ISOTEMP RESEARCH, INC.

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 < ±0.1 PPM in 3 minutes @ +25°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.

OCXO 143-11

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	< 1×10^{-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

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.

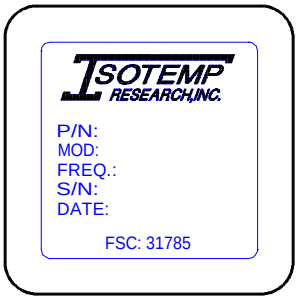
7. MECHANICAL

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.

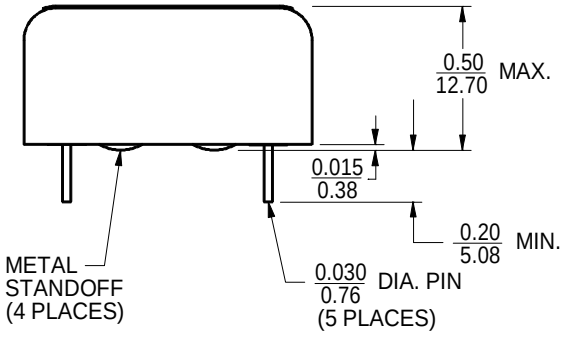
2. The original package height was nominally 0.400 inches tall. All units manufactured after 12-11-2000 will nominally be 0.460 inches tall. This new height is within the maximum package height of 0.500 inches called out on outline drawing 125-502.

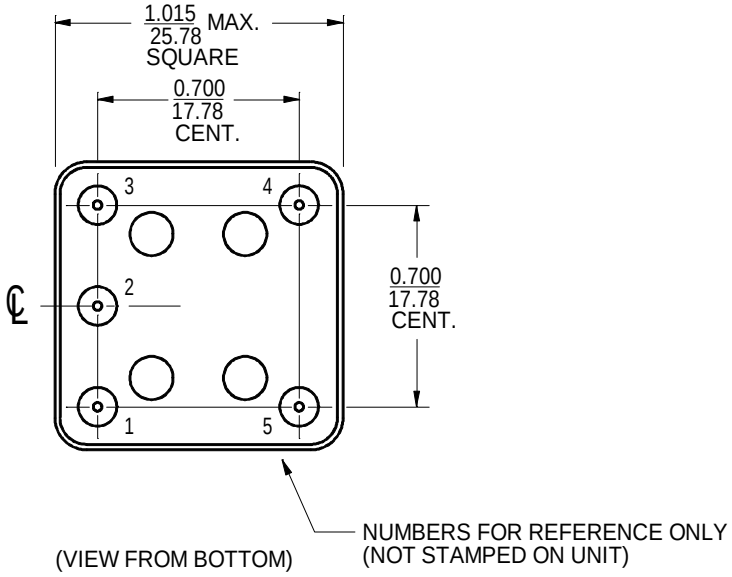


(VIEW FROM TOP)

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.





(VIEW FROM BOTTOM)

INCH / mm (REFERENCE ONLY)

Form NO. 120-081E

ISOTEMP RESEARCH,INC. — OSCILLATORS — Charlottesville, Virgina USA

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

CODE I.D. NO.	SCALE: 1.5:1	DATE: 10-31-1996
31785	DWN. BY: JAC	APPR'D. BY: DAG

LET	REVISION	BY	APP	DATE
E	ADDED METRIC DIMENSIONING.	LRB	DAG	12-03-01

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

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