

**VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 60 MHz to 120 MHz, Phase Noise -114 dBc/Hz**

FMVC11007 is a High Reliability Low Noise Voltage Controlled Oscillator (VCO) which covers a 60 MHz to 120 MHz frequency band with a voltage tuning range from 0.0V to 18.5V. This design features exceptional phase noise performance of -114 dBc/Hz @ 10 kHz offset. Supply Voltage is +15V with a generated output power level of +11.0 dBm and 2nd harmonic output of -20 dBc typical. 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            | 60  |      | 120  | MHz    |
| Tuning Voltage             | 0   |      | 18.5 | Vdc    |
| Supply Voltage (DC)        | 14  | 15   | 16   | Vdc    |
| Supply Current (DC)        |     | 18   | 20   | mA     |
| Phase Noise @1kHz Offset   |     | -87  | -84  | dBc/Hz |
| Phase Noise @10kHz Offset  |     | -114 | -112 | dBc/Hz |
| Phase Noise @100kHz Offset |     | -134 | -132 | dBc/Hz |
| Output Power               | +10 | +11  | +12  | dBm    |
| Tuning Sensitivity (Kvco)  | 2   |      | 6    | MHz/V  |
| Pushing                    |     | 0.2  | 0.4  | MHz/V  |
| Pulling (pk-pk)            |     | 100  | 200  | KHz    |
| Tuning Port Capacitance    |     | 82   |      | pF     |
| Load Impedance             |     | 50   |      | Ohms   |
| 2nd Harmonics              |     | -20  | -18  | dBc    |

**Mechanical Specifications**

| Size                      |                           |
|---------------------------|---------------------------|
| Length                    | 0.5 in [12.7 mm]          |
| Width                     | 0.5 in [12.7 mm]          |
| Height                    | 0.13 in [3.3 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               |

**Features:**

- 60 to 120 MHz Bandwidth
- -114 dBc/Hz @ 10kHz offset
- Tuning Voltage 0.0V to 18.5v
- Pout = +11.0 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

