



OCXO 143-11

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## 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
-		TST	DWR	11-27-96
A	Updated specification to ISOTEMP catalogue OCXO 143-1, except Rectangular output.	TST	TST	05-08-98
B	Changed PPM values to scientific notation. 2.5. was $< \pm 0.1$ PPM in 3 minutes @ $+25^{\circ}\text{C}$ (referenced to 4 hours), 2.6. was $< -90$ dBc @ 10 Hz	TST	TST	07-24-00
C	Added pin information to 3. 4. and 5. Added Notes 1 & 2.	TST	TST	12-11-00

ISOTEMP RESEARCH INC. CHARLOTTESVILLE, VA. USA	CODE ID.	PART NO.	PAGE OF TOTAL		DWG. NO.	REV.
	31785	OCXO 143-11	1	3	114-703	C

- 1. OUTPUT
  - 1.1. Frequency 10.000 MHz
  - 1.2. Waveform Rectangular
  - 1.3. Level HCMOS
  - 1.4. Load 20 pF
  - 1.5. Duty cycle 40% to 60% @ +2.5 VDC
  - 1.6. Spurious < -60 dBc
  
- 2. FREQUENCY STABILITY
  - 2.1. Ambient <  $\pm 1 \times 10^{-7}$  from 0°C to +70°C (referenced to +25°C)
  - 2.2. Aging
    - a. At time of shipment <  $\pm 1 \times 10^{-8}$ /day
    - b. After indefinite storage
      - i. Daily <  $\pm 1 \times 10^{-8}$  after 30 days
      - ii. Yearly <  $\pm 1 \times 10^{-6}$
      - iii. 10 years <  $\pm 4 \times 10^{-6}$
  - 2.3. Voltage <  $\pm 3 \times 10^{-8}$ /±5% change
  - 2.4. Short term <  $1 \times 10^{-9}$ /1 second  
root Allan variance
  - 2.5. Warm-up <  $\pm 1 \times 10^{-7}$  in 3 minutes @ +25°C (referenced to 1 hour)
  - 2.6. Phase noise
    - a. @ 10 Hz < -95 dBc
    - b. @ 100 Hz < -120 dBc
    - c. @ 1 kHz < -145 dBc
    - d. @ 10 kHz < -150 dBc
  
- 3. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")
  - 3.1. Range >  $\pm 10 \times 10^{-6}$   
<  $\pm 20 \times 10^{-6}$
  - 3.2. Control 0 VDC to Vref (+4 VDC) or  
a 10 kΩ potentiometer connected  
between the "REFERENCE VOLTAGE" pin  
and "0 VOLTS & CASE" pin with wiper  
connected to "VCO INPUT" pin.
  - 3.3. Slope Positive
  - 3.4. Center +2 VDC ±0.4 VDC  
(control voltage at which nominal  
frequency occurs at time of shipment)
  - 3.5. Linearity < ±10%
  - 3.6. Input impedance > 50 kΩ

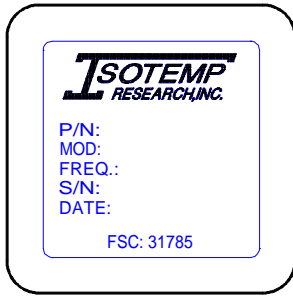
ISOTEMP RESEARCH INC. CHARLOTTESVILLE, VA. USA	CODE ID.	PART NO.	PAGE OF TOTAL		DWG. NO.	REV.
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- 4. INPUT POWER (PIN = "+VDC")
  - 4.1. Voltage +5 VDC ±5%
  - 4.2. Current < 700 mA @ turn on
  - 4.3. Steady state < 1.5 Watts @ +25°C
  
- 5. REFERENCE VOLTAGE (PIN = "REFERENCE VOLTAGE"), an output
  - 5.1. Voltage +4 VDC ±5%
  - 5.2. Available current ≤ 1 mA
  - 5.3. Temperature stability < ±0.010 VDC  
(Over temperature range in 2.1.)
  
- 6. ENVIRONMENTAL
  - 6.1. Storage temperature -55°C to +85°C
  - 6.2. Vibration (non-operating) MIL-STD-202F Method 201A. (0.06" Total p-p, 10 to 55 Hz)
  - 6.3. Shock (non-operating) MIL-STD-202F, Method 213B, Test Condition J.  
(30 g, 11 ms half-sine)
  - 6.4. Seal MIL-STD-202F, Method 112C, Test Condition D.
  
- 7. MECHANICAL
  - 7.1. Applicable series OCXO 143 series
  - 7.2. Model number OCXO 143-11
  - 7.3. Outline drawing 125-502

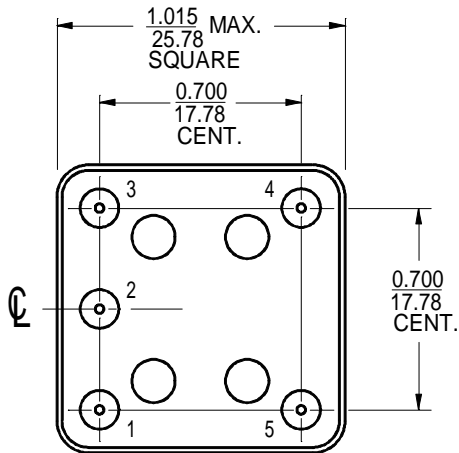
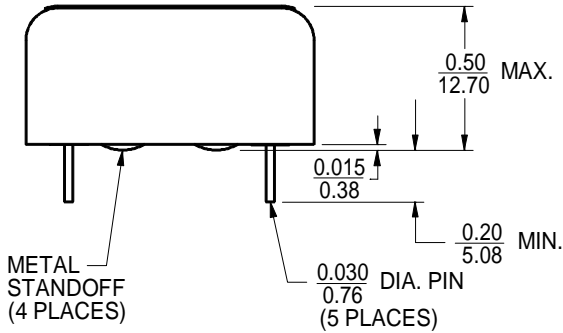
NOTES:

- 1. This unit is available with Sine wave output as OCXO 143-1.
- 2. The original package height was nominally 0.400 inches tall. All units manufactured after 12-11-2000 will nominally be 0.460 inches tall. This new height is within the maximum package height of 0.500 inches called out on outline drawing 125-502.

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(VIEW FROM TOP)



(VIEW FROM BOTTOM) NUMBERS FOR REFERENCE ONLY (NOT STAMPED ON UNIT)

PIN CONNECTIONS	
PIN	FUNCTION
1 (See Note 1)	VCO INPUT or NOT CONNECTED
2 (See Note 1)	REFERENCE VOLTAGE or NOT CONNECTED
3	+VDC
4	R.F. OUTPUT
5	0 VOLTS & CASE

Note 1. If the specification does not specify parameters for PIN1 and/or PIN2 then that respective PIN is NOT internally CONNECTED.

INCH  
mm (REFERENCE ONLY)

Form NO. 120-081E



OSCILLATORS

Charlottesville, Virginia USA

NAME: OUTLINE DRAWING  
(TCXO 65/OCXO 143 SERIES)

CODE I.D. NO.

31785

SCALE: 1.5:1

DATE: 10-31-1996

DWN. BY: JAC

APPR'D. BY: DAG

E ADDED METRIC DIMENSIONING.

LRB DAG 12-03-01

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

LET REVISION

BY APP DATE

DWG: 125-502  
REV: E  
SHT: 1 OF 1