

## 2.5 mm x 3.2 mm Ceramic Package SMD TCXO

## I537/I538/I737/I738 Series

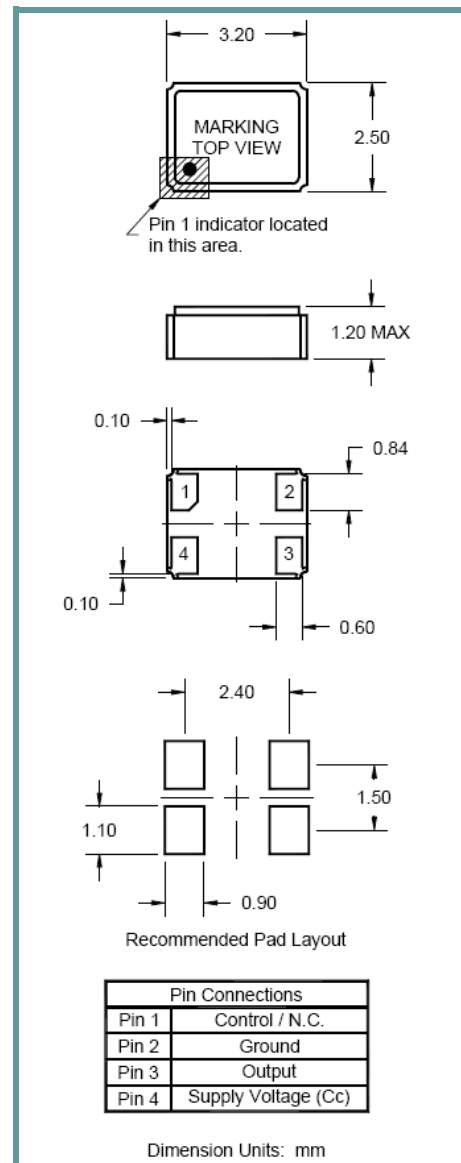
### Product Features:

Low Jitter, Non-PLL Based Output  
Available in Both Clipped Sinewave  
and HCMOS Output Levels  
Compatible with Leadfree Processing

### Product Features:

Server & Storage  
Sonet/SDH  
802.11 / Wifi  
T1/E1, T3/E3  
Fibre Channel

|                                                                           |                                                                                          |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Frequency</b>                                                          | 8.000 Mhz to 40 Mhz                                                                      |
| <b>Output Level</b><br>Clipped Sinewave<br>HCMOS                          | 0.8 V p-p Min.<br>'0'=0.5 VDC Max., '1'=0.8Vcc Min.                                      |
| <b>Output Load</b><br>Clipped Sinewave<br>HCMOS                           | 10K Ohms / 10 pF<br>15pF                                                                 |
| <b>Duty Cycle (HCMOS)</b>                                                 | 50% ±10%                                                                                 |
| <b>Rise / Fall Time (HCMOS)</b>                                           | 10 nS Max.                                                                               |
| <b>Frequency Stability</b><br>Vs Temperature<br>Vs Voltage<br>Vs Load(5%) | See Frequency Stability Table<br>± 0.3 ppm Max.<br>±0.2 ppm Max.                         |
| <b>Frequency Tolerance @ 25° C</b>                                        | ± 1.0 ppm                                                                                |
| <b>Aging</b>                                                              | ± 1 ppm / Year Max.                                                                      |
| <b>Supply Voltage</b>                                                     | See Supply Voltage Table , tolerance ± 5%                                                |
| <b>Current</b>                                                            | 2.0 mA Max. (Clipped Sinewave)<br>6.0 mA Max. (HCMOS)                                    |
| <b>Voltage Control (I737/I738)</b>                                        | 1.5 VDC ± 1.0 VDC, ± 5.0 ppm Min.                                                        |
| <b>Operating</b>                                                          | See Operating Temperature Table                                                          |
| <b>Storage</b>                                                            | -40° C to +85° C                                                                         |
| <b>Phase Noise</b><br>(Typ. @ 20 Mhz)                                     | -86 dBc/Hz @ 10 Hz<br>-115 dBc/Hz @ 100 Hz<br>-138 dBc/Hz @ 1KHz<br>-146 dBc/Hz @ 10 Khz |



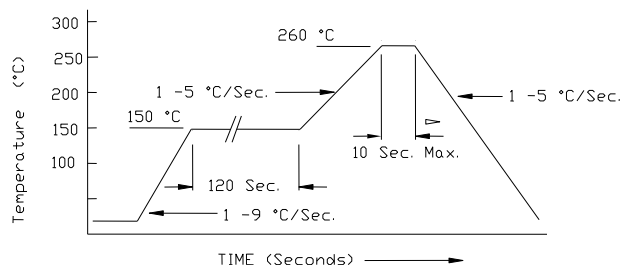
| Part Number Guide              |                       | Sample Part Number: I537-1Q3-20.000 Mhz |                |              |
|--------------------------------|-----------------------|-----------------------------------------|----------------|--------------|
| Package                        | Operating Temperature | Frequency Stability vs Temperature      | Supply Voltage | Frequency    |
| I537 (Clipped Sinewave TCXO)   | 7 = 0° C to +50° C    | **N = ±1.0 ppm                          | 3 = 3.3 V      | - 20.000 MHz |
| I538 (HCMOS TCXO)              | 1 = 0° C to +70° C    | **O = ±1.5 ppm                          | 7 = 3.0 V      |              |
| I737 (Clipped Sinewave TCVCXO) | 3 = -20° C to +70° C  | **P = ±2.0 ppm                          | 2 = 2.7 V      |              |
| I738 (HCMOS TCVCXO)            | 2 = -40° C to +85° C  | Q = ±2.5 ppm                            |                |              |
|                                |                       | R = ±3.0 ppm                            |                |              |
|                                |                       | 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 temperature ranges.

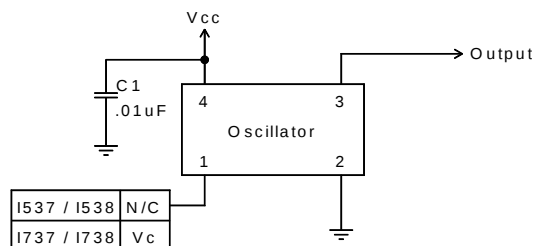
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### Pb Free Solder Reflow Profile:



### Typical Application:

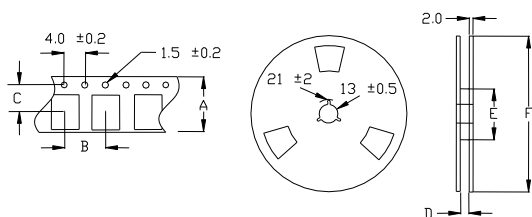


\*Units are backward compatible with 240C reflow processes

### 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 metalization).

### Tape and Reel Information:



| Quantity per Reel | 3000              |
|-------------------|-------------------|
| A                 | 8 +/- .3          |
| B                 | 4 +/- .2          |
| C                 | 3.5 +/- .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                                     |

## Marking

Line 1: I-Date Code (yww)

**QUALITY SYSTEM  
CERTIFIED  
= ISO 9001 =**

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[www.ilsiamerica.com](http://www.ilsiamerica.com)  
 Specifications subject to change without notice

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