

**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	DWN. BY	APV. BY	DATE
-		JTL	TST	08-04-2011

1. OUTPUT (PIN = "R.F. OUTPUT")

- 1.1. Frequency 10.000 MHz
- 1.2. Initial Accuracy <math>< \pm 2 \times 10^{-7}</math>
  - a. @ Temperature +25  $\pm$ 1°C
  - b. After time on power 30  $\pm$ 3 minutes
  - c. Within time period  $\leq$  90 days following date code
  - d. @ VCO Input voltage +2.0  $\pm$ 0.001 V
- 1.3. Waveform Rectangular
- 1.4. Level HCMOS
  - a. "1" level > +4.5 V
  - b. "0" level < +0.5 V
- 1.5. Load 15 pF
- 1.6. Duty cycle 40% to 60% @ +2.5 V
- 1.7. Spurious < -60 dBc

2. FREQUENCY STABILITY


- 2.1. Ambient <math>< \pm 1 \times 10^{-8}</math>, 0°C to +70°C (referenced to +25°C)
- 2.2. Aging
  - a. At time of shipment <math>< \pm 5 \times 10^{-10}</math>/day
  - b. After indefinite storage
    - i. Daily <math>< \pm 5 \times 10^{-10}</math> after 30 days
    - ii. Yearly <math>< \pm 1 \times 10^{-7}</math>
    - iii. 10 years <math>< \pm 4 \times 10^{-7}</math>
- 2.3. Voltage <math>< \pm 2 \times 10^{-9}</math>/ $\pm$ 5% change
- 2.4. Short term <math>< 5 \times 10^{-11}</math>/second root Allan variance
- 2.5. Load <math>< \pm 2 \times 10^{-9}</math>/ $\pm$ 10% change
- 2.6. Warm-up <math>< \pm 1 \times 10^{-7}</math> in 5 minutes @ +25  $\pm$ 1°C (referenced to 1 hour)
- 2.7. Phase Noise
  - a. @ 1 Hz < -80 dBc
  - b. @ 10 Hz < -120 dBc
  - c. @ 100 Hz < -140 dBc
  - d. @ 1 kHz < -145 dBc
  - e. @ 10 kHz < -150 dBc

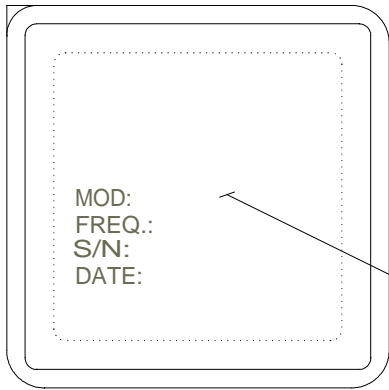
 <b>OUR PERFORMANCE YOUR REPUTATION</b>	MODEL NO.	PAGE OF TOTAL		DWG. NO.	REV.
	OCXO 143-1000	1	2	114-1428	-

- 3. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")
  - 3.1. Range >  $\pm 8 \times 10^{-7}$   

Referenced to frequency at nominal Center Voltage
  - 3.2. Control 0 to +4.0 V
  - 3.3. Slope Positive
  - 3.4. Center Voltage +2.0 V  

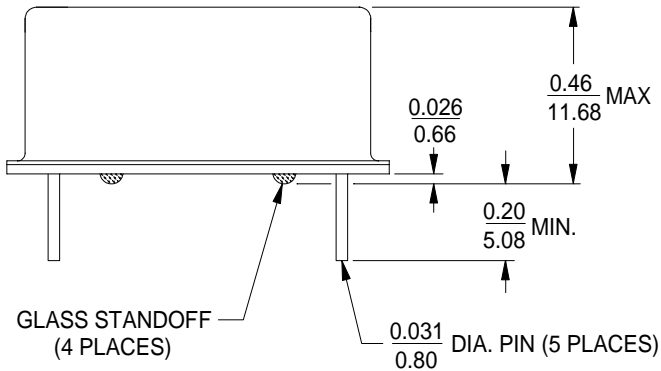
NOTE: When not connected, VCO INPUT is internally held at this voltage.
  - 3.5. Linearity <  $\pm 10\%$
  - 3.6. Input impedance > 100 k $\Omega$
  
