

VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 380 MHz to 400 MHz, Phase Noise -124 dBc/Hz

FMVC12004 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 380 MHz to 400 MHz frequency band with a voltage tuning range from 0V to 10V. This design features exceptional phase noise performance of -124 dBc/Hz @ 10 kHz offset. Supply Voltage is +5V with a generated output power level of +4.5 dBm and 2nd harmonic output of -20 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	380		400	MHz
Tuning Voltage	0		10	Vdc
Supply Voltage (DC)	4.5	5	5.5	Vdc
Supply Current (DC)		22	23	mA
Phase Noise @1kHz Offset		-94	-92	dBc/Hz
Phase Noise @10kHz Offset		-124	-122	dBc/Hz
Phase Noise @100kHz Offset		-144	-141	dBc/Hz
Modulation Sensitivity		-40 to -20		kHz/Volt
Output Power	+4	+4.5	+5	dBm
Output Power Delta @-40 deg C			-1.2	dBm
Output Power Delta @+85 deg C			+0.8	dBm
Tuning Sensitivity (Kvco)	2		6	MHz/V
Pushing		0.2	0.3	MHz/V
Pulling (pk-pk)		100	200	KHz
Tuning Port Capacitance		100		pF
Load Impedance		50		Ohms
Frequency Drift @-40 deg C			-2200	KHz
Frequency Drift @+85 deg C			2.7	MHz
2nd Harmonics		-20	-16	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:

- 380 MHz to 400 MHz Bandwidth
- -124 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 10V
- Pout = +4.5 dBm
- Harmonics = -20 dBc
- Separate Modulation Port
- RoHs Compliant Assembly
- 0.5" SMT package
- Industry Standard Mounting Footprint
- Designed to meet MIL-STD-202 Environmental Conditions

Applications:

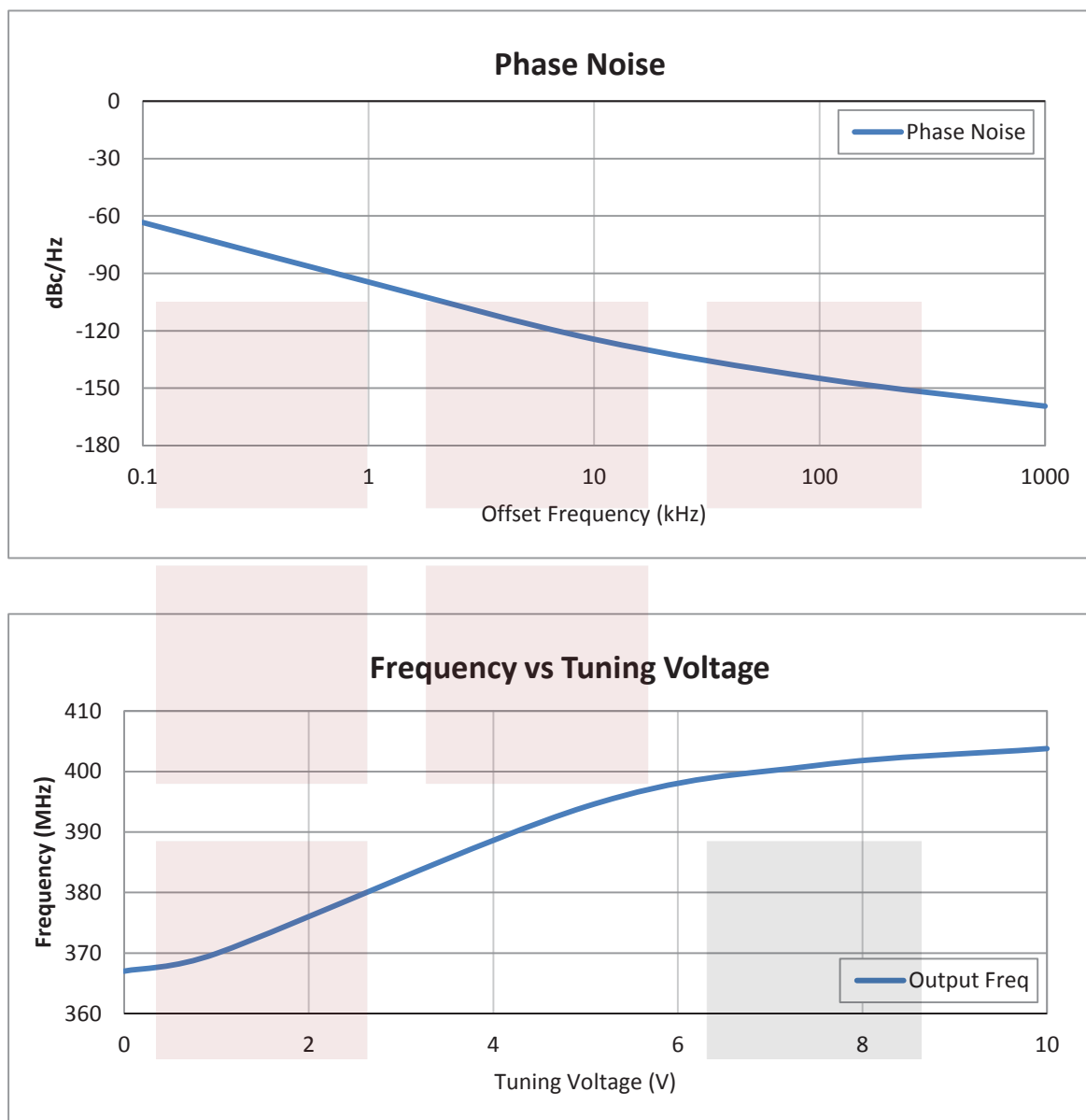
- Phase Locked Loop
- Function Generators
- Frequency Synthesizers
- Receivers
- Electronic Jamming Equipment
- Local Oscillator
- Wireless Communications
- SATCOM
- Optical Communications
- Military Electronic Systems
- Transmit Modulation

