

**VCO (Voltage Controlled Oscillator) 0.5 inch
Commercial SMT (Surface Mount), Frequency of
1.6 GHz to 3.2 GHz, Phase Noise -89 dBc/Hz**

FMVC14003 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 1600 MHz to 3200 MHz frequency band with a voltage tuning range from 0.0V to 20.0V. This design features exceptional phase noise performance of -89 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V with a generated output power level of +6.0 dBm and 2nd harmonic output of -14 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.



Features:

- 1600 MHz to 3200 MHz Bandwidth
- -89 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 20.0v
- Pout = +6.0 dBm
- Integrated Buffer Amplifier
- Harmonics = -14 dBc
- RoHS Compliant Assembly
- 0.5" SMT package
- Industry Standard Mounting Footprint
- Designed to meet MIL-STD-202 Environmental Conditions

Electrical Specifications

Description	Min	Typ	Max	Units
Frequency Range	1.6		3.2	GHz
Tuning Voltage	0		20	Vdc
Supply Voltage (DC)	4.5	5	5.5	Vdc
Supply Current (DC)		16	19	mA
Phase Noise @1kHz Offset		-60	-58	dBc/Hz
Phase Noise @10kHz Offset		-89	-86	dBc/Hz
Phase Noise @100kHz Offset		-111	-107	dBc/Hz
Output Power	+4	+6	+8	dBm
Tuning Sensitivity (Kvco)	40		160	MHz/V
Pushing		4	5	MHz/V
Pulling (pk-pk)		10	25	MHz
Tuning Port Capacitance		22		pF
Load Impedance		50		Ohms
2nd Harmonics		-14	-12	dBc

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	0.125 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 2131
Vibration	MIL-STD-202, Method 204D
Temperature Cycle	MIL-STD-202, Method 107B

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ESD Sensitivity

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



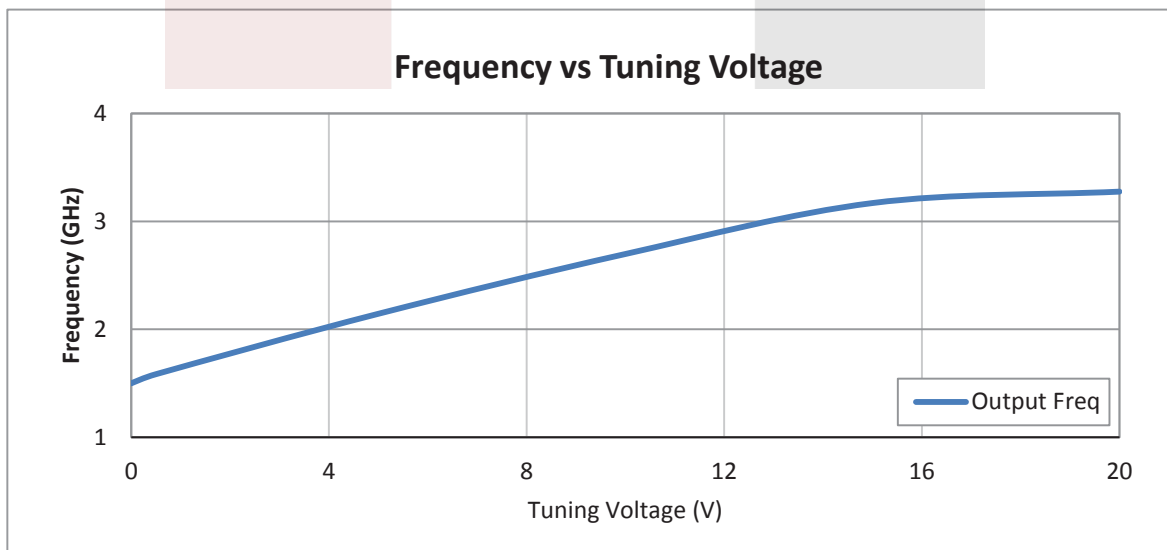
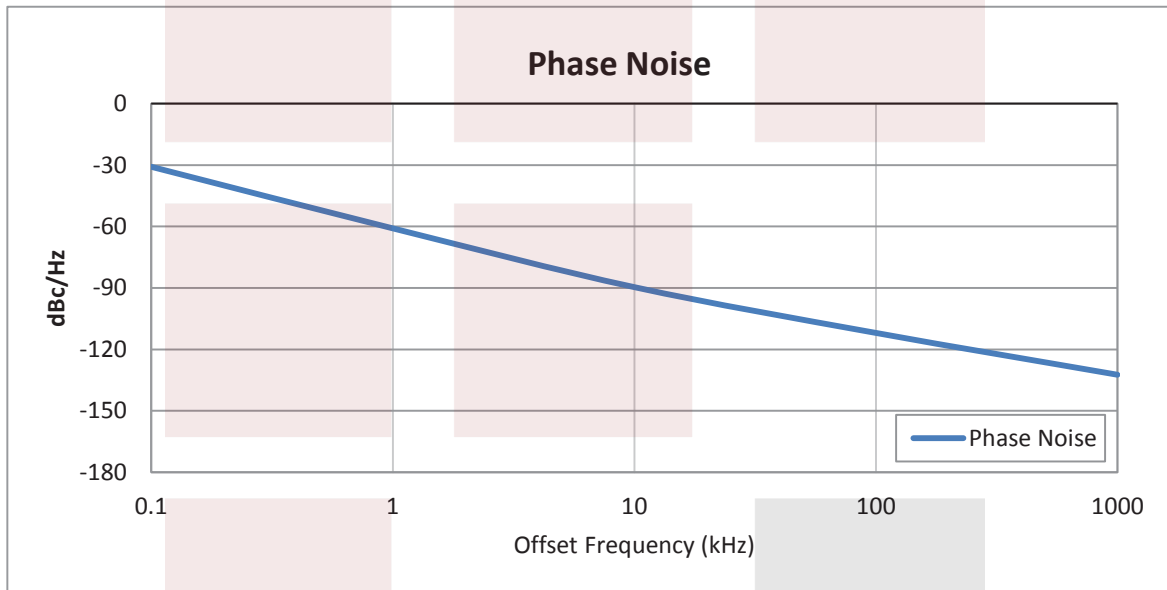
Compliance Certifications (visit www.FairviewMicrowave.com for current document)