- 4. INPUT POWER (PIN = "+VDC")
  - 4.1. Voltage +5 V  $\pm 5\%$
  - 4.2. Current < 600 mA @ turn on
  - 4.3. Steady state < 1.4 Watts @ +25°C
  
- 5. ENVIRONMENTAL
  - 5.1. Storage temperature -40°C to +85°C
  - 5.2. Vibration (non-operating) MIL-STD-202, Method 201 (0.06" Total p-p, 10 to 55 Hz)
  - 5.3. Shock (non-operating) MIL-STD-202, Method 213, Test Condition J (30 g, 11 ms half-sine)
  
- 6. RoHS  
 All units supplied under this MODEL NUMBER are RoHS compliant.
  
- 7. MECHANICAL(Outline drawing)
  - 7.1. Applicable series OCXO 143 series
  - 7.2. Model number OCXO 143-1000
  - 7.3. Outline drawing 125-633

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	YOUR REPUTATION	OCXO 143-1000	2	2	114-1428	-



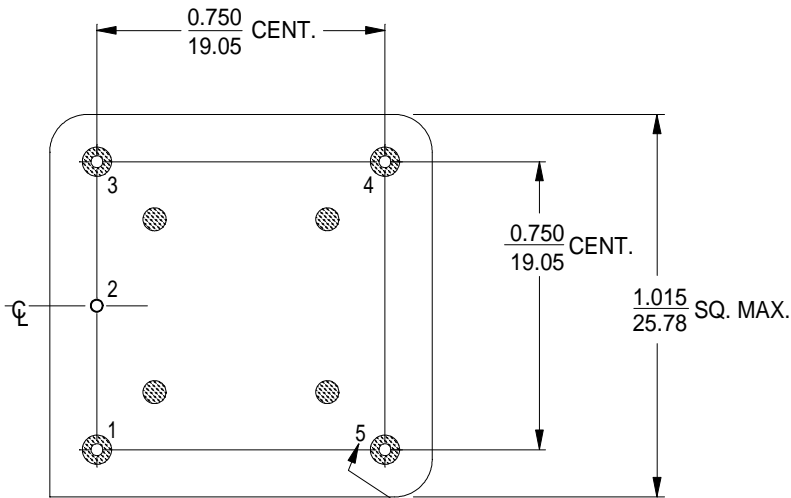
(VIEW FROM TOP)

MARKING THIS SURFACE



GLASS STANDOFF (4 PLACES)

0.031 DIA. PIN (5 PLACES)



(VIEW FROM BOTTOM)

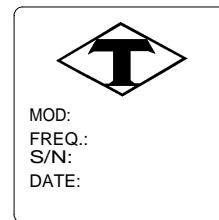
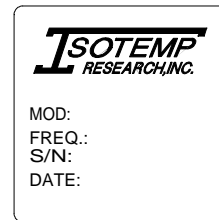
NUMBERS FOR REFERENCE ONLY (NOT STAMPED ON UNIT)

### PIN CONNECTIONS

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

Note 1. If the specification does not specify parameters for either PIN3 or PIN4 then that respective PIN is NOT internally CONNECTED.

### MARKING



INCH  
mm (REFERENCE ONLY)

Form NO. 120-081E



OSCILLATORS

Charlottesville, Virginia USA

NAME: OUTLINE DRAWING  
(OCXO 143 SERIES)

CODE I.D. NO.

31785

SCALE: 2:1

DATE: 10-04-2007

DWN. BY: BTG

APPR'D. BY: TST

LET	REVISION	BY	APP	DATE
A	UPDATED MARKINGS.	BTG	TST	07-11-2008

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

DWG: 125-633  
REV: A  
SHT: 1 OF 1