

**VCO (Voltage Controlled Oscillator) 0.175 inch  
Commercial SMT (Surface Mount), Frequency of  
5.18 GHz to 5.805 GHz, Phase Noise -83 dBc/Hz**

FMVC013 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 5180 MHz to 5805 MHz frequency band with a voltage tuning range from 0V to 10.0V. This design features exceptional phase noise performance of -83 dBc/Hz @ 10 kHz offset. Supply Voltage is +11V with a generated output power level of +6.0 dBm and 2nd harmonic output of -20 dBc typical. The assembly is RoHS compliant and available in a compact 0.175 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	5.18		5.805	GHz
Tuning Voltage	0		10	Vdc
Supply Voltage (DC)	10	11	12	Vdc
Supply Current (DC)		18	20	mA
Phase Noise @10kHz Offset		-83	-80	dBc/Hz
Phase Noise @100kHz Offset		-103	-100	dBc/Hz
Output Power	+5	+6	+9	dBm
Tuning Sensitivity (Kvco)	60		160	MHz/V
Pushing		5	6	MHz/V
Pulling (pk-pk)		25	35	MHz
Load Impedance		50		Ohms
2nd Harmonics		-20	-15	dBc

**Mechanical Specifications**

<b>Size</b>	
Length	0.175 in [4.45 mm]
Width	0.175 in [4.45 mm]
Height	0.075 in [1.91 mm]
Body Material and Plating	Copper Clad, Nickel, Gold
Design	Commercial
Package Style	Surface Mount

**Environmental Specifications**

<b>Temperature</b>	
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:**

- 5180 MHz to 5805 MHz Bandwidth
- -83 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 10.0V
- Pout = +6.0 dBm
- Harmonics = -20 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](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

Yes

## Plotted and Other Data

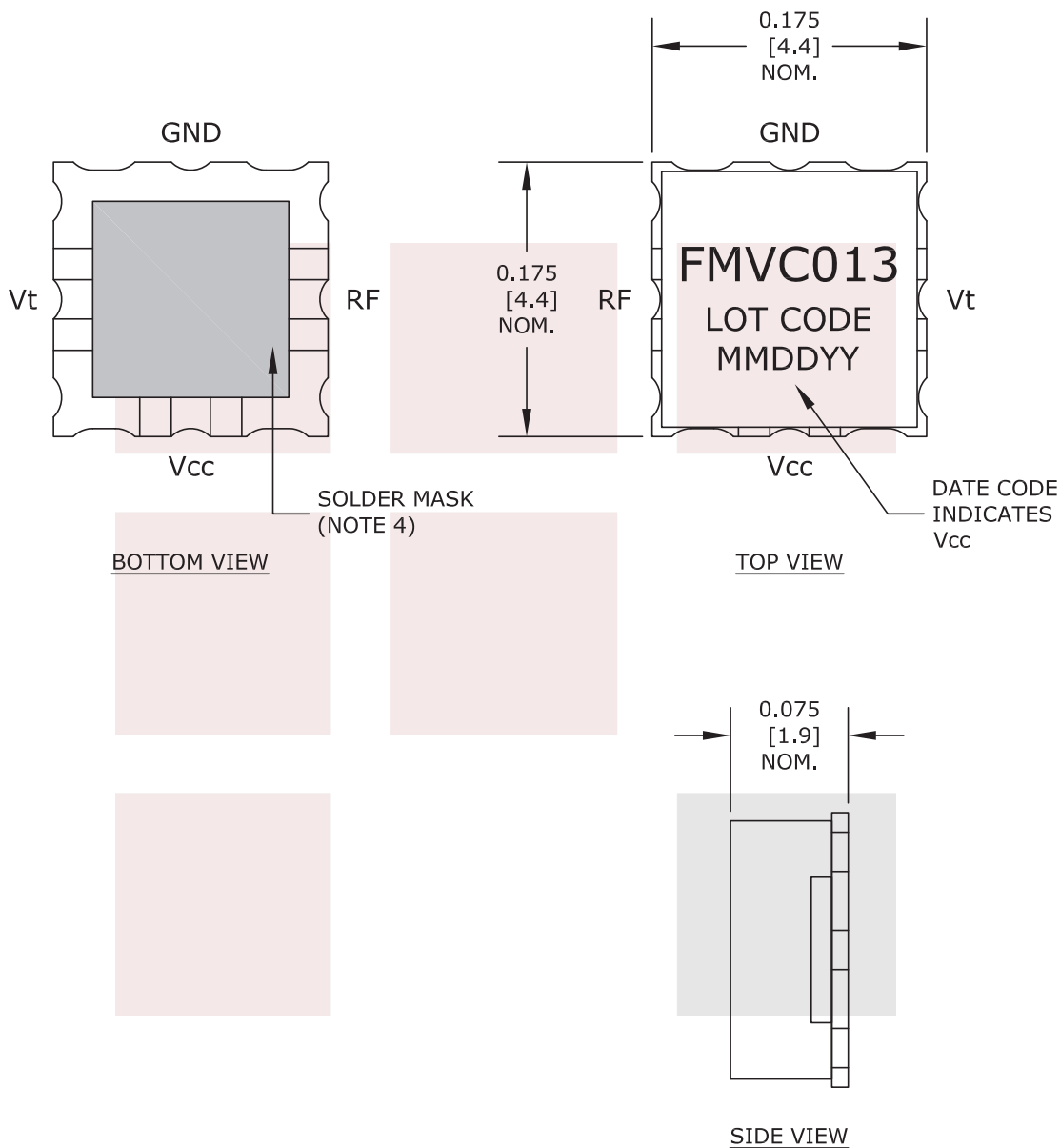
Notes:

VCO (Voltage Controlled Oscillator) 0.175 inch Commercial SMT (Surface Mount), Frequency of 5.18 GHz to 5.805 GHz, Phase Noise -83 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 \(Voltage Controlled Oscillator\) 0.175 inch Commercial SMT \(Surface Mount\), Frequency of 5.18 GHz to 5.805 GHz, Phase Noise -83 dBc/Hz FMVC013](http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-5.805-ghz-fmvc013-p.aspx)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-5.805-ghz-fmvc013-p.aspx>

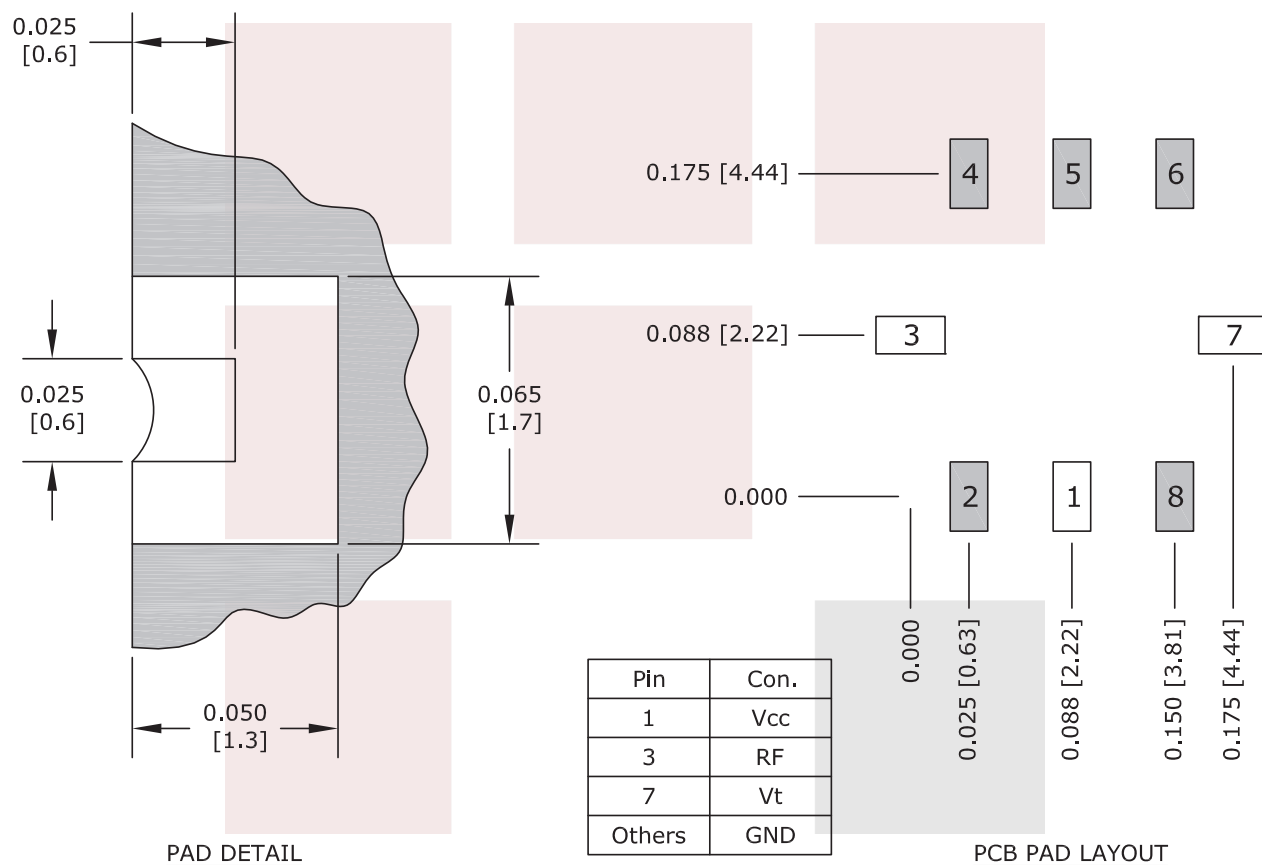
The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to 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. 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. SOLDER MASK NOT USED FOR APPLICATIONS GREATER THAN 6GHz.

