RFMD
rfmd.com

# VCO190-150TY

## 5V NARROWBAND VOLTAGE CONTROLLED OSCILLATOR

Package: T-Package, 12.7mm x 12.7mm x 5.66mm

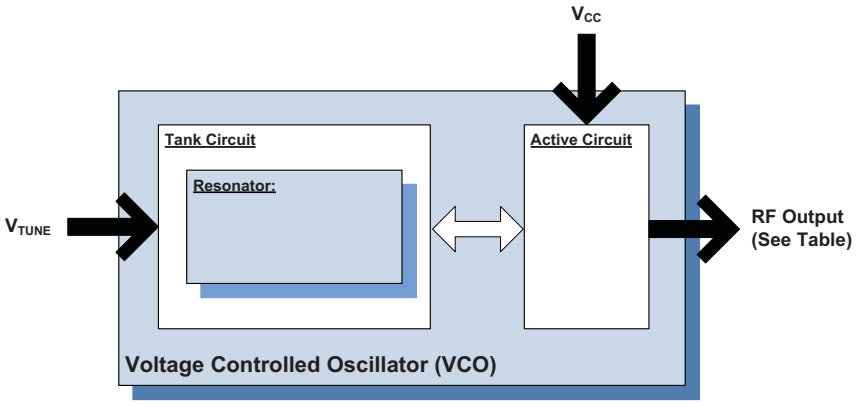
RoHS

## Features

- Linear Tuning/Low Phase Noise
- Multiple Supply Voltage and Package Options Available
- Low-Cost/High-Volume Series
- Frequency: 100MHz to 200MHz
- Resonator: Aircoil or Microstrip
- PCB: FR-4 and S1170
- Package Size: 12.7mm x 12.7mm x 5.66mm (0.5in x 0.5in x 0.223in)

## Applications

- Wireless Infrastructure
- RFID
- General Wireless




Functional Block Diagram

## Product Description

This series of narrowband, low-cost, 5V VCO modules offers linear tuning across their specified frequency band.

### Ordering Information

| | |
|---|---|
| VCO190-150TY | Contact us at 1-480-756-6070 |

### Optimum Technology Matching® Applied

| | | | |
|---|---|---|---|
| ☐ GaAs HBT | ☐ SiGe BiCMOS | ☐ GaAs pHEMT | ☐ GaN HEMT |
| ☐ GaAs MESFET | ☐ Si BiCMOS | ☐ Si CMOS | ☐ BiFET HBT |
| ☐ InGaP HBT | ☐ SiGe HBT | ☑ Si BJT | ☐ LDMOS |

RF MICRO DEVICES®, RFMD®, Optimum Technology Matching®, Enabling Wireless Connectivity™, PowerStar®, POLARIS™ TOTAL RADIO™ and UltimateBlue™ are trademarks of RFMD, LLC. BLUETOOTH is a trademark owned by Bluetooth SIG, Inc., U.S.A. and licensed for use by RFMD. All other trade names, trademarks and registered trademarks are the property of their respective owners. ©2012, RF Micro Devices, Inc.



7628 Thorndike Road, Greensboro, NC 27409-9421 · For sales or technical support, contact RFMD at (+1) 336-678-5570 or customerservice@rfmd.com.

RFMD
rfmd.com

## Absolute Maximum Ratings

| Parameter | Rating | Unit |
|---|---|---|
| Operating Ambient Temperature | -35 to +85 | °C |
| Storage Temperature | -55 to +125 | °C |

**Caution!** ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

The information in this publication is believed to be accurate and reliable. However, no responsibility is assumed by RF Micro Devices, Inc. ("RFMD") for its use, nor for any infringement of patents, or other rights of third parties, resulting from its use. No license is granted by implication or otherwise under any patent or patent rights of RFMD. RFMD reserves the right to change component circuitry, recommended application circuitry and specifications at any time without prior notice.

RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2002/95/EC.

