

**VCO (Voltage Controlled Oscillator) 0.5 inch
Commercial SMT (Surface Mount), Frequency of
195 MHz to 240 MHz, Phase Noise -125 dBc/Hz**

FMVC12001 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 195 MHz to 240 MHz frequency band with a voltage tuning range from 0V to 15V. This design features exceptional phase noise performance of -125 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V with a generated output power level of +8.5 dBm and 2nd harmonic output of -15 dBc typical. The VCO has a separate modulation port for increased design flexibility and ideal for transmit applications. 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	195		240	MHz
Tuning Voltage	0		15	Vdc
Supply Voltage (DC)	4.5	5	5.5	Vdc
Supply Current (DC)		20	22	mA
Phase Noise @1kHz Offset		-98	-93	dBc/Hz
Phase Noise @10kHz Offset		-125	-123	dBc/Hz
Phase Noise @100kHz Offset		-146	-142	dBc/Hz
Modulation Sensitivity		-40 to -20		kHz/Volt
Output Power	+8	+8.5	+9	dBm
Output Power Delta @-40 deg C			-0.8	dBm
Output Power Delta @+85 deg C			+0.5	dBm
Tuning Sensitivity (Kvco)	2		6	MHz/V
Pushing		0.2	0.5	MHz/V
Pulling (pk-pk)		50	100	KHz
Tuning Port Capacitance		330		pF
Load Impedance		50		Ohms
Frequency Drift @-40 deg C			2	MHz
Frequency Drift @+85 deg C			-2400	KHz
2nd Harmonics		-15	-12	dBc

Mechanical Specifications

Size	
Length	0.5 in [12.7 mm]
Width	0.5 in [12.7 mm]
Height	0.162 in [4.11 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



Features:

- 195 to 240 MHz Bandwidth
- -125 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 15V
- Pout = +8.5 dBm
- Harmonics = -15 dBc
- Separate Modulation Port
- 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
- Transmit Modulation

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



Compliance Certifications

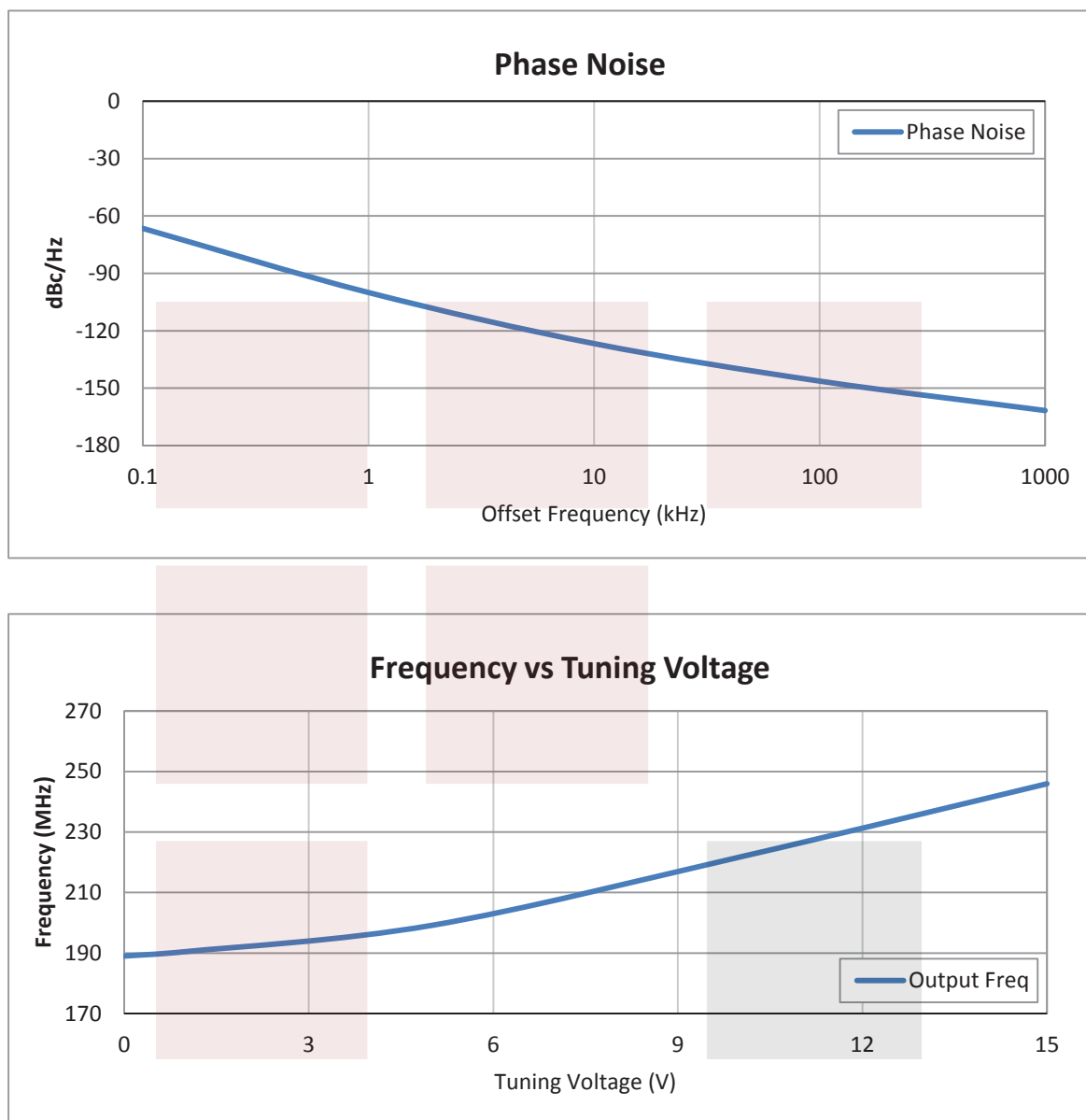
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RoHS Compliant	Yes
REACH Compliant	12/17/2015

