

VCO (Voltage Controlled Oscillator) 0.175 inch SMT (Surface Mount), Frequency of 1 GHz to 2 GHz, Phase Noise -90 dBc/Hz

FMVC005 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 1.0 GHz to 2.0 GHz frequency band with a voltage tuning range from 0V to 20V. This design features exceptional phase noise performance of -90 dBc/Hz @ 10 kHz offset. Supply Voltage is +12V with a generated output power level of +10.0 dBm and 2nd harmonic output of -7 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 | 1 | | 2 | GHz |
| Tuning Voltage | 0 | | 20 | Vdc |
| Supply Voltage (DC) | 11.75 | 12 | 12.25 | Vdc |
| Supply Current (DC) | | 23 | 25 | mA |
| Phase Noise @10kHz Offset | | -90 | -87 | dBc/Hz |
| Phase Noise @100kHz Offset | | -112 | -110 | dBc/Hz |
| Output Power | +9 | +10 | +12 | dBm |
| Tuning Sensitivity (Kvco) | 36 | | 82 | MHz/V |
| Pushing | | 2 | 5 | MHz/V |
| Pulling (pk-pk) | | 20 | 40 | MHz |
| Load Impedance | | 50 | | Ohms |
| 2nd Harmonics | | -7 | -5 | dBc |

Mechanical Specifications

| | |
|---------------------------|--------------------------|
| Size | |
| Length | 0.175 in [4.45 mm] |
| Width | 0.175 in [4.45 mm] |
| Height | 0.075 in [1.91 mm] |
| Weight | 0.0095 lbs [4.31 g] |
| Body Material and Plating | Copper Clad Nickel, Gold |
| Design | Commercial |

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:

- 1.0 GHz to 2.0 GHz Bandwidth
- -90 dBc/Hz @ 10kHz offset
- Tuning Voltage 0V to 20V
- Pout = +10.0 dBm
- Harmonics = -7 dBc
- RoHS Compliant Assembly
- 0.175" 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

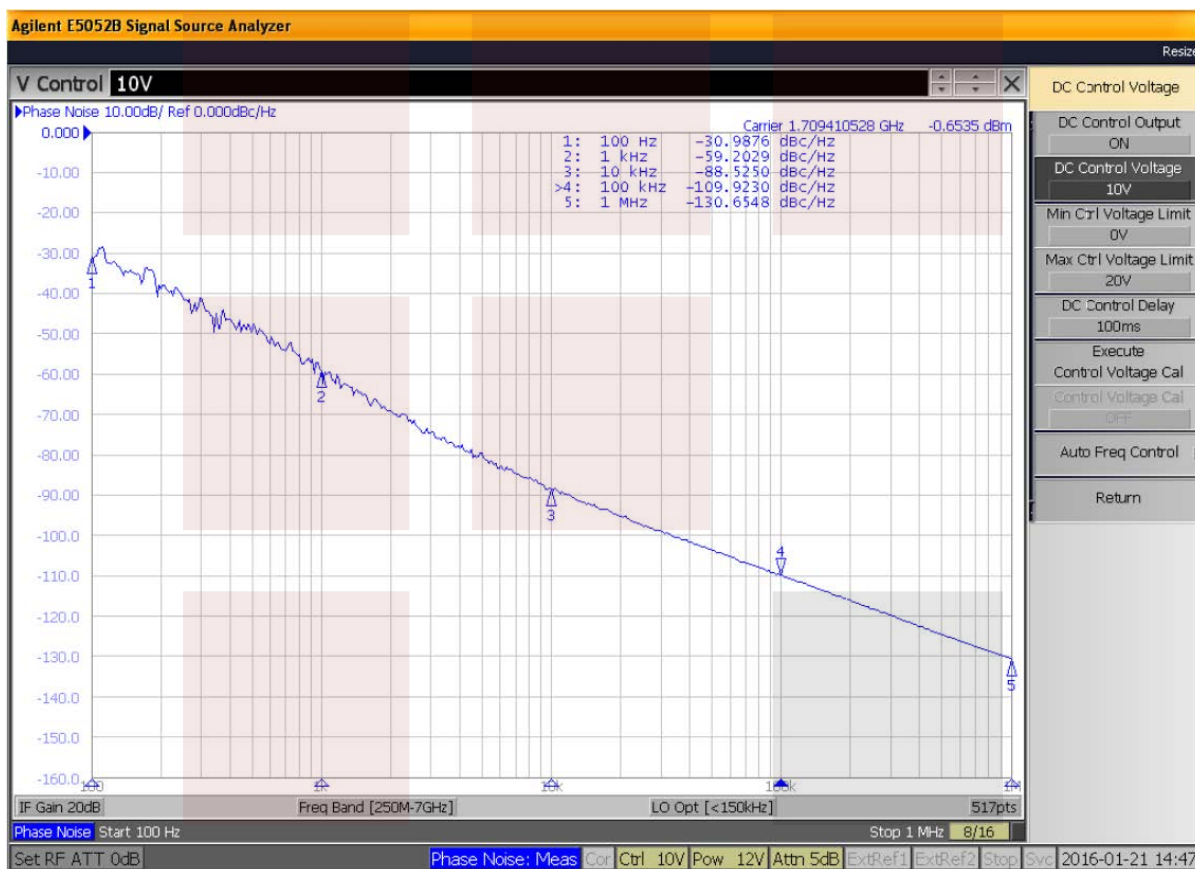
ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