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12/17/2015

Notes:

Typical Performance Data

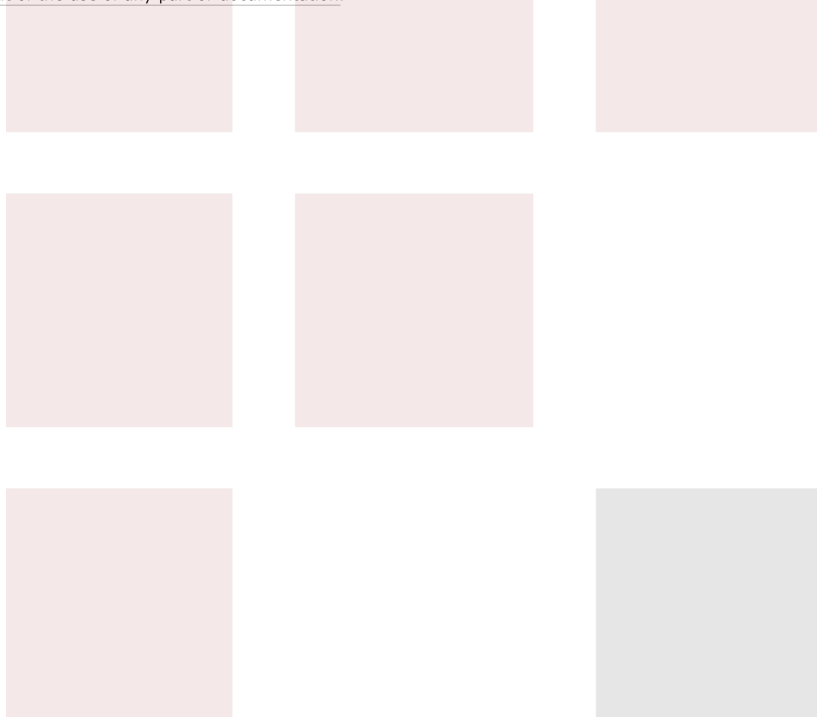


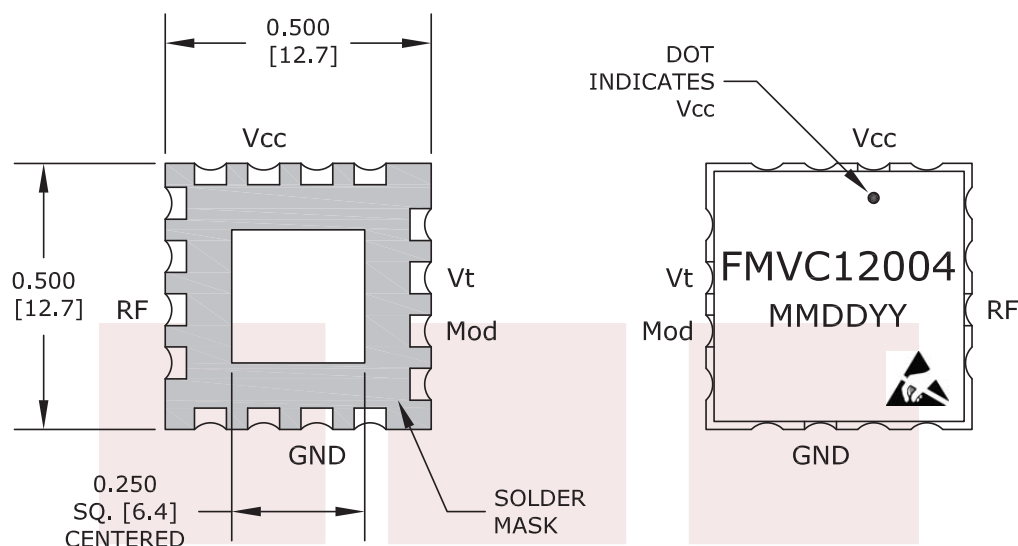
VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 380 MHz to 400 MHz, Phase Noise -124 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 380 MHz to 400 MHz, Phase Noise -124 dBc/Hz FMVC12004](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-400-mhz-fmvc12004-p.aspx>

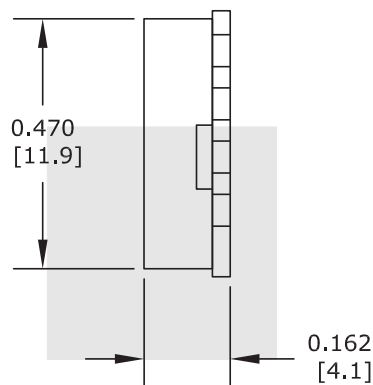
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BOTTOM VIEW