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ESD Sensitivity

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



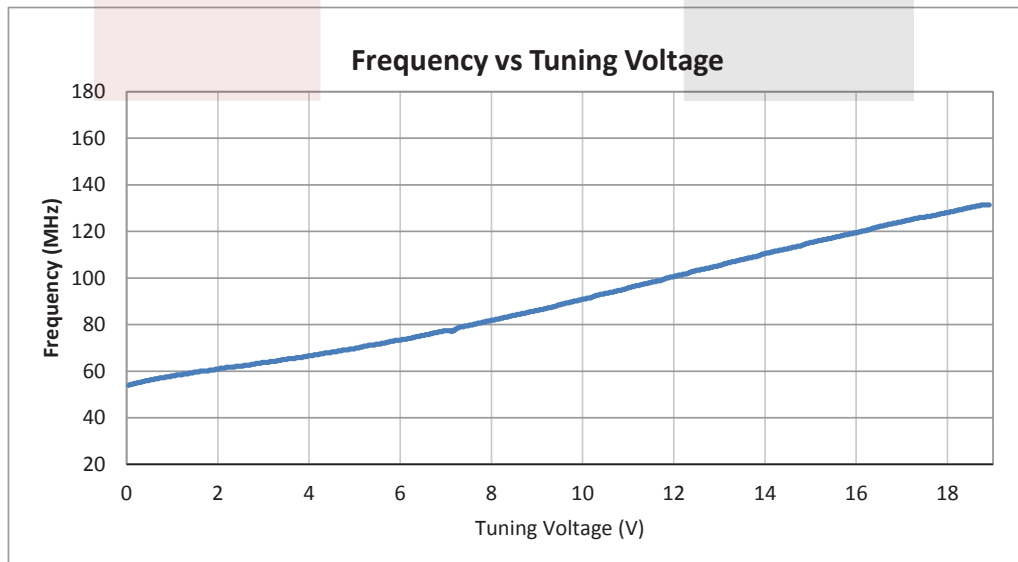
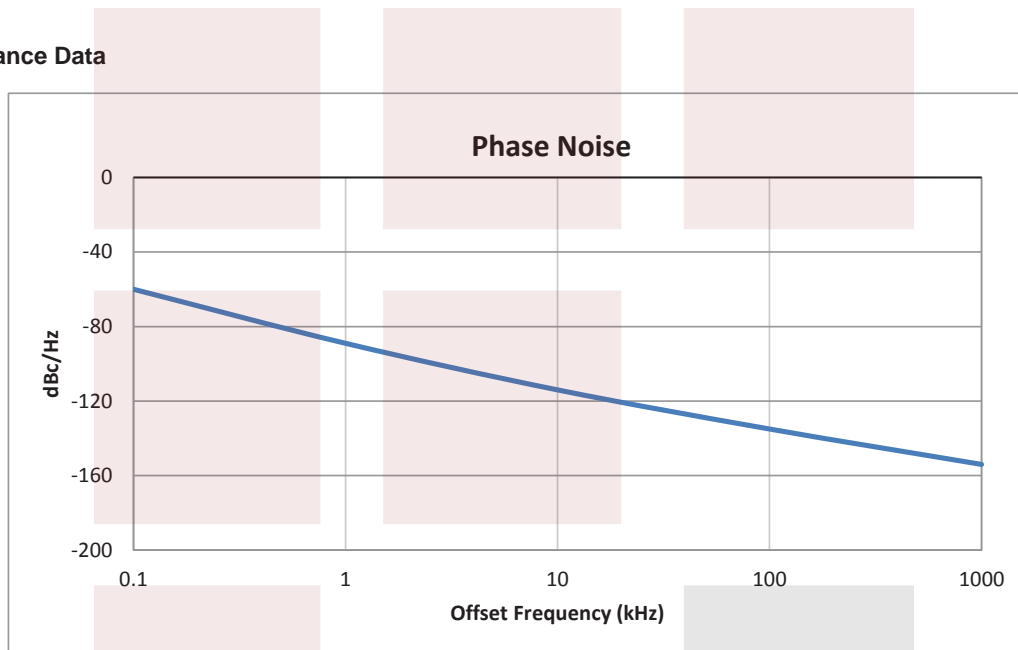
**Compliance Certifications** (visit [www.FairviewMicrowave.com](http://www.FairviewMicrowave.com) for current document)