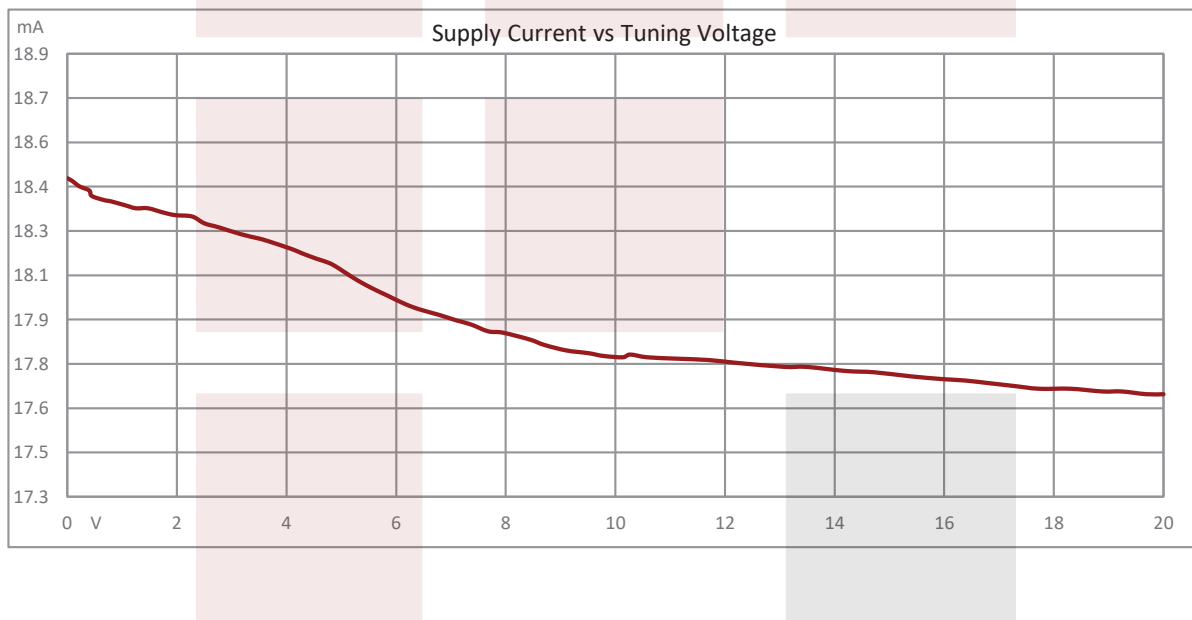
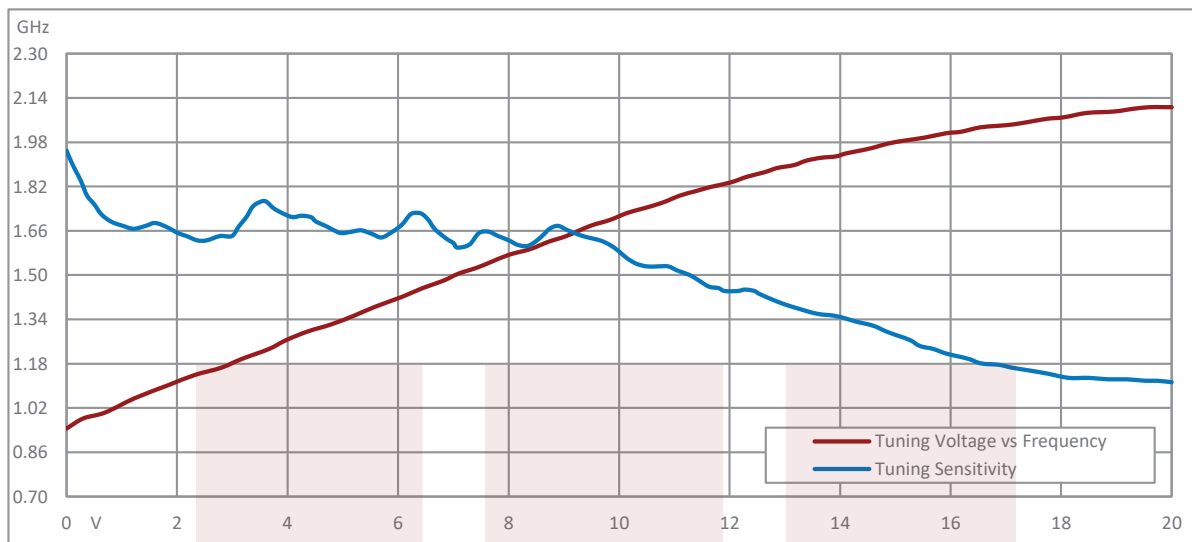


Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Typical Performance Data





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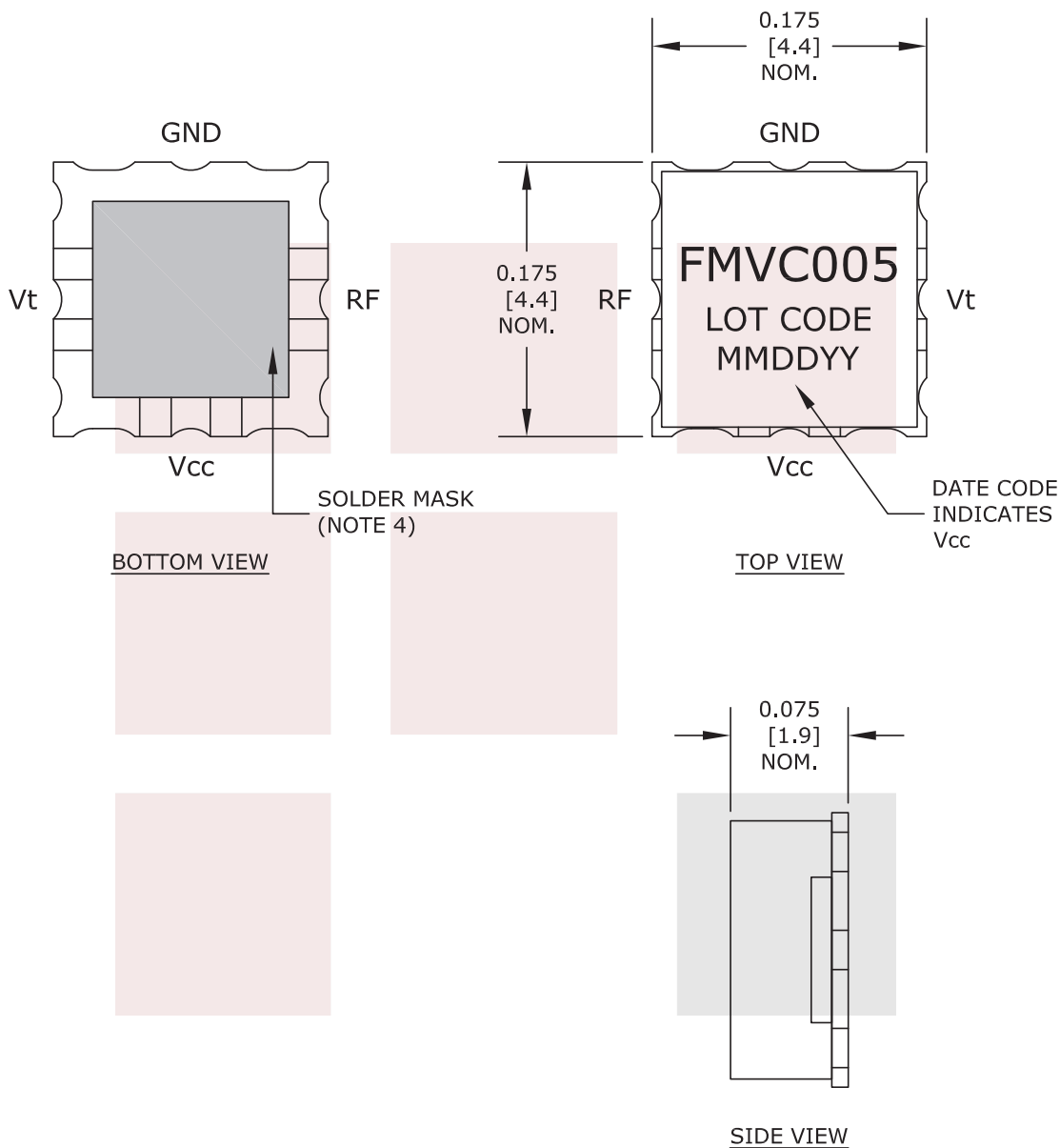
VCO (Voltage Controlled Oscillator) 0.175 inch SMT (Surface Mount), Frequency of 1 GHz to 2 GHz, Phase Noise -90 dBc/Hz