TOP VIEW

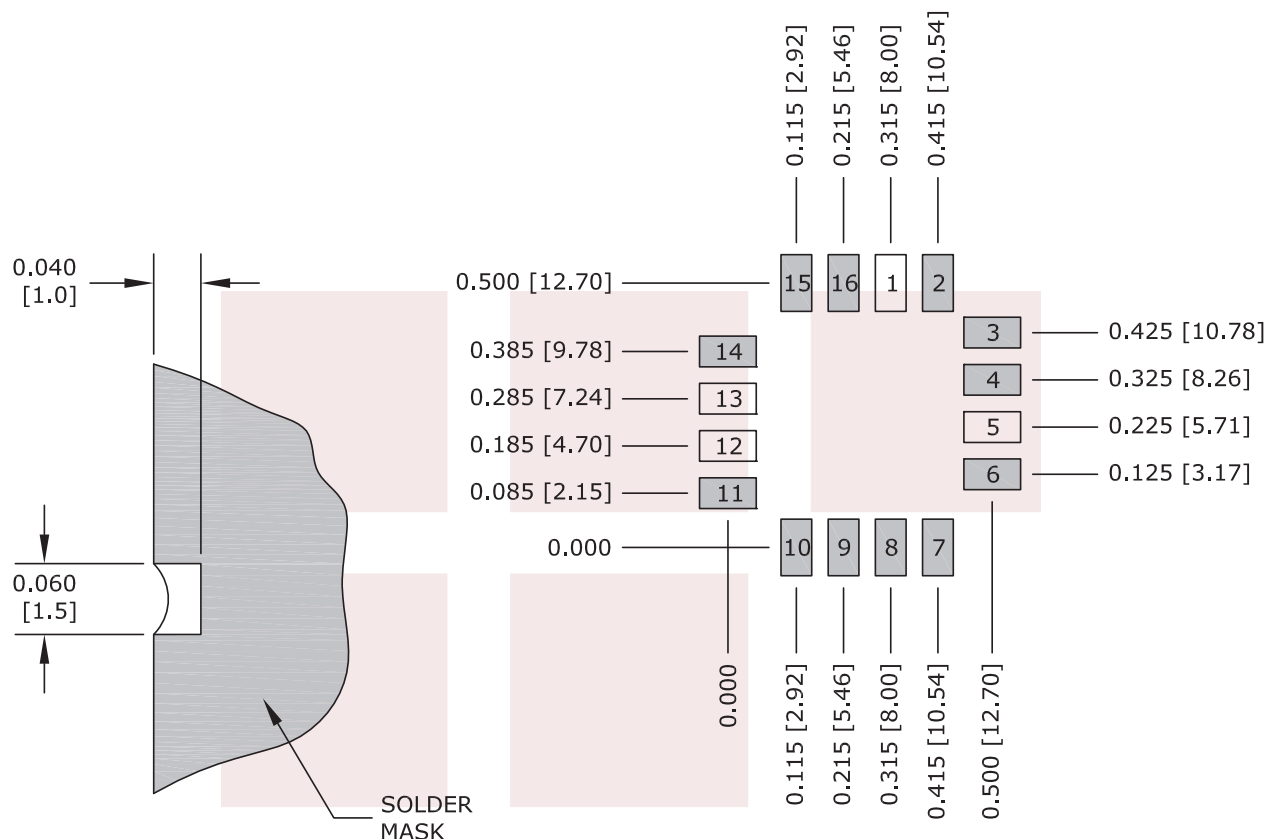


SIDE VIEW

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.

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TITLE VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 380 MHz to 400 MHz, Phase Noise -124 dBc/Hz	DWG NO FMVC12004		CAGE CODE 3FKR5		
	CAD FILE 082415	SHEET	SCALE N/A	SIZE A	2233



PAD DETAIL