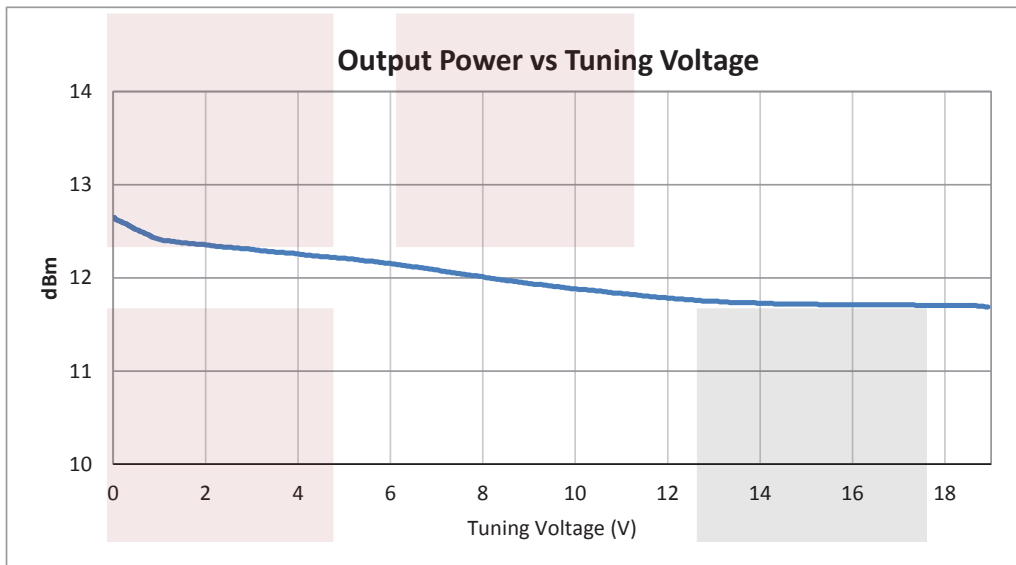
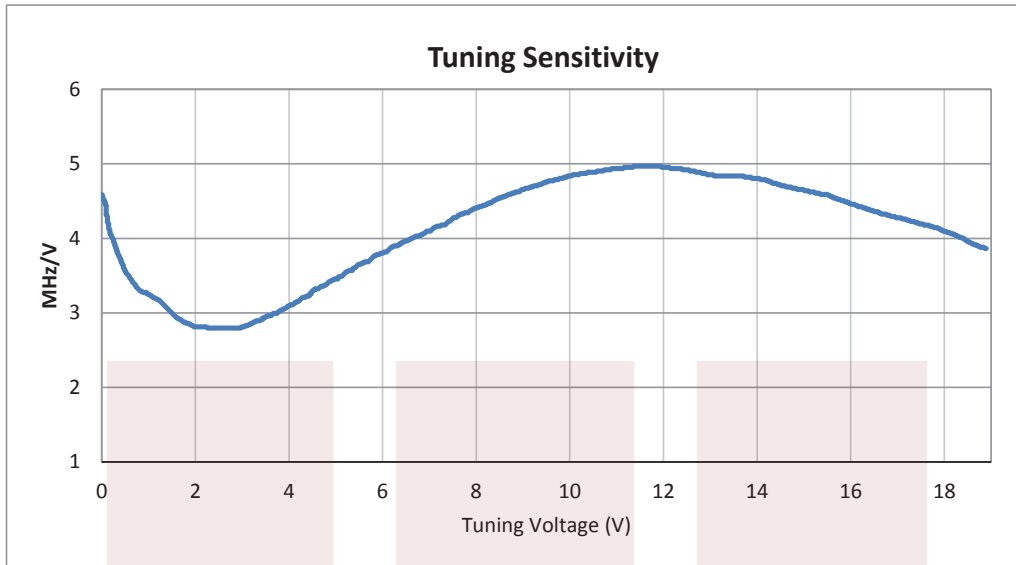
RoHS Compliant Yes  
 REACH Compliant 12/17/2015

