

## 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
-		TST	TST	06-19-2007
A	Updated to new format.	BTG	JRD	02-25-2008
B	Put on new form.	JTL	TST	08-15-2011

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

1.1. Frequency	10.000000 MHz
1.2. Initial Accuracy	< $\pm 5 \times 10^{-8}$
a. @ Temperature	+25 $\pm 1^\circ\text{C}$
b. After time on power	30 $\pm 5$ minutes
c. Within time period following date code	$\leq 90$ days
d. @ VCO Input voltage	+2.5 $\pm 0.001$ V
1.3. Waveform	Rectangular
1.4. Level	HCMOS
a. "1" level	> +4.4 V
b. "0" level	< +0.4 V
1.5. Load	15pF
1.6. Duty cycle	45% to 55% @ +2.5 V
1.7. Rise/fall time	< 3 ns (10% to 90%)
1.8. Spurious	< -70 dBc

### 2. FREQUENCY STABILITY

2.1. Ambient	< $\pm 5 \times 10^{-9}$ , -10 $^\circ\text{C}$ to +70 $^\circ\text{C}$
2.2. Aging	
a. At time of shipment	< $\pm 1 \times 10^{-9}$ /day
b. After indefinite storage	
i. Daily	< $\pm 1 \times 10^{-9}$ after 30 days
ii. Yearly	< $\pm 1 \times 10^{-7}$
iii. 15 years	< $\pm 4 \times 10^{-7}$
2.3. Voltage	< $\pm 1 \times 10^{-9}$ / $\pm 5\%$ change
2.4. Short term	< $1 \times 10^{-11}$ /second root Allan variance
2.5. Warm-up	< $\pm 5 \times 10^{-8}$ in 8 minutes @ +25 $\pm 1^\circ\text{C}$ (referenced to 1 hour)
2.6. Phase Noise	
a. @ 10 Hz	< -120 dBc
b. @ 100 Hz	< -140 dBc
c. @ 1 kHz	< -150 dBc
d. @ 10 kHz	< -150 dBc
e. @ 100 kHz	< -150 dBc

 <b>OUR PERFORMANCE YOUR REPUTATION</b>	MODEL NO.	PAGE OF TOTAL		DWG. NO.	REV.
	OCXO 131-1005	1	2	114-1276	B

3. ELECTRICAL FREQUENCY ADJUSTMENT (PIN = "VCO INPUT")

- 3.1. Range >  $\pm 4 \times 10^{-7}$   
<  $\pm 8 \times 10^{-7}$

Referenced to frequency at nominal Center Voltage

- 3.2. Control 0 to +5 V
- 3.3. Slope Positive
- 3.4. Center Voltage +2.5 V

NOTE: When not connected, VCO INPUT is internally held at this voltage.

- 3.5. Linearity <  $\pm 10\%$
- 3.6. Input impedance > 50 k $\Omega$

4. INPUT POWER (PIN = "+VDC")

- 4.1. Voltage +12 V  $\pm 5\%$
- 4.2. Current < 350 mA @ turn on
- 4.3. Steady state < 2.2 Watts @ +25°C


5. REFERENCE VOLTAGE (PIN = "REFERENCE VOLTAGE"), Not Connected

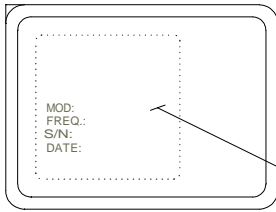
6. RoHS

All units supplied under this MODEL NUMBER are RoHS compliant.

7. MECHANICAL(Outline drawing)

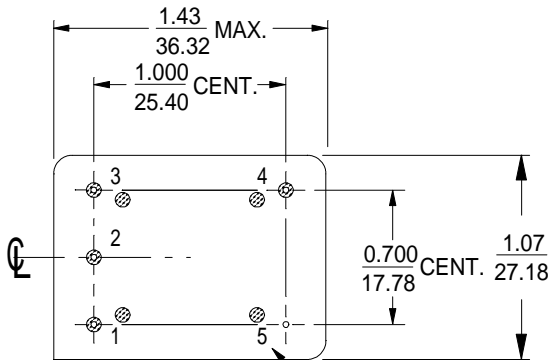
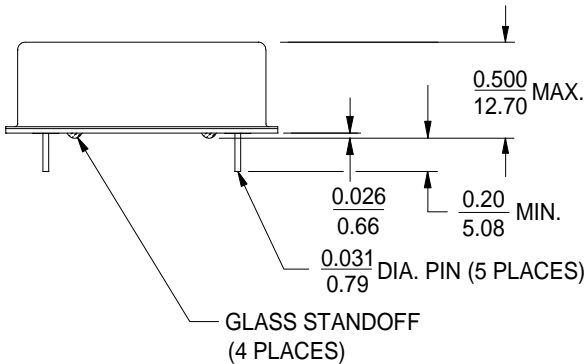
- 7.1. Applicable series OCXO 131 series
- 7.2. Model number OCXO 131-1005
- 7.3. Outline drawing 125-597

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(VIEW FROM TOP)

MARKING THIS SURFACE



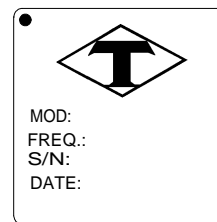
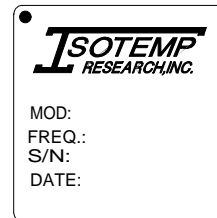
(VIEW FROM BOTTOM)

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 or OVEN MONITOR
3	+VDC
4	R. F. OUTPUT
5	0 VOLTS & CASE

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

MARKING



$\frac{\text{INCH}}{\text{mm}}$  (REFERENCE ONLY)

Form NO. 120-081E



OSCILLATORS

Charlottesville, Virginia USA

NAME: OUTLINE DRAWING  
(TCXO 141 & OCXO 131 SERIES)

CODE I.D. NO.

31785

SCALE: 1:1

DWN. BY: LRB

DATE: 02-26-2002

APPR'D. BY: DAG

LET	REVISION	BY	APP	DATE
A	Max height was .515.	BTG	TST	04-06-2004
B	NEW FORM AND UPDATED MARKING.	BTG	JRD	02-26-2008
C	UPDATED MARKING AND ADDED OVEN MONITOR.	BTG	TST	01-29-2010

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

DWG: 125-597  
REV: C  
SHT: 1 OF 1