

**VCO (Voltage Controlled Oscillator) 0.5 inch
Commercial SMT (Surface Mount), Frequency of
4.13 GHz to 4.35 GHz, Phase Noise -98 dBc/Hz**

FMVC14009 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 4130 MHz to 4350 MHz frequency band with a voltage tuning range from 0.0V to 8.0V. This design features exceptional phase noise performance of -98 dBc/Hz @ 10 kHz offset. Supply Voltage is +8V with a generated output power level of +7.5 dBm and 2nd harmonic output of -30 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	4.13		4.35	GHz
Tuning Voltage	0		8	Vdc
Supply Voltage (DC)	7	8	9	Vdc
Supply Current (DC)		26	28	mA
Phase Noise @1kHz Offset		-68	-64	dBc/Hz
Phase Noise @10kHz Offset		-98	-94	dBc/Hz
Phase Noise @100kHz Offset		-122	-118	dBc/Hz
Output Power	+6	+7.5	+8.5	dBm
Tuning Sensitivity (Kvco)	15		60	MHz/V
Pushing		4	8	MHz/V
Pulling (pk-pk)		6	10	MHz
Tuning Port Capacitance		6.8		pF
Load Impedance		50		Ohms
2nd Harmonics		-30	-25	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:

- 4130 MHz to 4350 MHz Bandwidth
- -98 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 4.5V
- Pout = +7.5 dBm
- Integrated Buffer Amplifier
- Harmonics = -30 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 for current document)

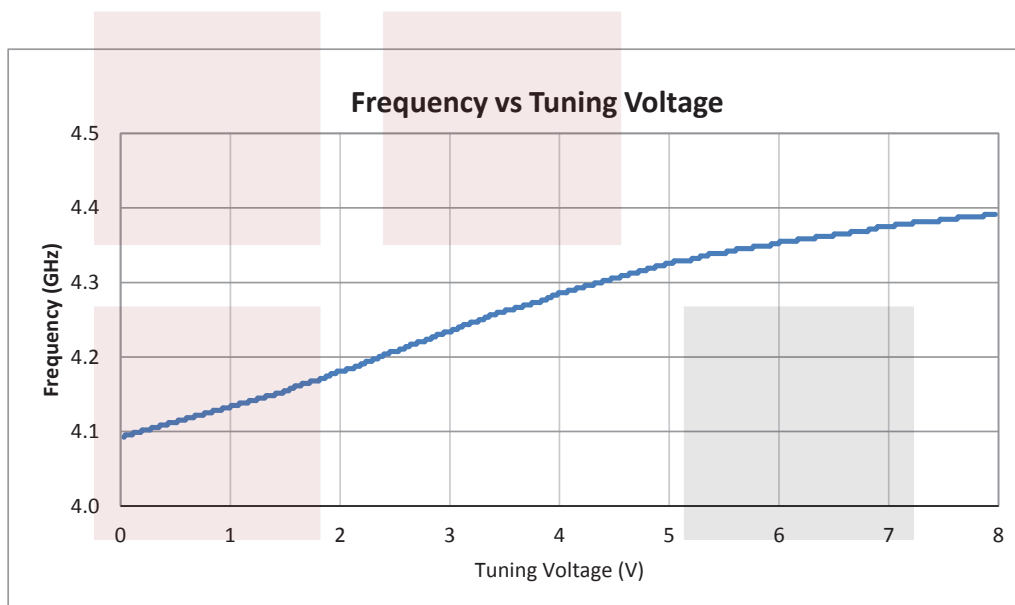
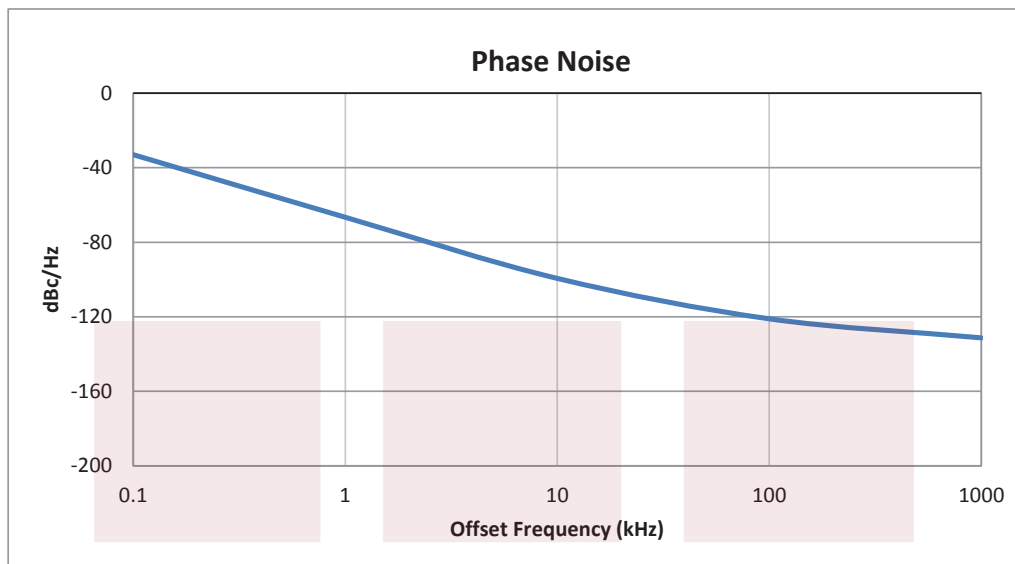
RoHS Compliant