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For additional information on this product, please click the following link: [VCO \(Voltage Controlled Oscillator\) 0.175 inch SMT \(Surface Mount\), Frequency of 1 GHz to 2 GHz, Phase Noise -90 dBc/Hz FMVC005](#)

URL: <https://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-2-ghz-fmvc005-p.aspx>

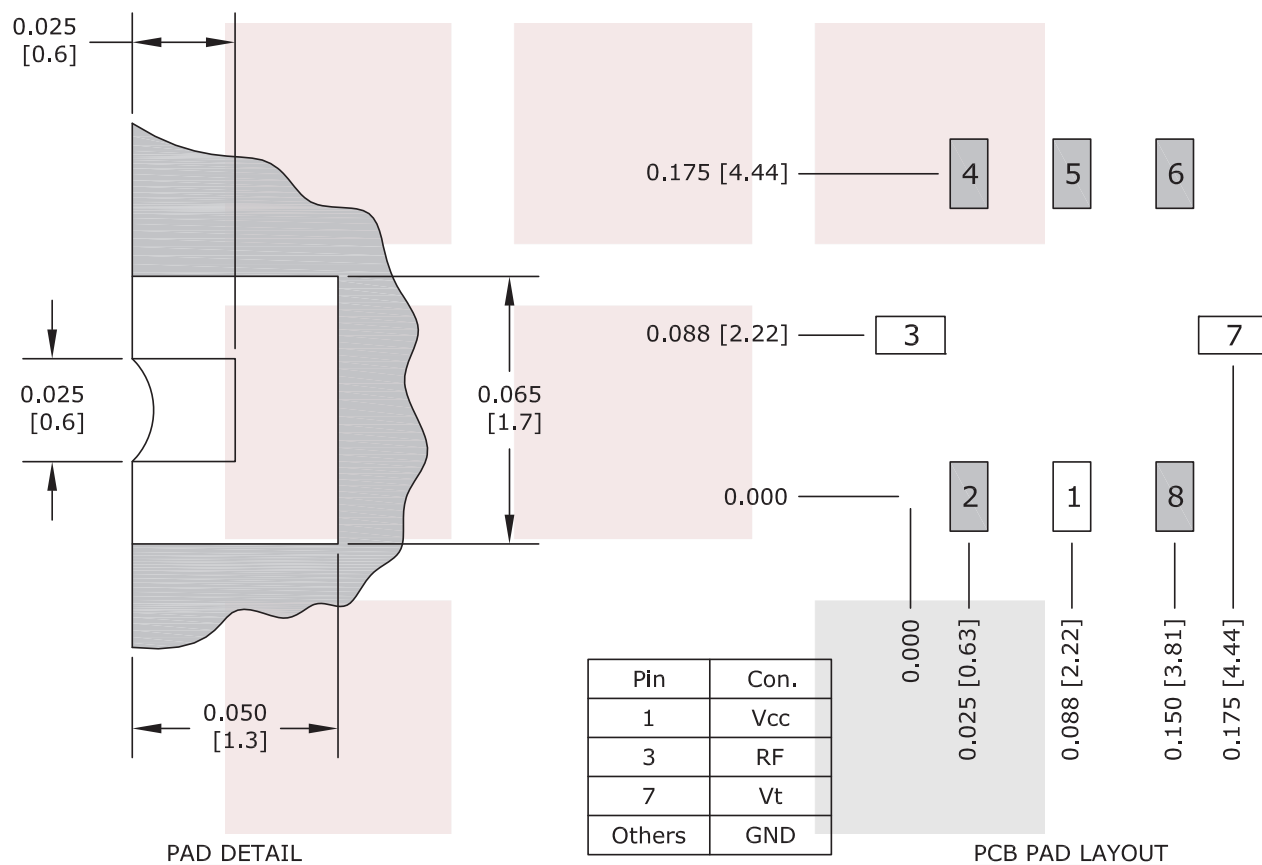
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NOTES:

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

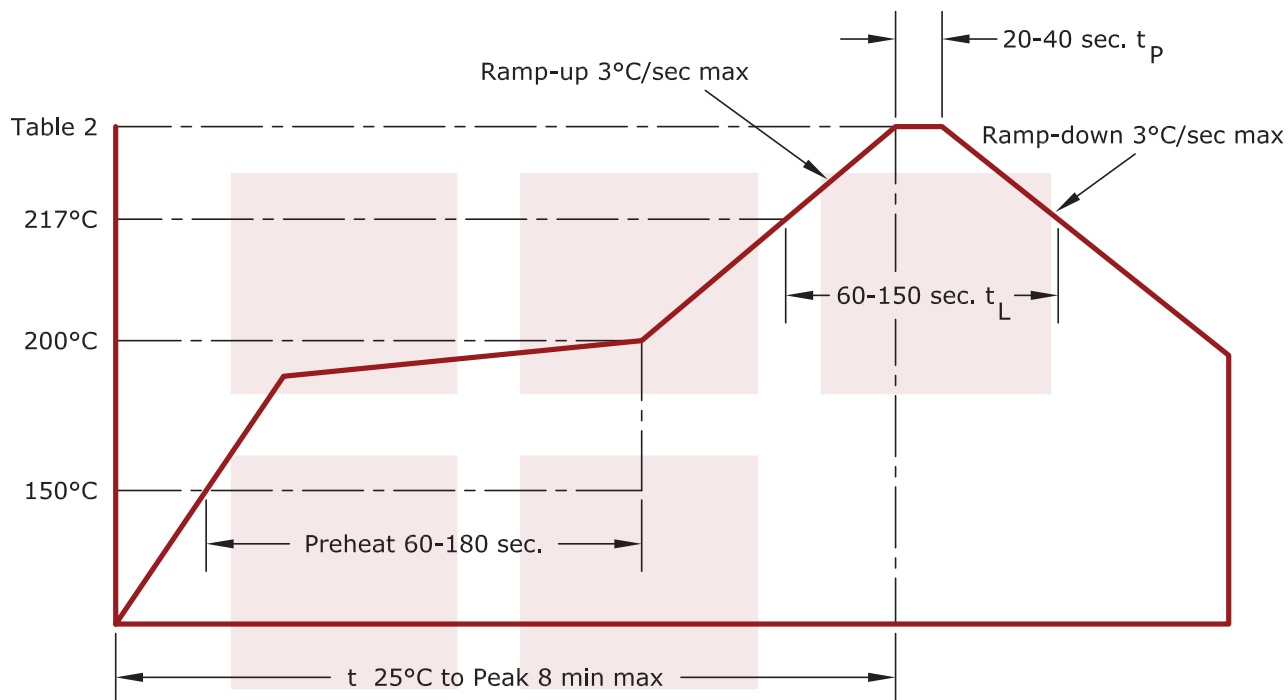
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| TITLE VCO (Voltage Controlled Oscillator) 0.175 inch SMT (Surface Mount), Frequency of 1 GHz to 2 GHz, Phase Noise -90 dBc/Hz | | DWG NO FMVC005 | | CAGE CODE 3FKR5 | |
| CAD FILE | 020816 | SHEET | SCALE | N/A | SIZE A 2233 |



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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) |
| 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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