Plotted and Other Data

Notes:

Typical Performance Data

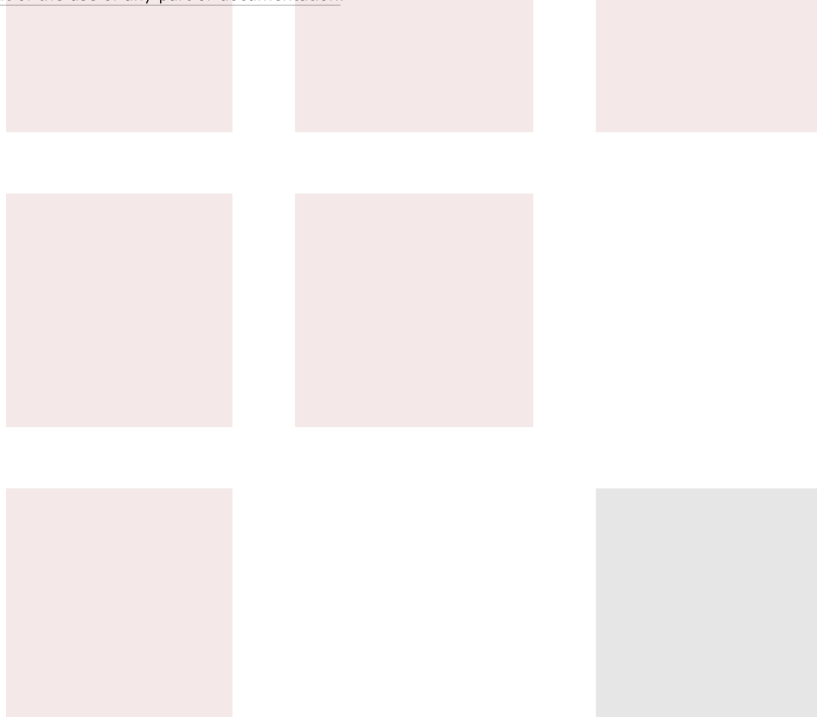


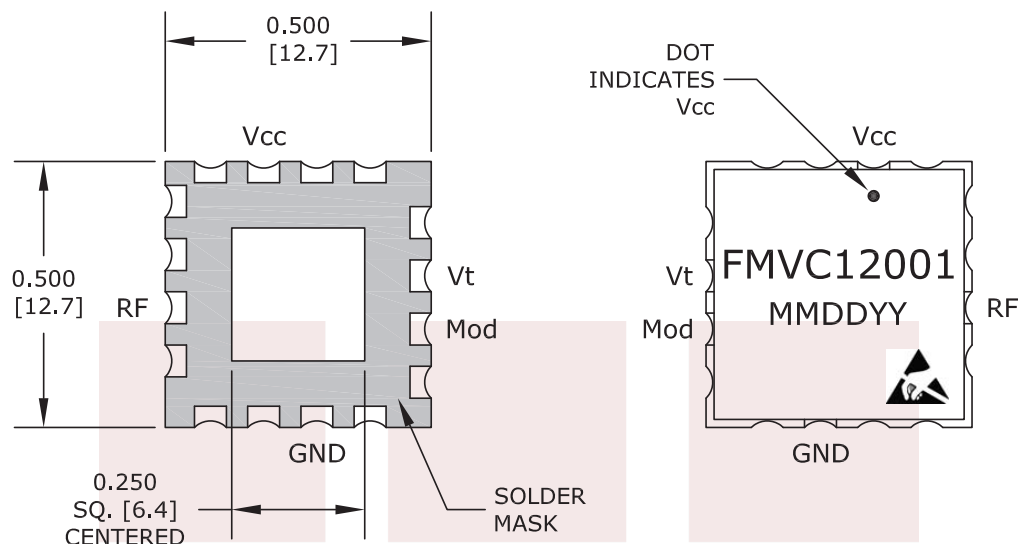
VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 195 MHz to 240 MHz, Phase Noise -125 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 195 MHz to 240 