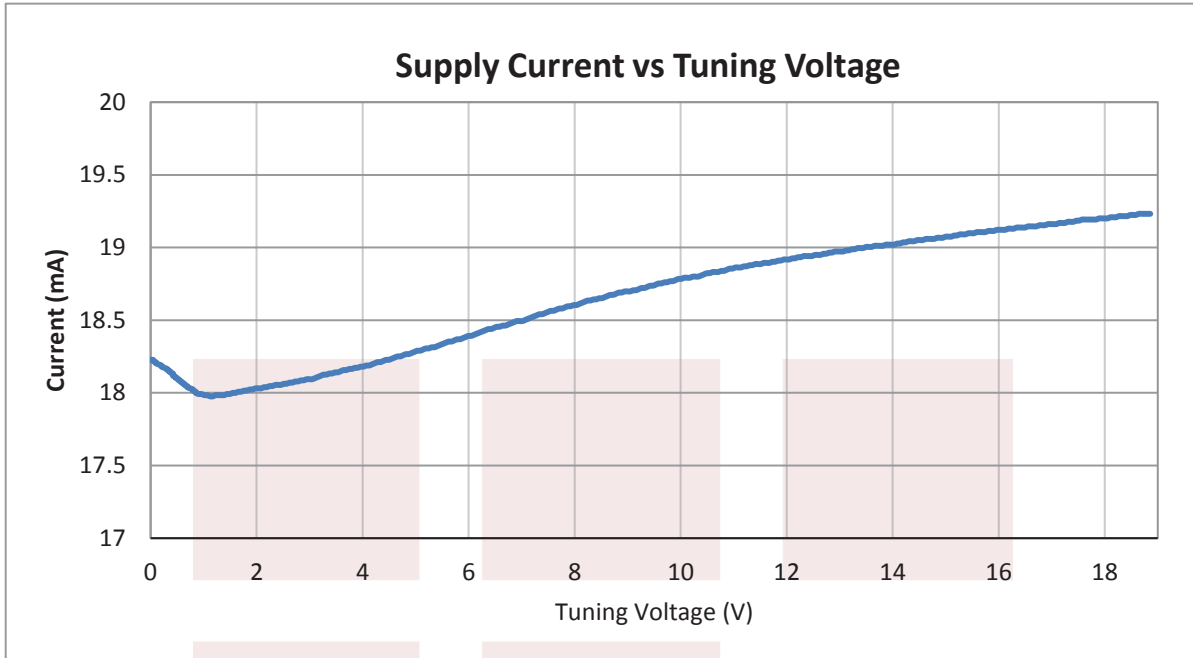
**Plotted and Other Data**

Notes:

**Typical Performance Data**





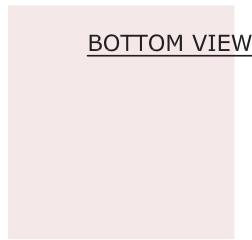
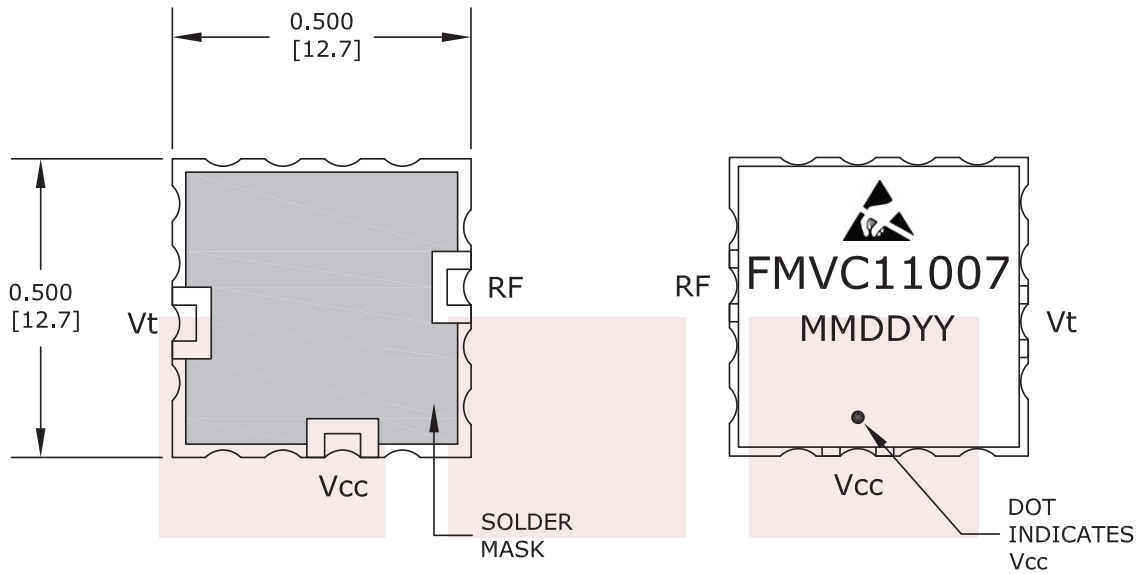


VCO (Voltage Controlled Oscillator) 0.5 inch Commercial SMT (Surface Mount), Frequency of 60 MHz to 120 MHz, Phase Noise -114 dBc/Hz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities 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 60 MHz to 120 MHz, Phase Noise -114 dBc/Hz FMVC11007](#)

URL: <http://www.fairviewmicrowave.com/vco-voltage-controlled-oscillator-smt-surface-mount-120-mhz-fmvc11007-p.aspx>

