



RFM Integrated Device, Inc.

## PRODUCT SPECIFICATION

Part Number: XOC9004

OCXO, 20 MHz,  $\pm 500$  ppb @  
 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$

## 9.7x7.5x4.1mm 20.0MHz OCXO



| Characteristics   | Values | Unit | Note                 |
|-------------------|--------|------|----------------------|
| Nominal Frequency | 20.0   | MHz  | ±500 ppb @ 25°C ±2°C |

### Temperature Range

| Characteristics | Min. | Nom. | Max. | Unit | Note |
|-----------------|------|------|------|------|------|
| Operating       | -40  |      | 85   | °C   |      |

### Power - Consumption

| Characteristics            | Min.  | Nom. | Max.  | Unit | Note       |
|----------------------------|-------|------|-------|------|------------|
| Power Supply               | 3.135 | 3.3  | 3.465 | V    |            |
| Max values at steady state |       |      | 0.4   | W    | at 25°C    |
| Max values during Warm-up  |       |      | 330   | mA   | at turn on |

### Output Signal HCMOS

| Characteristics | Min. | Nom. | Max. | Unit | Note       |
|-----------------|------|------|------|------|------------|
| Level           | VOH  | 2.7  |      | Volt |            |
|                 | VOL  |      | 0.3  | Volt |            |
| Rise/Fall time  |      |      | 4    | ns   | 10% to 90% |
| Duty cycle      | 45   |      | 55   | %    |            |
| Load            |      | 15   |      | pF   |            |

### Frequency Stability

| Characteristics           | Min. | Nom. | Max. | Unit   | Note                                                            |
|---------------------------|------|------|------|--------|-----------------------------------------------------------------|
| Total                     |      |      | 4.6  | ±ppm   | 20 years aging, temperature, voltage, and initial set frequency |
| VS Temperature Range      |      |      | 20   | ±ppb   | -40~85°C refer to freq at 25°C                                  |
| Frequency slope           |      |      | 2    | ±ppb/C |                                                                 |
| VS Power Supply variation |      |      | 10   | ±ppb   | ±5% Change                                                      |
| VS Power Supply variation |      |      | 10   | ±ppb   | ±5% Change                                                      |
| Reflow shift              |      |      | 1    | ±ppm   | After 1 hr at 25°C                                              |
| G sensitivity             |      |      | 3    | Ppb/G  | Each axis                                                       |

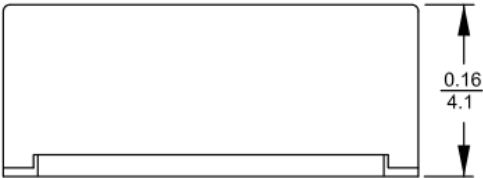
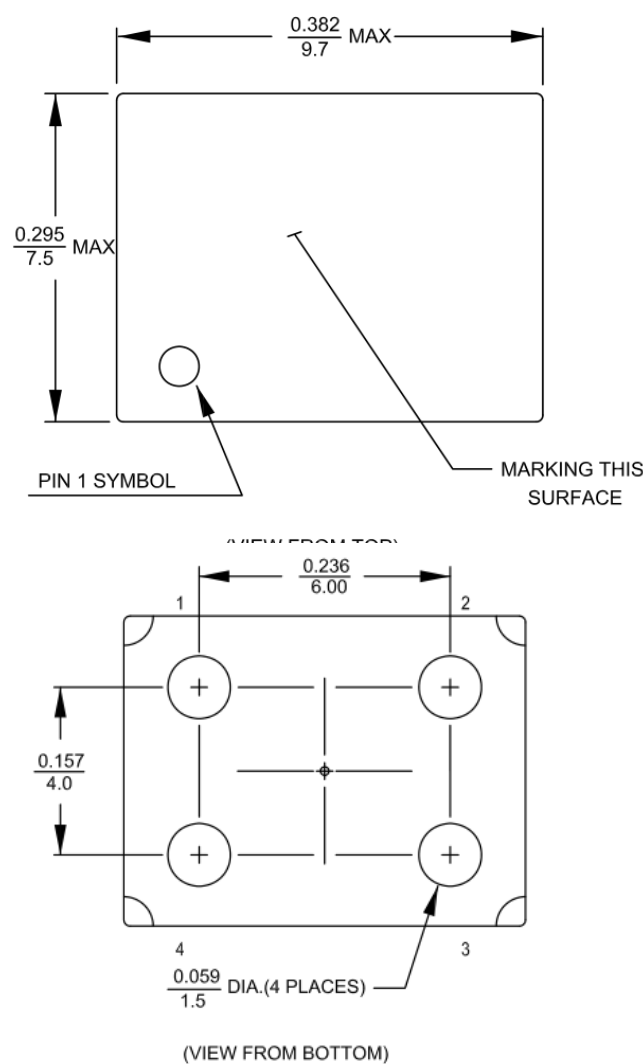
### Aging

| Characteristics            | Values |        |         | Unit | Note                                           |
|----------------------------|--------|--------|---------|------|------------------------------------------------|
| Medium/Long Term Stability | 1 day  | 1 Year | 10Years |      | After continuous operating for 1 month at 25°C |
|                            | 0.003  | 1      | 3       | ±ppm |                                                |
| Warm Up                    | 3 min  |        | 100     | ±ppb | Refer to 1 hour on @ 25°C                      |

### Phase Noise

| Characteristics      | Values |        |         |        |                       |       | Unit   | Note      |
|----------------------|--------|--------|---------|--------|-----------------------|-------|--------|-----------|
| Static Conditions    | 10 Hz  | 100 Hz | 1 KHz   | 10 KHz | 100KHz                | 1 MHz | dBc/Hz | Typ value |
|                      | -90    | -120   | -140    | -148   | -150                  | -153  |        |           |
| Short-term Stability | 1ms    | 100ms  | 1s      | 10s    | After 1 hour power on |       |        |           |
|                      |        |        | 1.0E-10 |        |                       |       |        |           |

# Mechanical drawing Package



| PIN CONNECTIONS   |                                  |
|-------------------|----------------------------------|
| PIN               | FUNCTION                         |
| 1<br>(See Note 1) | VCO INPUT<br>or<br>NOT CONNECTED |
| 2                 | 0 VOLTS & CASE                   |
| 3                 | R. F. OUTPUT                     |
| 4                 | +VDC                             |

Note 1. If the specification does not specify parameters for PIN 1 then PIN1 must remain unconnected.

Note 2. Copper in this area should be kept to a minimum to reduce heat heat loss from OCXO.

Note 3. Bottom side reflow is forbidden unless specified in the oscillator specification.

## Label (Top view)

