



OCXO 127-19

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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	TST	07-19-95
A	Removed the > sign on 1.3. Removed note on 2.3.b. and reversed order of 2.3.b. and 2.3.a	TST	JAC	12-28-95
B	6.6.3. Outline drawing 125-489 was 125-353	TST	DAG	08-12-99

ISOTEMP RESEARCH INC. CHARLOTTESVILLE, VA. USA	CODE ID.	PART NO.	PAGE OF TOTAL		DWG. NO.	REV.
	31785	OCXO 127-19	1	3	114-660	B

1. OUTPUT

- 1.1. Frequency 3.000 MHz
(At time of shipment set to $\pm 1 \times 10^{-8}$ @ +25°C) (Cpk > 1.5)
($< \pm 3.3 \times 10^{-8}$ when tested by the customer, within 30 days of the date code, after on power for 30 minutes.)
- 1.2. Waveform Sine wave
- 1.3. Level +15.5 dBm ± 2.5 dB (Cpk > 1.5)
- 1.4. Load 50 Ω $\pm 5\%$
- 1.5. Harmonics < -20 dBc
- 1.6. Spurious < -80 dBc

2. FREQUENCY STABILITY

- 2.1. Total < $\pm 2 \times 10^{-7}$ /year for Ambient, Aging, Voltage, and Load.
- 2.2. Ambient < $\pm 2.5 \times 10^{-8}$ from -30°C to +70°C (referenced to +25°C)
- 2.3. Aging
 - a. At time of shipment < $\pm 6.5 \times 10^{-10}$ /day
 - b. After storage of up to 6 months
 - i. Daily < $\pm 7.5 \times 10^{-10}$ after 120 hours
 - ii. Yearly < $\pm 5 \times 10^{-8}$
 - iii. 10 years < $\pm 3 \times 10^{-7}$
- 2.4. Voltage
 - a. Oscillator < $\pm 1 \times 10^{-9}$ /±4% change
 - b. Oven < $\pm 3 \times 10^{-9}$ /voltage range
- 2.5. Load < $\pm 1 \times 10^{-9}$ /±5% change
- 2.6. Phase noise < -140 dBc @ 60 kHz
- 2.7. Retrace < $\pm 1 \times 10^{-7}$ after 5 minutes
< $\pm 3.3 \times 10^{-8}$ after 30 minutes
(at +25°C, referenced to turn-off frequency after specified aging is met, and following a maximum off time of 30 days.)

ISOTEMP RESEARCH INC. CHARLOTTESVILLE, VA. USA	CODE ID.	PART NO.	PAGE OF TOTAL		DWG. NO.	REV.
	31785	OCXO 127-19	2	3	114-660	B

2.8. Shock, Vibration, & Retrace < $\pm 3.3 \times 10^{-8}$ from 3 MHz
 The retrace is included in the SHOCK and VIBRATION. Procedure steps: Set units to frequency as they would be done in production environment, Remove units from power for a minimum of 6 hours, Warm-up units for 30 minutes record frequency, shock (off power), warm-up units for 30 minutes and record frequency, perform vibration (off power), warm-up units for 30 minutes and record frequency. The recorded frequencies must be within the specified value from 3 MHz. The shock and vibration levels are:

SHOCK:

1/2 SINE pulse 50 g's for 6 ms three directions: $\pm X$, $\pm Y$, $\pm Z$ six times (18 times total)

VIBRATION:

10 - 60 Hz 0.06" double amplitude sine or 15 g's whichever is less. 1/2 hour per plane $\pm X$, $\pm Y$, $\pm Z$.

3. MECHANICAL FREQUENCY ADJUSTMENT

- 3.1. Range > ± 1 PPM
- 3.2. Resolution < $\pm 1 \times 10^{-8}$
- 3.3. Control Multi-turn trimmer

4. INPUT POWER

- 4.1. Oscillator
 - a. Voltage +15 VDC $\pm 4\%$
 - b. Current < 50 mA
- 4.2. Oven
 - a. Voltage +27 VDC +3 VDC, -6 VDC
 - b. Current < 400 mA

5. ENVIRONMENTAL

- 5.1. Humidity MIL-STD-202F, Method 103B, Test Condition A, except at +50°C (95% R.H. @ +50°C, non-condensing, 240 hours)
- 5.2. Storage temperature -40°C to +85°C
- 5.3. Vibration (non-operating) See section 2.
- 5.4. Shock (non-operating) See section 2.

6. MECHANICAL

- 6.1. Applicable series OCXO 127 series
- 6.2. Model number OCXO 127-19
- 6.3. Outline drawing 125-489

ISOTEMP RESEARCH INC. CHARLOTTEVILLE, VA. USA	CODE ID.	PART NO.	PAGE OF TOTAL		DWG. NO.	REV.
	31785	OCXO 127-19	3	3	114-660	B