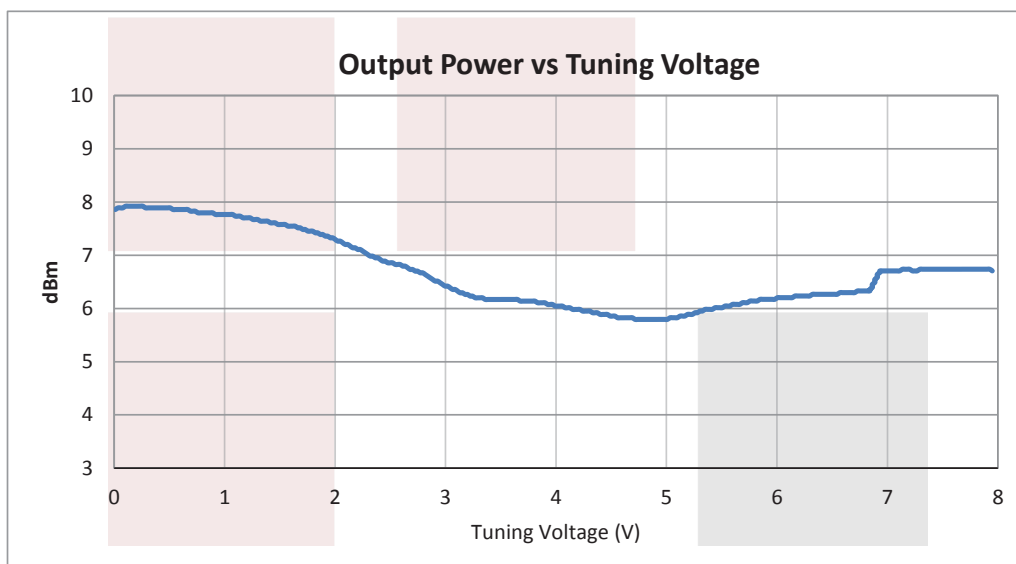
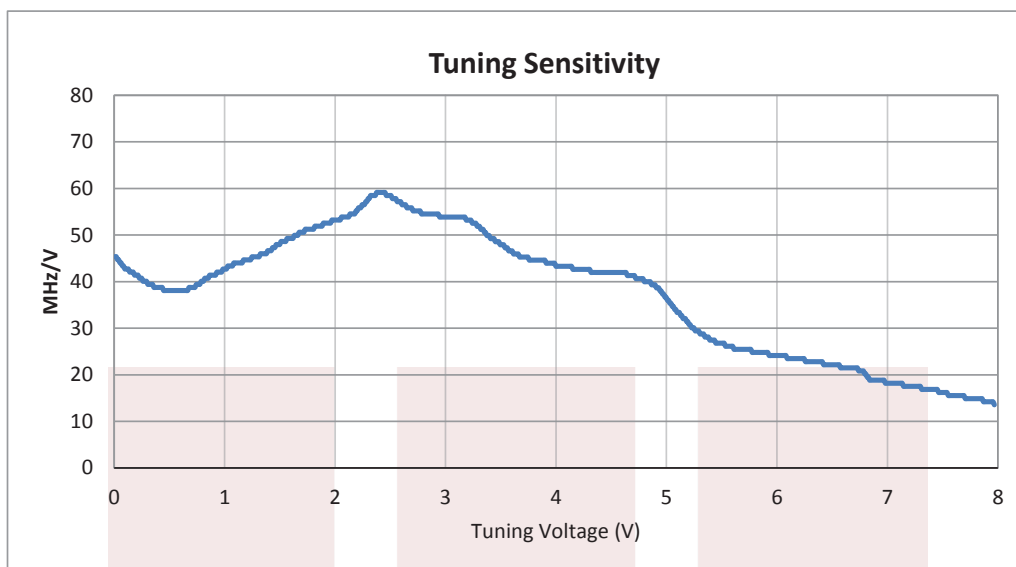
Yes