RoHS Compliant Yes
 REACH Compliant 12/17/2015

Plotted and Other Data

Notes:

Typical Performance Data



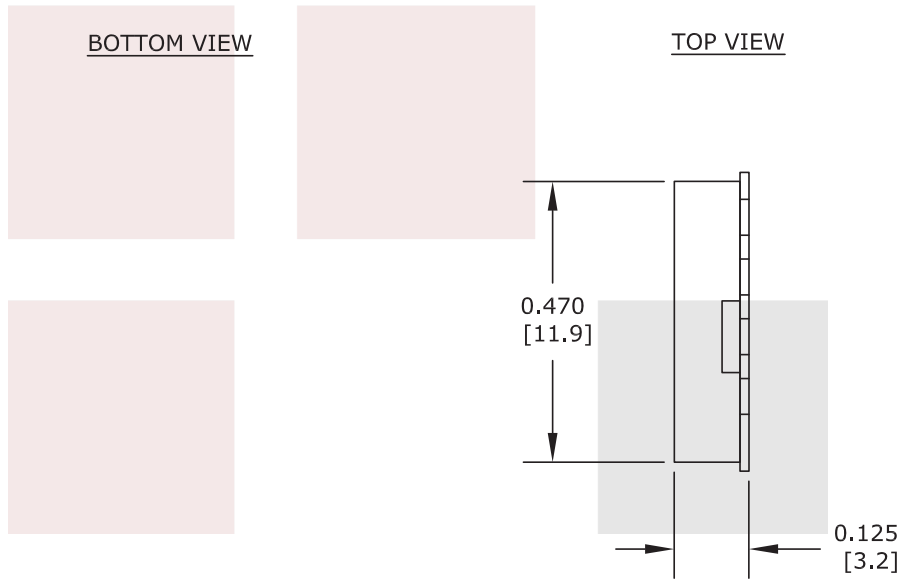
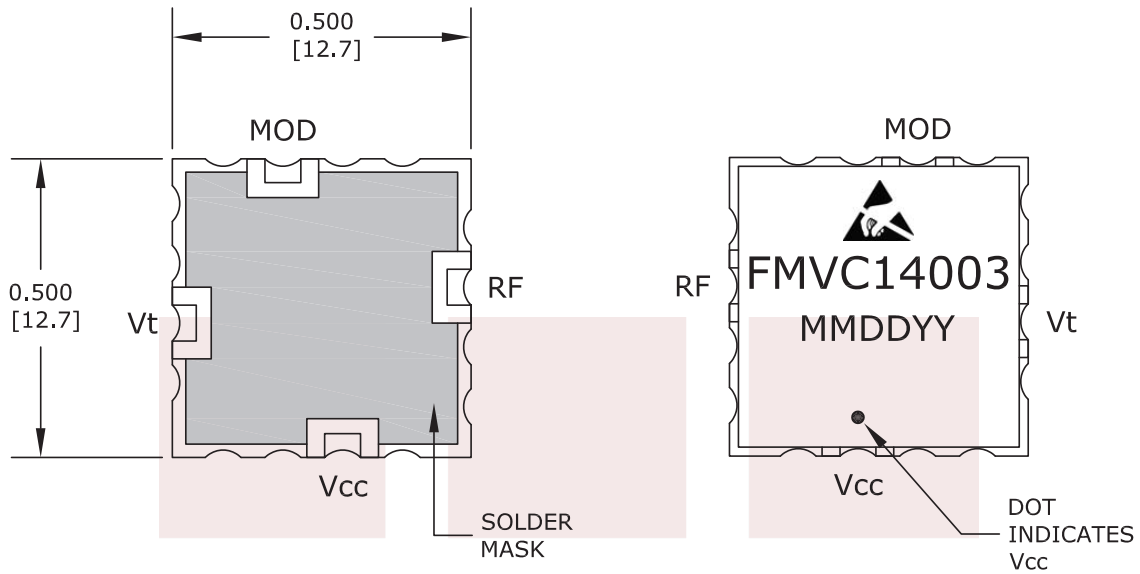
VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 1.6 GHz to 3.2 GHz, Phase Noise -89 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 1.6 GHz to 3.2 GHz, Phase Noise -89 dBc/Hz FMVC14003](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-3.2-ghz-fmvc14003-p.aspx>

