CRYSTAL OSCILLATOR SPECIFICATION

This specification defines the operating characteristics of an ovenized crystal oscillator. Long term stability is assured through use of premium components.

<table>
<thead>
<tr>
<th>REV.</th>
<th>DESCRIPTION OF REVISION</th>
<th>REQ. BY</th>
<th>DWN. BY</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td></td>
<td>TST</td>
<td>TST</td>
<td>07-19-95</td>
</tr>
<tr>
<td>A</td>
<td>Removed the &gt; sign on 1.3. Removed note on 2.3.b. and reversed order of 2.3.b. and 2.3.a</td>
<td>TST</td>
<td>JAC</td>
<td>12-28-95</td>
</tr>
<tr>
<td>B</td>
<td>6.6.3. Outline drawing 125-489 was 125-353</td>
<td>TST</td>
<td>DAG</td>
<td>08-12-99</td>
</tr>
</tbody>
</table>
1. OUTPUT
   1.1. Frequency
       3.000 MHz
       (At time of shipment set to ±1X10^-8 @ +25°C) (Cpk > 1.5)
       (±3.3x10^-8 when tested by the customer, within 30 days of the
date code, after on power for 30 minutes.)
   1.2. Waveform
       Sine wave
   1.3. Level
       +15.5 dBm ±2.5 dB (Cpk > 1.5)
   1.4. Load
       50 Ω ±5%
   1.5. Harmonics
       < -20 dBc
   1.6. Spurious
       < -80 dBc

2. FREQUENCY STABILITY
   2.1. Total
       < ±2x10^-7/year for Ambient, Aging, Voltage, and Load.
   2.2. Ambient
       < ±2.5x10^-8 from -30°C to +70°C
       (referenced to +25°C)
   2.3. Aging
       a. At time of shipment
       < ±6.5x10^-10/day
       b. After storage of up to 6 months
          i. Daily
          < ±7.5x10^-10 after 120 hours
          ii. Yearly
          < ±5x10^-8
          iii. 10 years
          < ±3x10^-7
   2.4. Voltage
       a. Oscillator
       < ±1x10^-9/±4% change
       b. Oven
       < ±3x10^-9/voltage range
   2.5. Load
       < ±1x10^-9/±5% change
   2.6. Phase noise
       < -140 dBc @ 60 kHz
   2.7. Retrace
       < ±1x10^-7 after 5 minutes
       < ±3.3x10^-8 after 30 minutes
       (at +25°C, referenced to turn-off
       frequency after specified aging is
       met, and following a maximum off
       time of 30 days.)
2.8. Shock, Vibration, & Retrace  \(< +3.3\times10^{-8}\) from 3 MHz

The retrace is included in the SHOCK and VIBRATION. Procedure steps: Set units to frequency as they would be done in production environment, Remove units from power for a minimum of 6 hours, Warm-up units for 30 minutes record frequency, shock (off power), warm-up units for 30 minutes and record frequency, perform vibration (off power), warm-up units for 30 minutes and record frequency. The recorded frequencies must be within the specified value from 3 MHz. The shock and vibration levels are:

**SHOCK:**
1/2 SINE pulse 50 g’s for 6 ms three directions: ±X, ±Y, ±Z six times (18 times total)

**VIBRATION:**
10 - 60 Hz 0.06” double amplitude sine or 15 g’s whichever is less. 1/2 hour per plane ±X, ±Y, ±Z.

3. MECHANICAL FREQUENCY ADJUSTMENT

3.1. Range  \(> +1\) PPM
3.2. Resolution  \(< +1\times10^{-8}\)
3.3. Control Multi-turn trimmer

4. INPUT POWER

4.1. Oscillator
   a. Voltage  +15 VDC ±4%
   b. Current  < 50 mA

4.2. Oven
   a. Voltage  +27 VDC +3 VDC, -6 VDC
   b. Current  < 400 mA

5. ENVIRONMENTAL

5.1. Humidity  MIL-STD-202F, Method 103B, Test Condition A, except at +50°C (95% R.H. @ +50°C, non-condensing, 240 hours)

5.2. Storage temperature  -40°C to +85°C
5.3. Vibration (non-operating)  See section 2.
5.4. Shock (non-operating)  See section 2.

6. MECHANICAL

6.1. Applicable series  OCXO 127 series
6.2. Model number  OCXO 127-19
6.3. Outline drawing  125-489