



OCXO 143-55

P.O. BOX 3389
CHARLOTTESVILLE, VIRGINIA 22903
PHONE: (804) 295-3101
FAX: (804) 977-1849

CRYSTAL OSCILLATOR SPECIFICATION

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

REV.	DESCRIPTION OF REVISION	REQ. BY	DWN. BY	DATE
-	This unit is the same as the OCXO 143-40 except the package	TST	TST	07-14-99
A	1.5. was 40% to 60%, Inserted 1.6., 2.1. was -5°C to +60°C, 2.4. was $< \pm 1 \times 10^{-8}$ in 3 minutes @ +25°C, 3.4. was +2 VDC ± 0.4 VDC, 3.6. was $> 50 \text{ k}\Omega$, Added 3.7., 4.1. was +5 VDC $\pm 5\%$, 4.3. was < 1.5 Watts @ +25°C, Added 2nd sentence to 3.2. and 3.4.	TST	TST	12-20-99

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- 1. OUTPUT
 - 1.1. Frequency 10.000 MHz
 - 1.2. Waveform Rectangular
 - 1.3. Level HCMOS
 - a. "1" level > Vcc - 0.6 VDC
 - b. "0" level < +0.3 VDC
 - 1.4. Load 2 HCMOS
 - 1.5. Duty cycle 45% to 55% @ +2.5 VDC
 - 1.6. Rise/fall time < 10 ns (10% to 90%)
10 kΩ in parallel with 15 pF
 - 1.7. Spurious < -60 dBc
- 2. FREQUENCY STABILITY
 - 2.1. Ambient < ±2x10⁻⁸ from 0°C to +55°C
(referenced to +25°C)
 - 2.2. Aging
 - a. At time of shipment < ±1x10⁻⁹/day
 - b. After indefinite storage
 - i. Daily < ±1x10⁻⁹ after 30 days
 - ii. Yearly < ±1x10⁻⁷
 - iii. 10 years < ±3.5x10⁻⁷
 - 2.3. Voltage < ±1x10⁻⁸/±5% change
 - 2.4. Warm-up (referenced to 4 hours)
 - a. @ +25°C < ±1x10⁻⁸ in 3 minutes
 - b. @ 0°C < ±1x10⁻⁷ in 3 minutes
 - 2.5. Phase noise
 - a. @ 10 Hz < -115 dBc
 - b. @ 100 Hz < -135 dBc
 - c. @ 1 kHz < -145 dBc

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- 3. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")
 - 3.1. Range
 - > $\pm 4 \times 10^{-7}$
 - < $\pm 8 \times 10^{-7}$ (At time of shipment)
 - (Referenced to nominal frequency)
 - 3.2. Control
 - 0 VDC to Vref (+4 VDC) or
 - A 20 k Ω potentiometer connected between the "REFERENCE VOLTAGE" pin and "0 VOLTS & CASE" pin with wiper connected to "VCO INPUT" pin. With the VCO input voltage at +5 VDC, the unit will perform normally and be within 2×10^{-6} of nominal frequency.
 - 3.3. Slope
 - Positive
 - 3.4. Center
 - +2 VDC ± 0.5 VDC
 - Control voltage at which nominal frequency occurs at time of shipment. The VCO input pin is internally held, by a resistor divider network and can be left floating.
 - 3.5. Linearity
 - < $\pm 10\%$
 - 3.6. Input impedance
 - > 250 k Ω $\pm 30\%$
 - 3.7. Frequency response
 - DC to > 200 Hz
- 4. INPUT POWER (PIN = "+VDC")
 - 4.1. Voltage
 - +5 VDC $\pm 2\%$
 - 4.2. Current
 - < 700 mA @ turn on
 - 4.3. Steady state
 - < 2.2 Watts @ 0 $^{\circ}$ C
- 5. REFERENCE VOLTAGE (PIN = "REFERENCE VOLTAGE"), an output
 - 5.1. Voltage
 - +4 VDC $\pm 5\%$
 - 5.2. Load
 - > 4 k Ω
 - 5.3. Temperature stability
 - < ± 0.010 VDC
 - (Over temperature range in 2.1.)
- 6. ENVIRONMENTAL
 - 6.1. Humidity
 - MIL-STD-202F, Method 103A, Test Condition A (95% R.H. @ +40 $^{\circ}$ C, non-condensing, 240 hours)
 - 6.2. Storage temperature
 - 50 $^{\circ}$ C to +105 $^{\circ}$ 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 143 series
 - 7.2. Model number
 - OCXO 143-55
 - 7.3. Outline drawing
 - 125-569

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