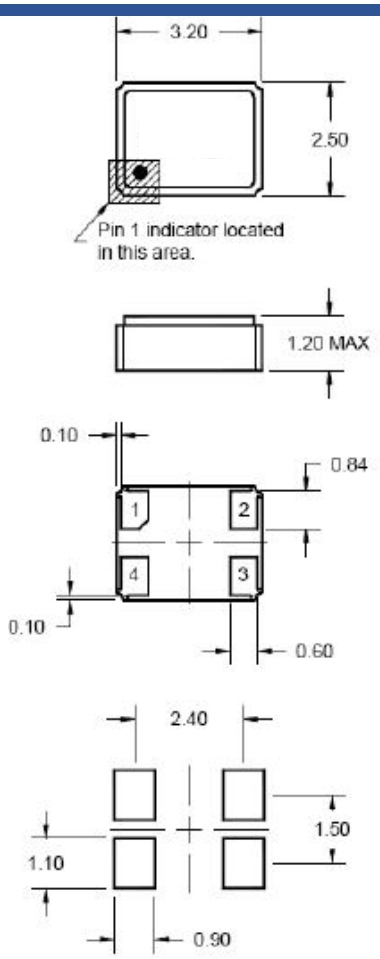
# I538 Series

### Product Features:
TCXO
Low Jitter, Non-PLL Based Output
CMOS Output
Compatible with Leadfree Processing
Digital Compensation

### Applications:
Wireless Communication
Test Instruments
GPS
Base stations
Telecommunications

| | |
|---|---|
| **Frequency** | 8.000 MHz to 40.000 MHz |
| **Output Level**<br>CMOS | <br>"0" = 0.5 Vdc Max.<br>'1' = 80% of Vcc Min. |
| **Output Load** | 15pF |
| **Duty Cycle** | 50% ±10% |
| **Rise / Fall Time** | 10 nS Max. |
| **Frequency Stability**<br>Vs Temperature<br>Vs Voltage (±5%)<br>Vs Load (±5%) | <br>See Frequency Stability Table<br>±0.3 ppm Max.<br>±0.2 ppm Max. |
| **Frequency Tolerance @ 25° C** | ±1.0 ppm Max. |
| **Aging @ 25° C** | ±1 ppm / Year Max. |
| **Supply Voltage** | See Supply Voltage Table, Tolerance ± 5% |
| **Current** | 6.0 mA Max. |
| **Operating** | See Operating Temperature Table |
| **Storage** | -40° C to +85° C |
| **Phase Noise (Typ. @ 20Mhz)** | -86 dBc/Hz @ 10 Hz<br>-115 dBc/Hz @ 100 Hz<br>-138 dBc/Hz @ 1KHz<br>-146 dBc/Hz @ 10KHz |




**Recommended Pad Layout**

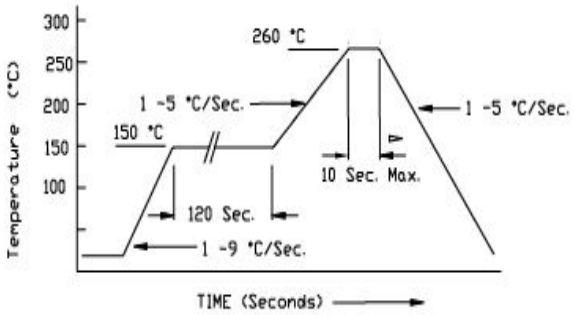
| Pad Connections | |
|---|---|
| Pad/Type | TCXO |
| Pad 1 | Ground or NC |
| Pad 2 | GND |
| Pad 3 | Output |
| Pad 4 | Supply Voltage (Vcc) |

**Dimension Units: mm**

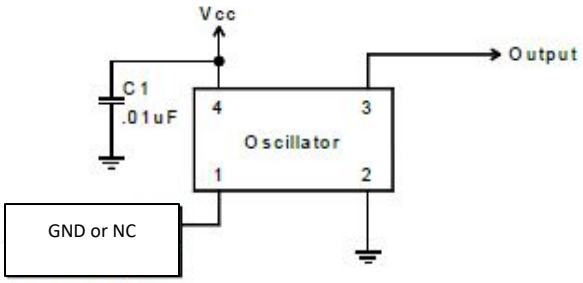
| Part Number Guide | | Sample Part Number: I538-1Q3- 20.000 MHz | | |
|---|---|---|---|---|
| **Package** | **Operating Temperature** | **Frequency Stability vs Temperature** | **Supply Voltage** | **Frequency** |
| I538<br>(CMOS TCXO) | 7 = 0°C to +50°C | **N = ±1.0 ppm | 2 = 2.7 V | -20.000 MHz |
| | 1 = 0°C to +70°C | **O = ±1.5 ppm | 3 = 3.3 V | |
| | 3 = -20°C to +70°C | P = ±2.0 ppm | 6 = 2.5 V | |
| | 5 = -30°C to +85°C | Q = ±2.5 ppm | 7 = 3.0 V | |
| | 2 = -40°C to +85°C | R = ±3.0 ppm | 8 = 2.8 V | |
| | | J = ±5.0 ppm | | |

NOTE:
A 0.01 µF bypass capacitor is recommended between Vcc (pin 4) and GND (pin 2) to minimize power supply noise.
** Not available for all operating temperature ranges and output frequencies.

## Pb Free Solder Reflow Profile:




## Typical Application:

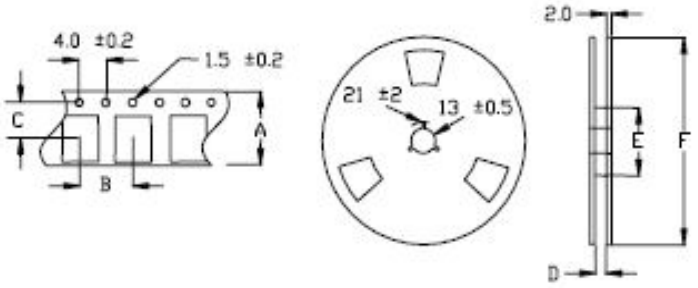



*Units are backward compatible with 240C reflow processes

## Package Information:

MSL = N.A. (package does not contain plastic; storage life is unlimited under normal room conditions).
Termination = e4 (Au over Ni over W base metallization).

## Tape and Reel Information:




| Quantity per Reel | 3000 |
|---|---|
| A | 8 ± 0.3 |
| B | 4 ± 0.2 |
| C | 3.5 ± 0.2 |
| D | 9±1 or 12 ± 3 |
| E | 60 / 80 |
| F | 180 |

## Environmental Specifications:

| | |
|---|---|
| Thermal Shock | MIL-STD-883, Method 1011, Condition A |
| Moisture Resistance | MIL-STD-883, Method 1004 |
| Mechanical Shock | MIL-STD-883, Method 2002, Condition B |
| Mechanical Vibration | MIL-STD-883, Method 2007, Condition A |
| Resistance to Soldering Heat | J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max) |
| Hazardous Substance | Pb-Free / RoHS / Green Compliant |
| Solderability | JESD22-B102-D Method 2 (Preconditioning E) |
| Terminal Strength | MIL-STD-883, Method 2004, Test Condition D |
| Gross Leak | MIL-STD-883, Method 1014, Condition C |
| Fine Leak | MIL-STD-883, Method 1014, Condition A2, R1=2x10-8 atm cc/s |
| Solvent Resistance | MIL-STD-202, Method 215 |