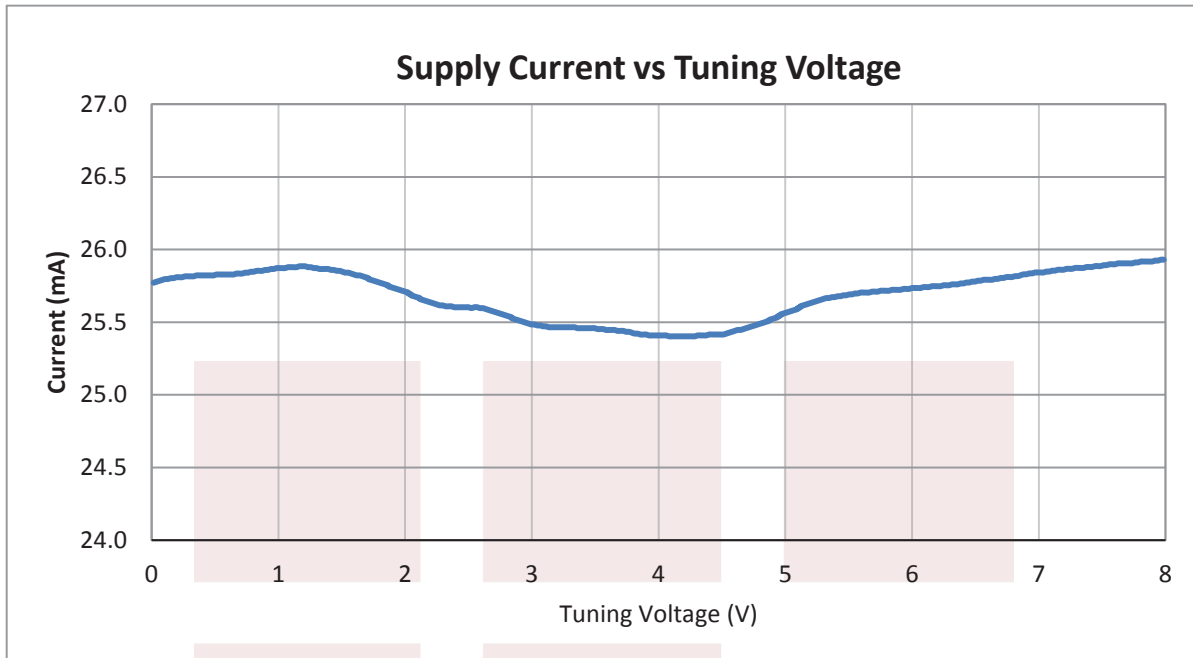
Plotted and Other Data

Notes:

