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>BY</th>
<th>APV</th>
<th>DATE</th>
</tr>
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<tr>
<td>-</td>
<td></td>
<td>ADB</td>
<td>TST</td>
<td>01-08-1999</td>
</tr>
<tr>
<td>A</td>
<td>1.5. was -30 dBC, Added 2.1.b., 2.3. was ±5x10^-10, Added 2.4.a. and 2.4.c., Added 2.6.a. and 2.6.f., 2.6.c. was -130 dBC, 2.6.d. was -145 dBC, 2.6.e. was -150 dBC, In 4.1. &gt; ±1.8x10^-7 was &gt; ±1x10^-7, 5.2. was 500 mA.</td>
<td>TST</td>
<td>TST</td>
<td>01-22-2002</td>
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</table>
1. OUTPUT
   1.1. Frequency  10.000 MHz
   1.2. Waveform   Sine wave
   1.3. Level      +7 ±1.5 dBm
   1.4. Load       50 Ω
   1.5. Harmonics  < -40 dBc
   1.6. Spurious   < -60 dBc

2. FREQUENCY STABILITY
   2.1. Ambient (referenced to +35°C)
      a. From 0°C to +60°C < ±1x10^-9
      b. From +30°C to +40°C < ±2x10^-10
   2.2. Aging
      a. At time of shipment < ±5x10^-10/day
      b. After indefinite storage
         i. Daily < ±5x10^-10 after 30 days
         ii. Yearly < ±5x10^-8
         iii. 10 years < ±2x10^-7
   2.3. Voltage < ±2x10^-10/±5% change
   2.4. Short term root Allan variance
      a. 0.1 Seconds < 5x10^-11
      b. 1 Second   < 5x10^-12
      c. 10 Seconds < 1x10^-11
   2.5. Warm-up < ±5x10^-8 in 60 minutes @ 0°C
      (referenced to 4 hours)
   2.6. Phase noise
      a. @ 1 Hz   < -89 dBc
      b. @ 10 Hz  < -120 dBc
      c. @ 100 Hz < -140 dBc
      d. @ 1 kHz  < -151 dBc
      e. @ 10 kHz < -154 dBc
      f. @ 100 kHz < -157 dBc

3. MECHANICAL FREQUENCY ADJUSTMENT
   3.1. Range   > ±2x10^-7
   3.2. Resolution < ±2x10^-9
   3.3. Control Multi-turn trimmer

4. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")
   4.1. Range   > ±1.8x10^-7
      < ±3x10^-7
   4.2. Control 0 VDC to +5 VDC
   4.3. Slope Positive
   4.4. Center  +2.5 VDC
   4.5. Linearity < ±10%
   4.6. Input impedance > 50 kΩ
5. INPUT POWER (PIN = "+VDC")
   5.1. Voltage +12 VDC ±5%
   5.2. Current < 460 mA @ turn on
   5.3. Steady state < 2.8 Watts @ +25°C

6. ENVIRONMENTAL
   6.1. Humidity MIL-STD-202F, Method 103B, Test Condition A (95% R.H. @ +40°C,
   non-condensing, 96 hours)
   6.2. Storage temperature -40°C to +85°C
   6.3. Vibration (non-operating) MIL-STD-202F Method 201A. (0.06" Total p-p, 10 to 55 Hz)
   6.4. Shock (non-operating) MIL-STD-202F, Method 213B, Test Condition J.
   (30 g, 11 ms half-sine)
   6.5. Seal MIL-STD-202F, Method 112C, Test Condition D.

7. MECHANICAL
   7.1. Applicable series OCXO 91 series
   7.2. Model number OCXO 91-1
   7.3. Outline drawing 125-504
P/N: MODEL: FREQ.: S/N: DATE: CRYSTAL OSCILLATOR FSC:31785

PIN CONNECTIONS

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
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<tbody>
<tr>
<td>1</td>
<td>NOT CONNECTED</td>
</tr>
<tr>
<td>2</td>
<td>+ VDC</td>
</tr>
<tr>
<td>3</td>
<td>0 VOLTS AND CASE</td>
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<tr>
<td>4</td>
<td>R.F. OUTPUT</td>
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<tr>
<td>5</td>
<td>0 VOLTS AND CASE</td>
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<tr>
<td>6</td>
<td>0 VOLTS AND CASE</td>
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<tr>
<td>7</td>
<td>0 VOLTS AND CASE</td>
</tr>
<tr>
<td>8</td>
<td>0 VOLTS AND CASE</td>
</tr>
<tr>
<td>9</td>
<td>VCO INPUT</td>
</tr>
</tbody>
</table>

TOLERANCES

UNLESS OTHERWISE SPECIFIED:
ANGLES: ±1 DEGREE
FRACTIONS: ±1/32 INCH
DECIMALS: .XX ± .015, .XXX ± .010 INCH
MATERIAL: COLD ROLLED STEEL
FINISH: BRIGHT NICKEL
MARK: LABEL

NAME: OUTLINE DRAWING
(OCXO 91 SERIES)

CODE I.D. NO. 31785
SCALE: 1:1
DATE: 12-03-1996
DWN. BY: JAC APPR'D. BY: DAG

INDEX

REVISION 06/12/2002

ADDED METRIC DIMENSION AND UPDATED.

THUMBNAIL REV. A