MHz, Phase Noise -125 dBc/Hz FMVC12001](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-240-mhz-fmvc12001-p.aspx>

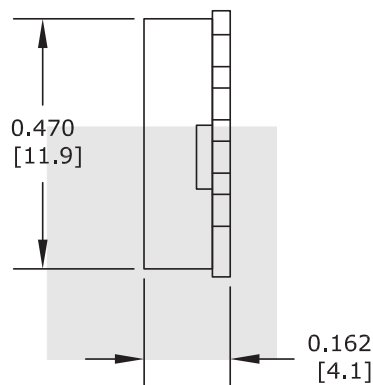
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BOTTOM VIEW

TOP VIEW



SIDE VIEW

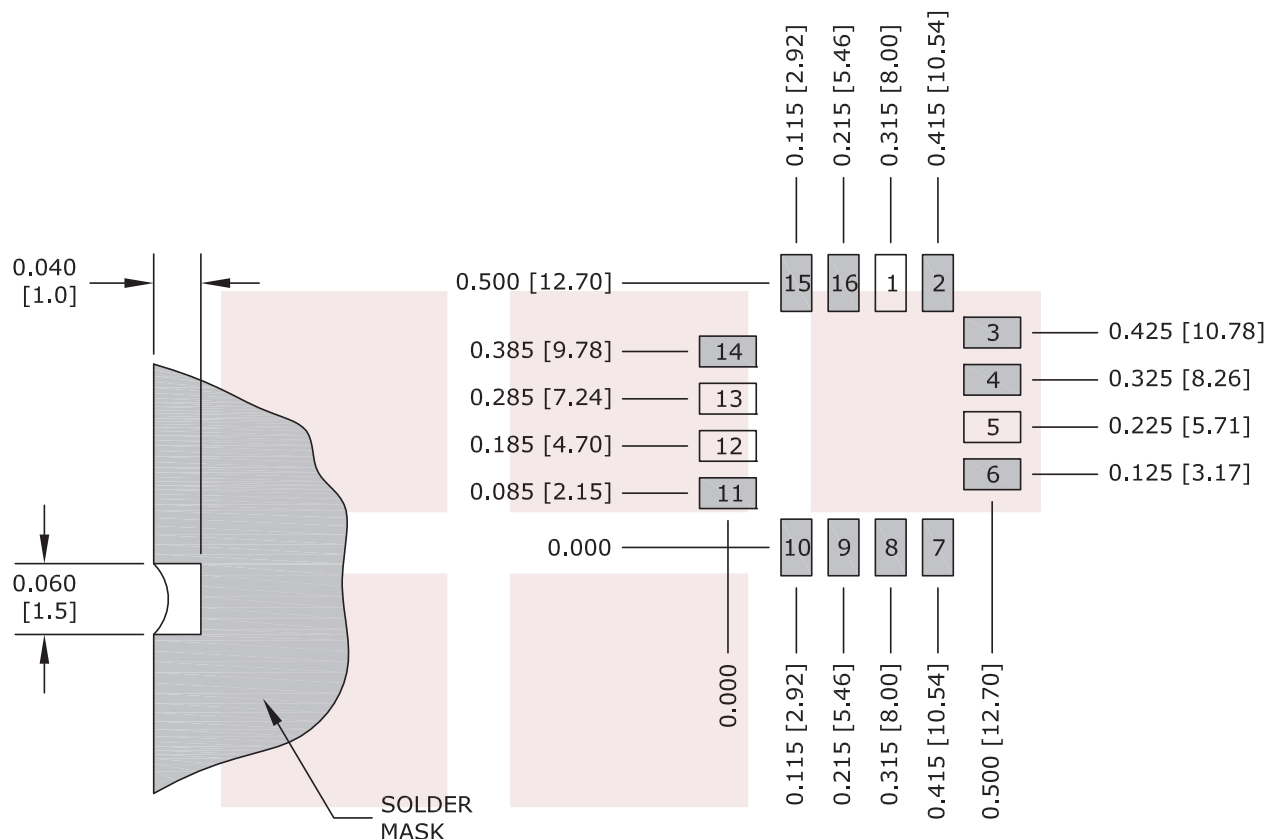
NOTES:

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					
TITLE VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 195 MHz to 240 MHz, Phase Noise -125 dBc/Hz			DWG NO FMVC12001		CAGE CODE 3FKR5
CAD FILE	082415	SHEET	SCALE	N/A	SIZE A 2233

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].



PAD DETAIL

Pin	Con.
1	Vcc
5	RF
12	Mod
13	Vt
Others	GND

PCB PAD LAYOUT

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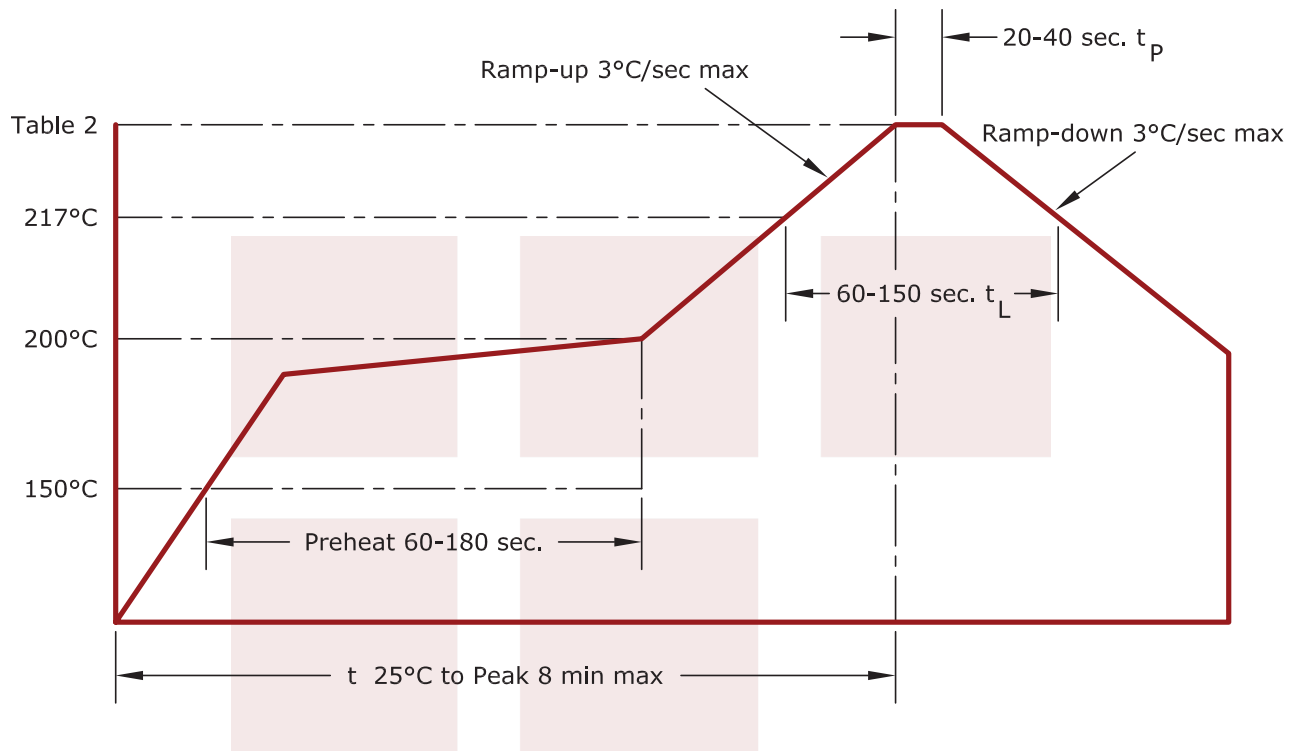


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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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