency of 510 MHz to 550 MHz, Phase Noise -106 dBc/Hz	DWG NO FMVC14000		CAGE CODE 3FKR5		
	CAD FILE 082415	SHEET	SCALE N/A	SIZE A	2233



PAD DETAIL

Pin	Con.
1	Vcc
5	RF
9	MOD
13	Vt
Others	GND

PCB PAD LAYOUT

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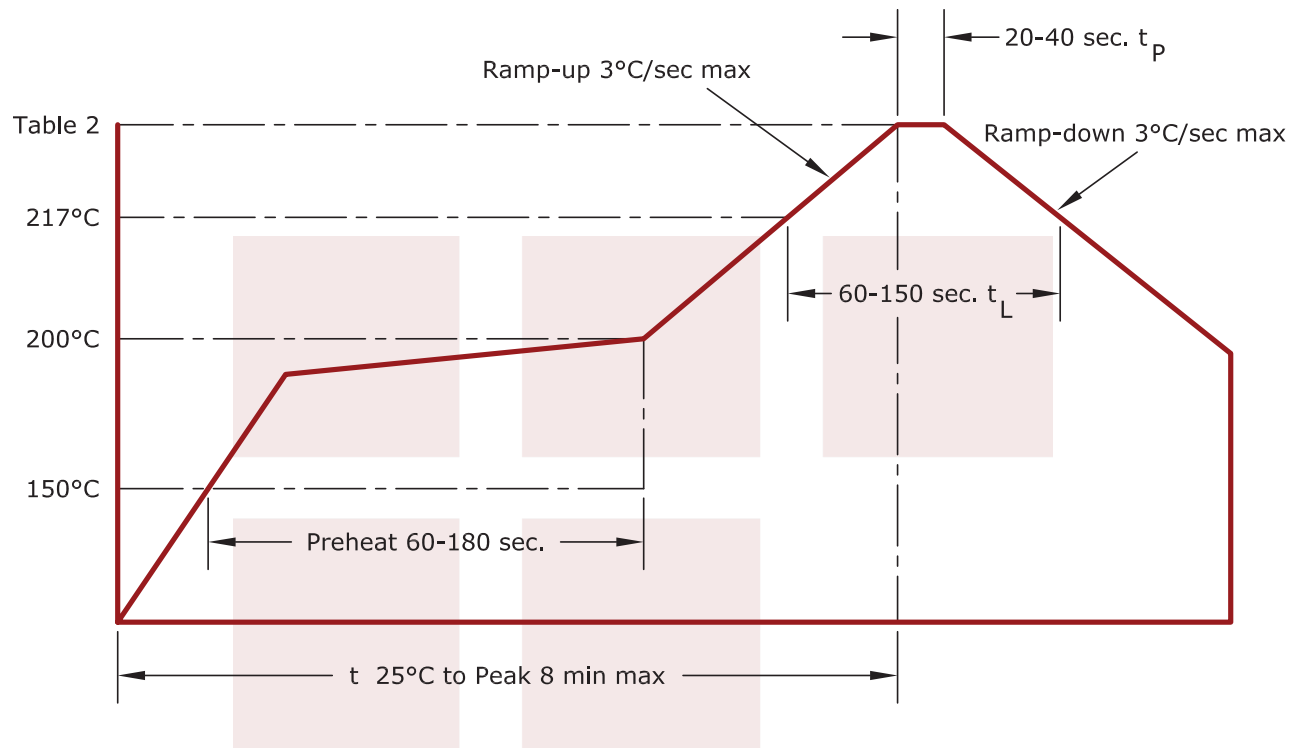


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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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CAD FILE	082415	SHEET	SCALE	N/A	SIZE A 2233