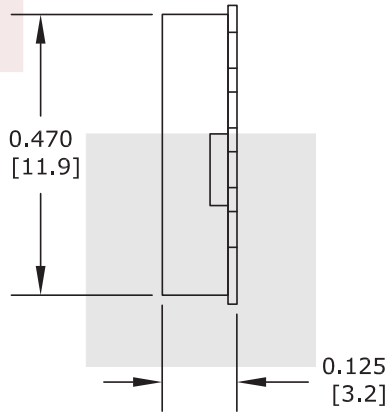
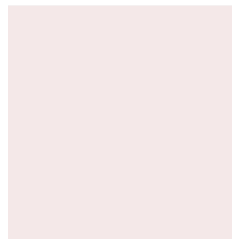
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BOTTOM VIEW



TOP VIEW

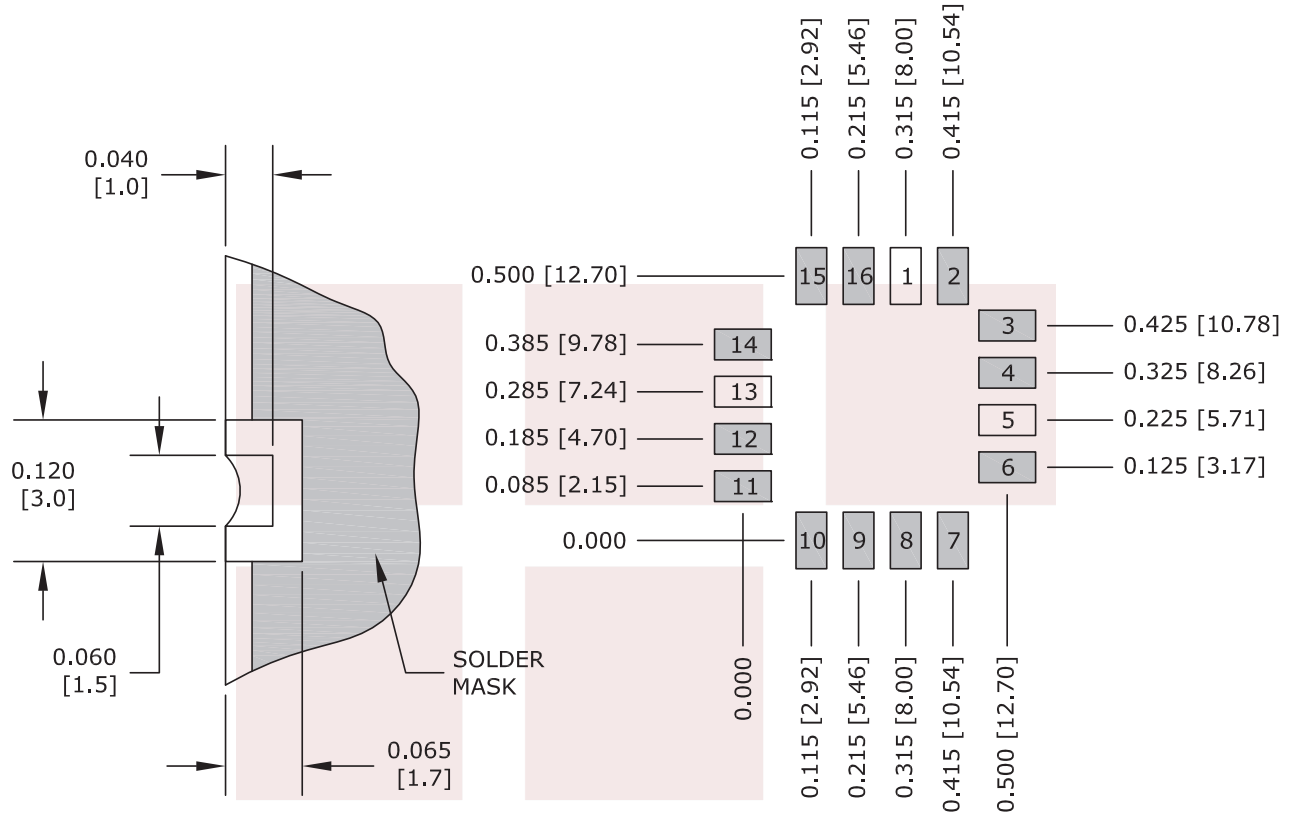


SIDE VIEW

**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<br>VCO (Voltage Controlled Oscillator) 0.5 inch<br>Commercial SMT (Surface Mount), Frequency of 60<br>MHz to 120 MHz, Phase Noise -114 dBc/Hz |  | DWG NO<br>FMVC11007   |       | CAGE CODE<br>3FKR5 |           |
|   |  | CAD FILE<br>101515  | SHEET | SCALE<br>N/A       | SIZE<br>A |



PAD DETAIL