Typical Performance Data





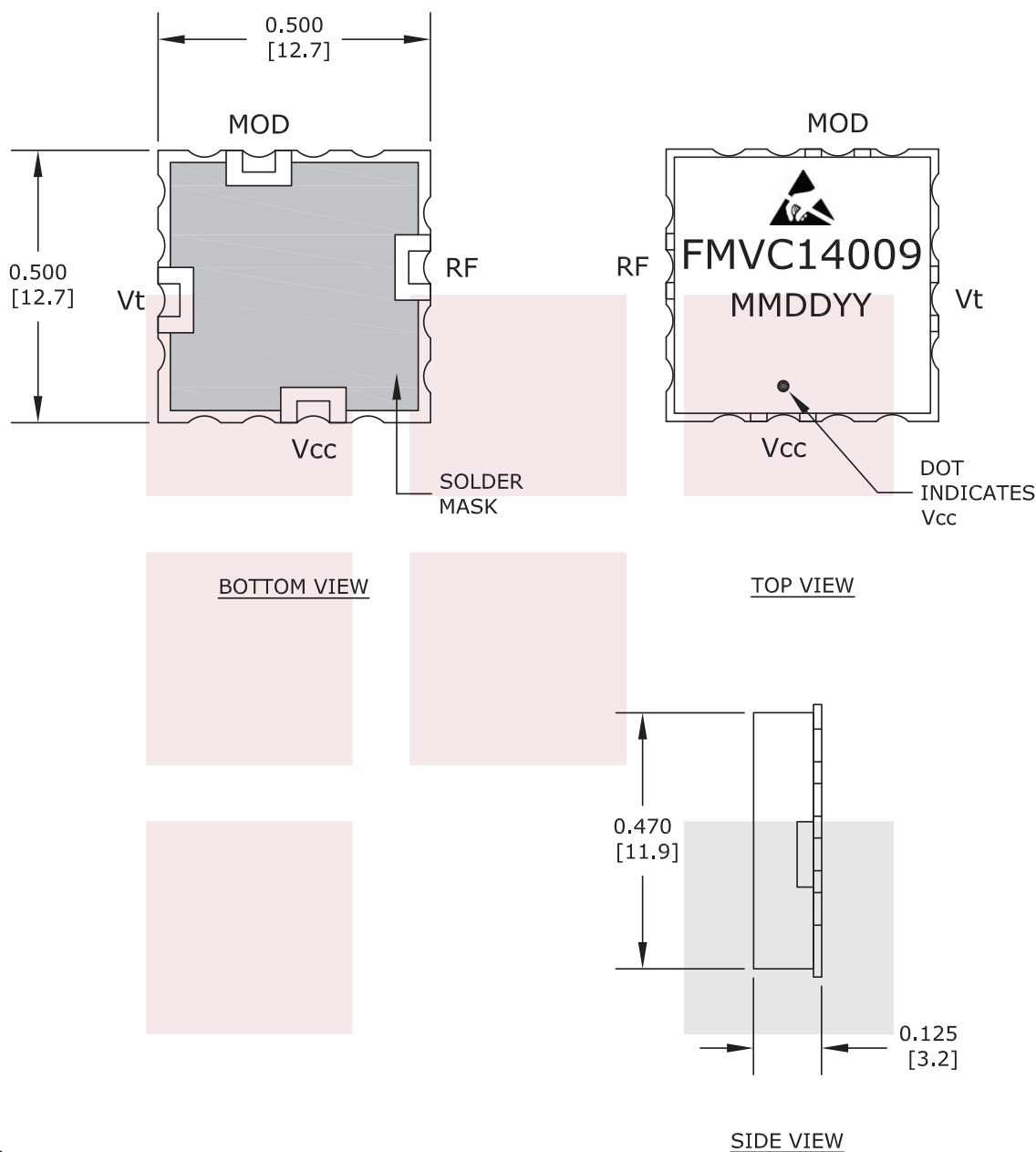


VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 4.13 GHz to 4.35 GHz, Phase Noise -98 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 4.13 GHz to 4.35 GHz, Phase Noise -98 dBc/Hz FMVC14009](http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-4.35-ghz-fmvc14009-p.aspx)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-4.35-ghz-fmvc14009-p.aspx>

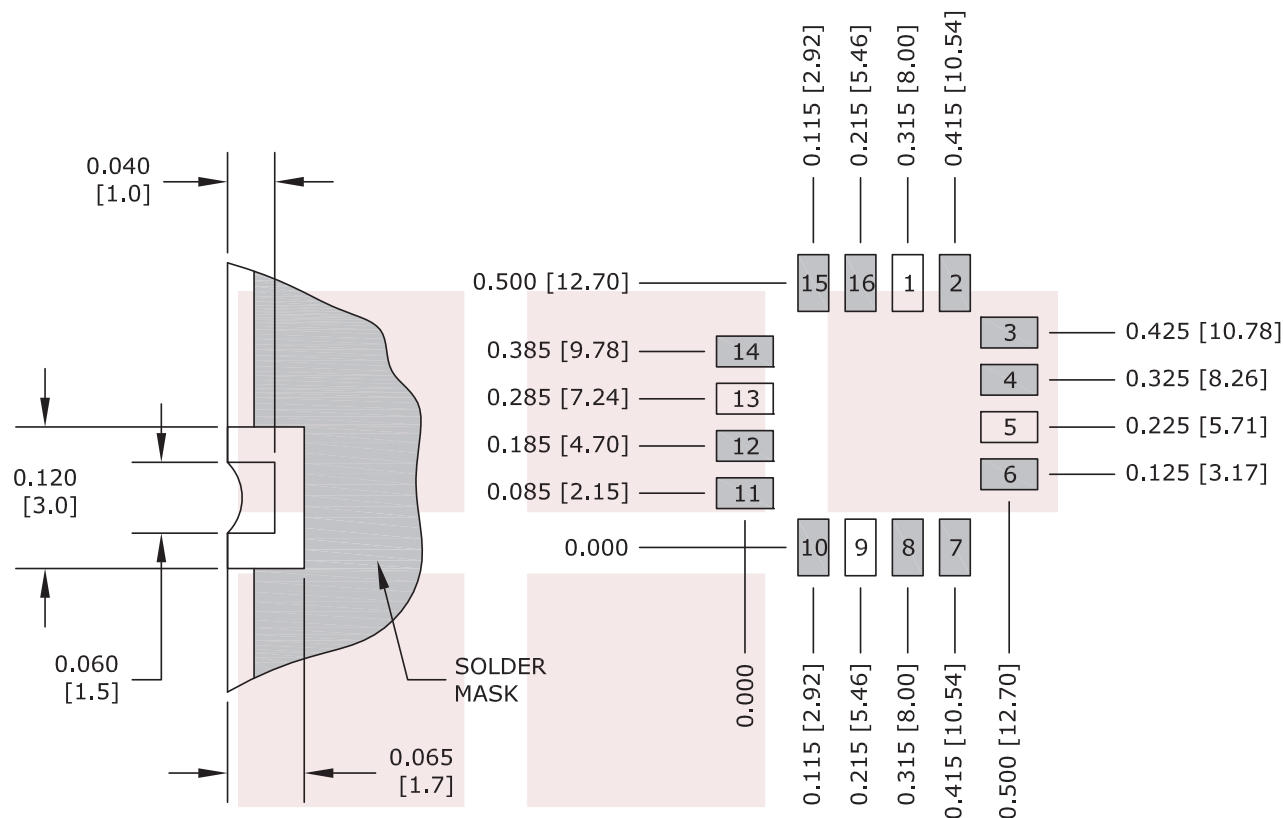
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NOTES:

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 4.13 GHz to 4.35 GHz, Phase Noise -98 dBc/Hz	DWG NO FMVC14009		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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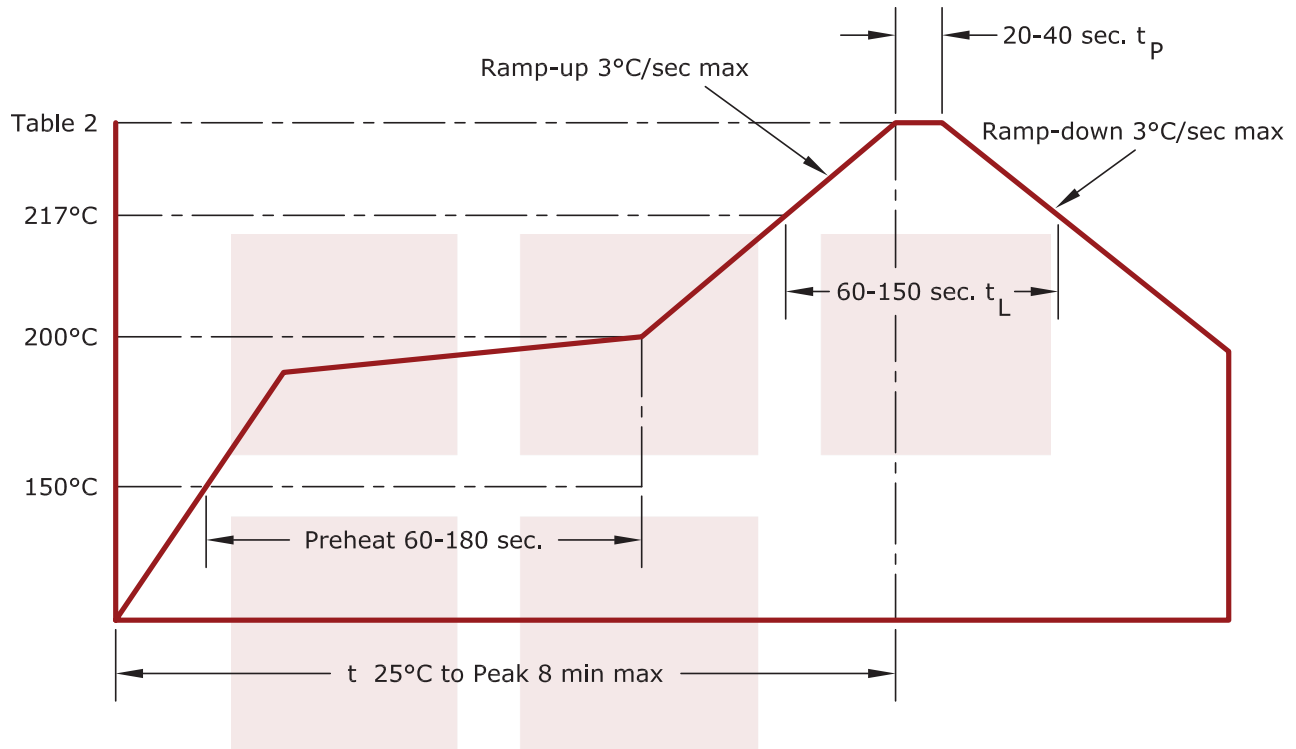


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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