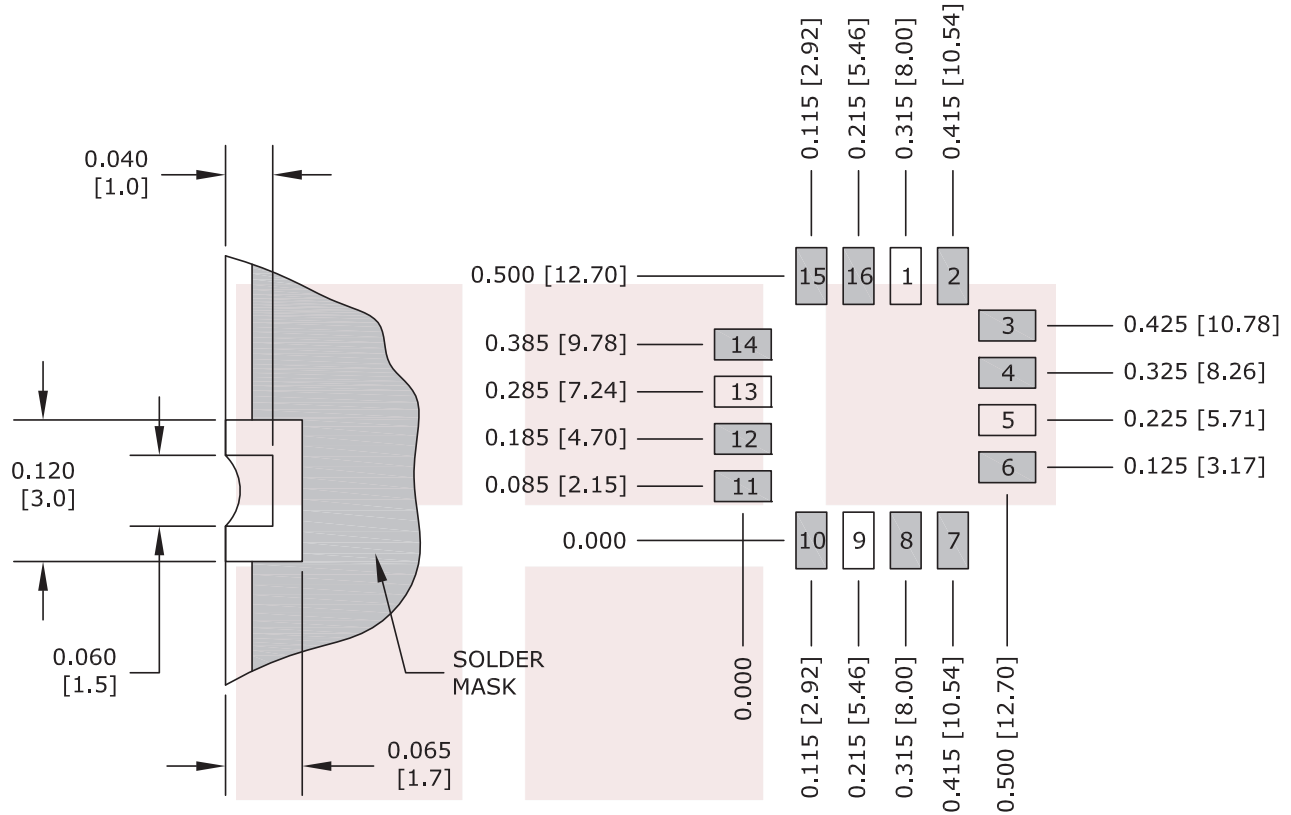
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- NOTES:**
1. THE CASE IS GROUND.
 2. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES [mm].
 3. UNLESS OTHERWISE SPECIFIED FINISH IS 150-250 MICRO INCHES ELECTROLESS NICKEL OVER COPPER CLAD PCB, 2-5 MICRO INCHES IMMERSION GOLD, OVER NICKEL.
 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 1.6 GHz to 3.2 GHz, Phase Noise -89 dBc/Hz		DWG NO FMVC14003		CAGE CODE 3FKR5	
CAD FILE	020816	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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				2233	