<b>FAIRVIEW MICROWAVE INC.</b> ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM					
TITLE VCO (Voltage Controlled Oscillator) 0.175 inch Commercial SMT (Surface Mount), Frequency of 5.18 GHz to 5.805 GHz, Phase Noise -83 dBc/Hz			DWG NO <b>FMVC013</b>		CAGE CODE <b>3FKR5</b>
CAD FILE	020816	SHEET	SCALE	N/A	SIZE A 2233



**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. SOLDER MASK NOT USED FOR APPLICATIONS GREATER THAN 6GHz.

<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) 0.175 inch Commercial SMT (Surface Mount), Frequency of 5.18 GHz to 5.805 GHz, Phase Noise -83 dBc/Hz	DWG NO FMVC013		CAGE CODE 3FKR5		
	CAD FILE 020816	SHEET	SCALE N/A	SIZE A	2233

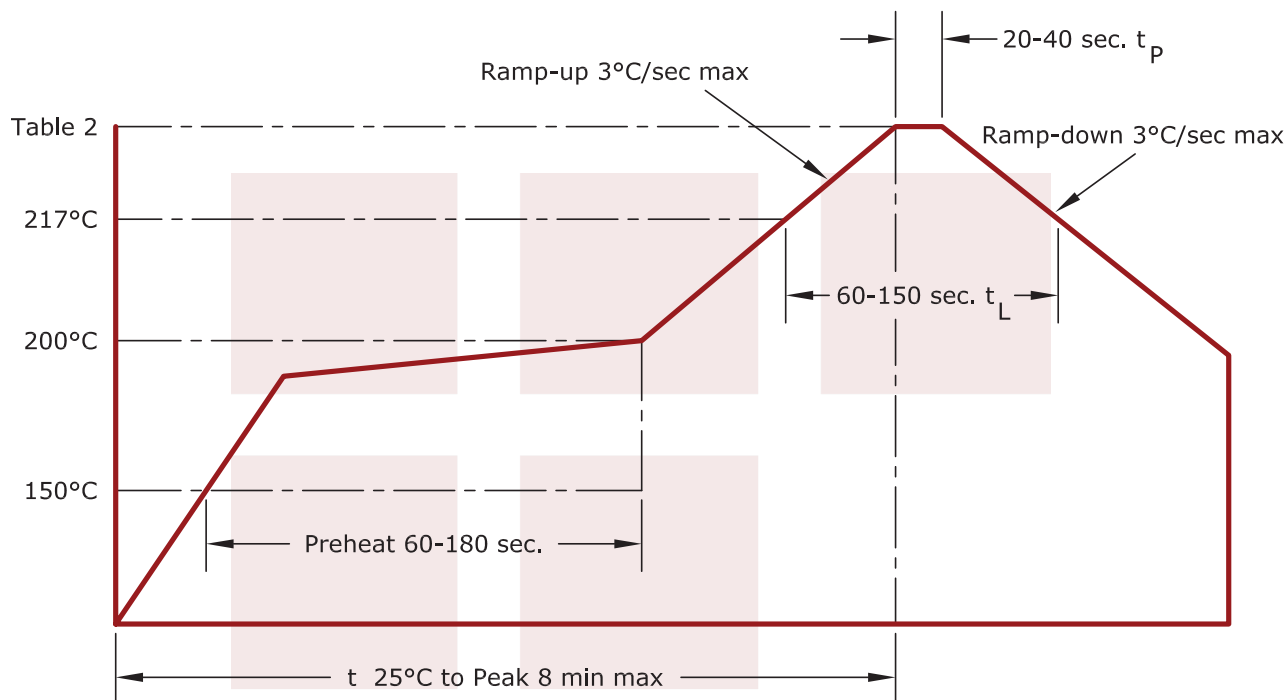


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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.

<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) 0.175 inch Commercial SMT (Surface Mount), Frequency of 5.18 GHz to 5.805 GHz, Phase Noise -83 dBc/Hz		DWG NO FMVC013		CAGE CODE 3FKR5	
CAD FILE	020816	SHEET	SCALE	N/A	SIZE A 2233