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

PCB PAD LAYOUT

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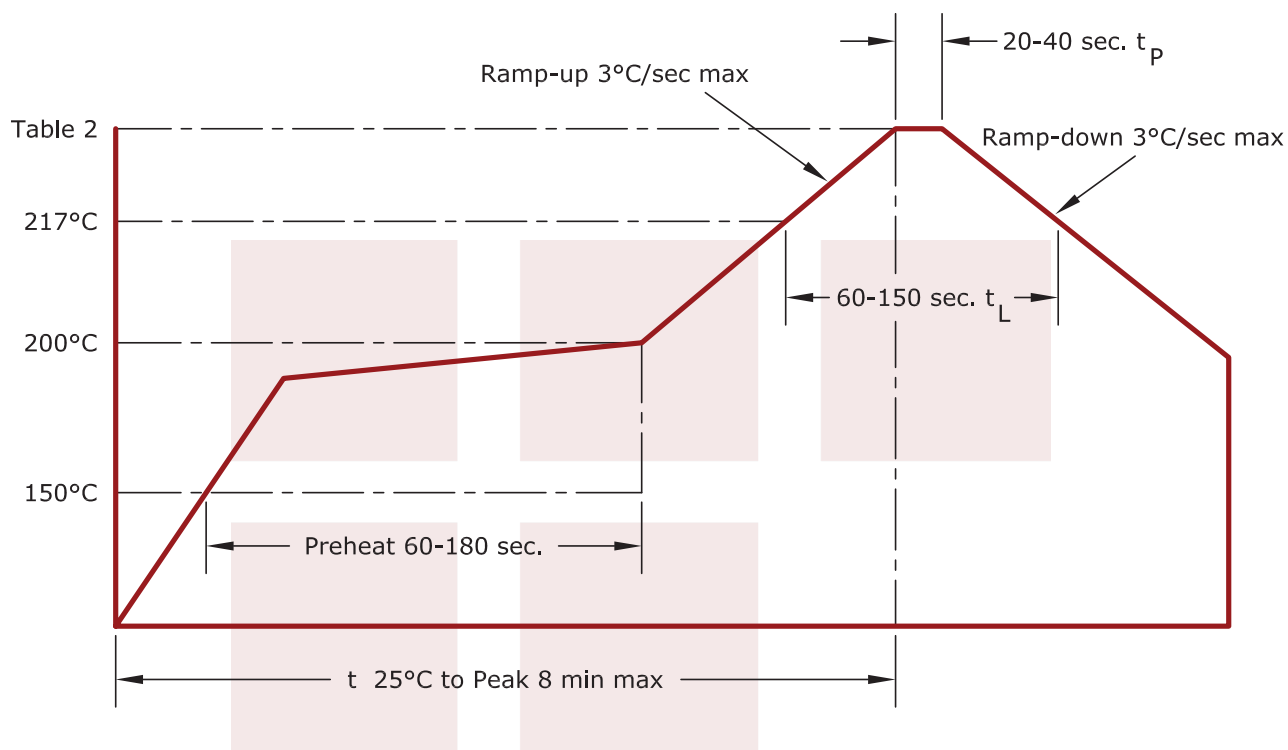


Table 1 Hand Soldering	
Item	Condition
Tip Temp. (max.)	260°
Iron Power (max.)	20 W
Time (max.)	3 Sec.
Note.	Avoid excess pressure to castelations

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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