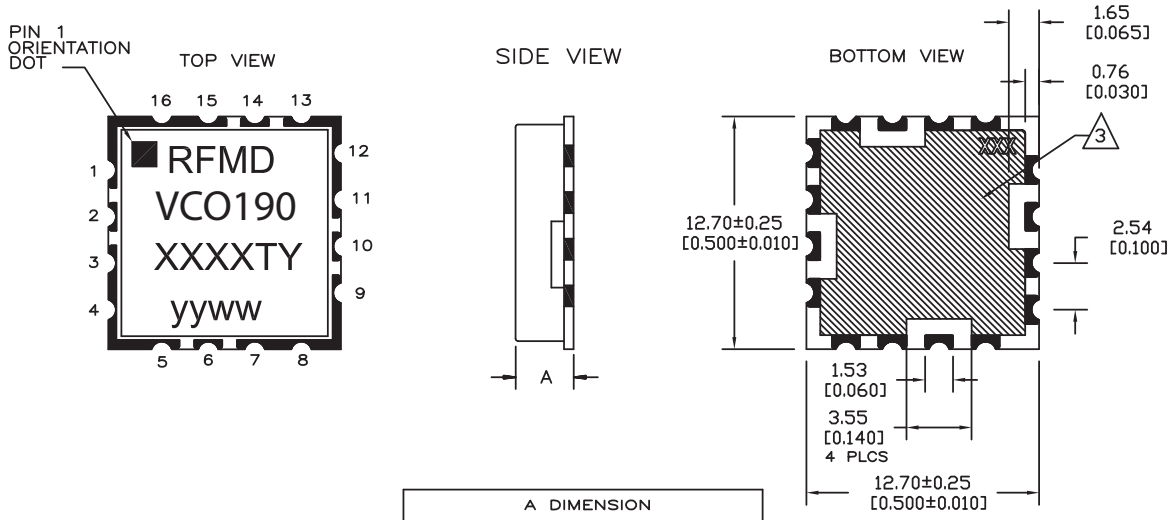
| Parameter | Specification | | | Unit | Condition |
|---|---|---|---|---|---|
| | Min. | Typ. | Max. | | |
| **Overall** | | | | | |
| Frequency Range | 100 | 150 | 200 | MHz | |
| Tuning Voltage | 1 | 2.25 | | $V_{DC}$ | |
| | | 15 | 16 | $V_{DC}$ | 200MHz |
| Tuning Sensitivity | 4 | 7 | 10 | MHz/V | |
| Output Power | -3 | 0 | 3 | dBm | |
| Output Phase Noise | | -114 | -105 | dBc/Hz | 10kHz |
| | | -134 | -125 | dBc/Hz | 100kHz |
| Harmonic Suppression | | -15 | -8 | dBc | 2nd harmonic |
| | | -11 | -8 | dBc | 3rd harmonic |
| Spurious (Non-Harmonic) | | | -80 | dBc | |
| Frequency Pushing | | 1.5 | 2 | MHz p-p | 4.75V to 5.25V |
| Frequency Pulling | | 0.3 | 1 | MHz p-p | 12dB RL |
| Tuning Port Capacitance | | 220 | | pF | |
| Output Impedance | | 50 | | Ω | |
| **Power Supply** | | | | | |
| Operating Voltage | 4.75 | 5 | 5.25 | V | |
| Supply Current | | 10 | 15 | mA | |



7628 Thorndike Road, Greensboro, NC 27409-9421 · For sales or technical support, contact RFMD at **(+1) 336-678-5570** or **customerservice@rfmd.com**.

## Package Drawing & Pin Outs

12.7mm x 12.7mm x 5.66mm (0.5in x 0.5in x 0.223in)




| A DIMENSION | |
|---|---|
| MILLIMETERS | INCHES |
| 5.66 ± 0.51 | 0.223 ± 0.020 |

| PIN OUT FOR VCO | |
|---|---|
| PIN | APPLICATION |
| 2 | Vt |
| 6 | MODULATION (OPT) |
| 10 | RF OUT |
| 14 | VCC |

ALL OTHER PINS ARE GROUND

NOTE, UNLESS OTHERWISE SPECIFIED:

1. THE METAL CASE IS GROUND.
2. ALL HALF VIA CONTACTS ARE PLATED THRU FROM THE PAD ON THE TOP SIDE TO THE PAD ON THE BOTTOM SIDE OF THE BOARD.
3. HATCHED AREAS ARE GROUND AND ARE COVERED WITH LPI SOLDER MASK OVER BARE COPPER. ALL CONTACT AREAS ARE PLATED. SIGNAL VIAS MAY BE LOCATED WITHIN GROUND PLANE.
4. CROSS HATCHED AREA INDICATES AREA WHERE SOLDER MASK SHOULD BE APPLIED TO MOUNTING BOARD.
5. XXXX REPRESENTS THE MODEL NUMBER.
6. yyww IS THE DATE CODE.
7. Y AT THE END OF THE MODEL NUMBER DESIGNATES RoHS COMPLIANCE.
8. DIMENSIONS ARE IN MILLIMETERS AND [INCHES].


7628 Thorndike Road, Greensboro, NC 27409-9421 · For sales or technical support, contact RFMD at (+1) 336-678-5570 or customerservice@rfmd.com.