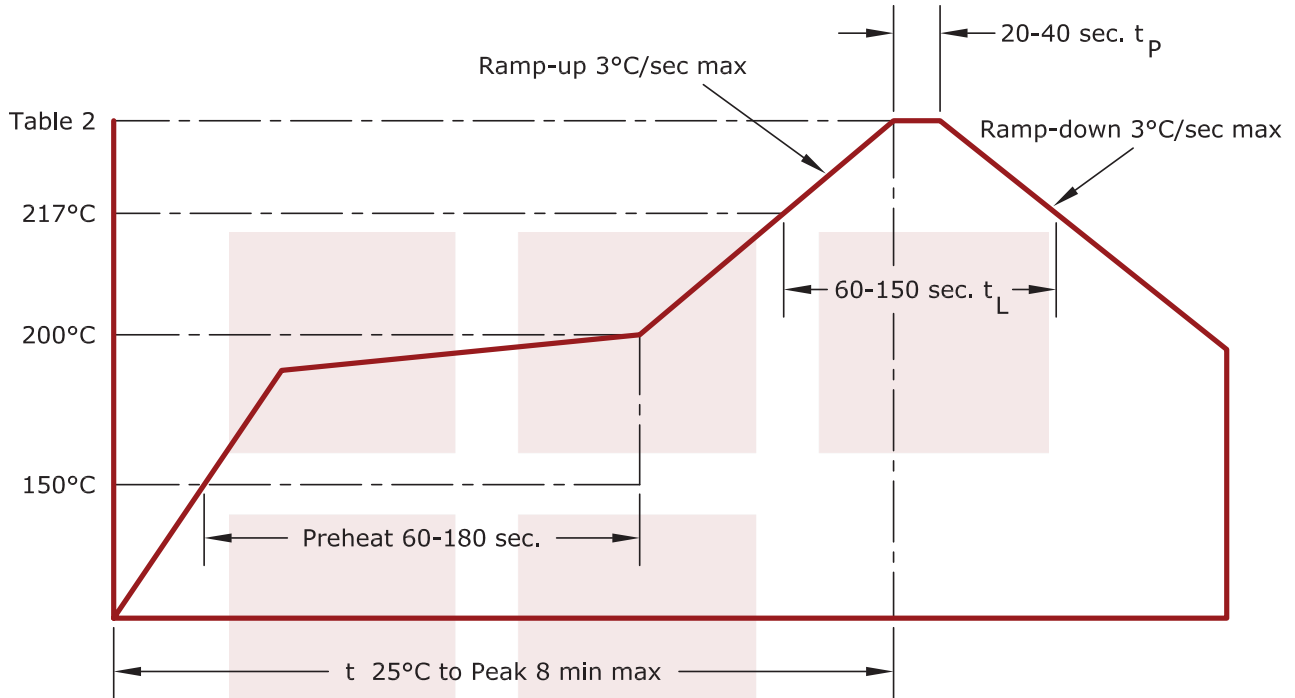


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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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