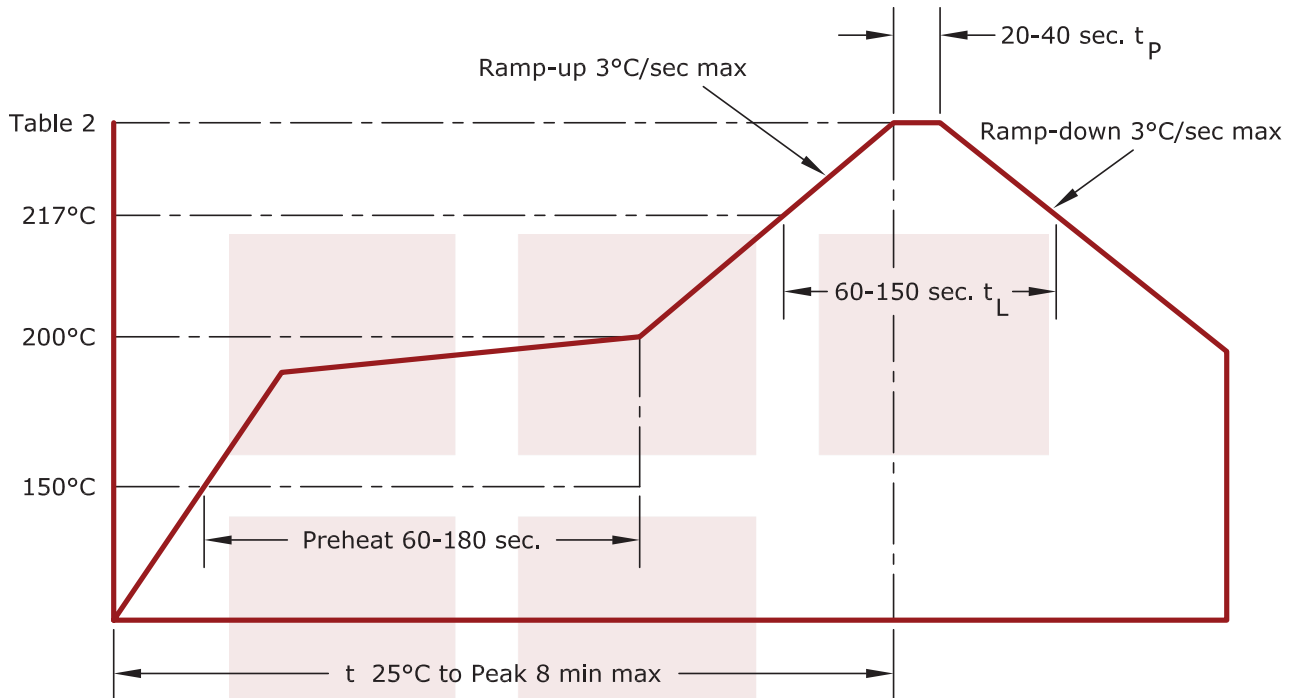
| Pin    | Con. |
|--------|------|
| 1      | Vcc  |
| 5      | RF   |
| 13     | Vt   |
| Others | GND  |

PCB PAD LAYOUT

**NOTES:**

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|   |  |   |       |                           |                |
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| Table 1<br>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<br>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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| CAD FILE  | 101515 | SHEET   | SCALE | N/A                | SIZE A 2233 |