



Crystal Clock Oscillator — Low Power CMOS

by SaRonix

Technical Data

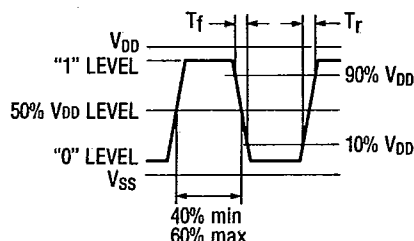
Ref. No. **Series M**
Date **May 1988**
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Description

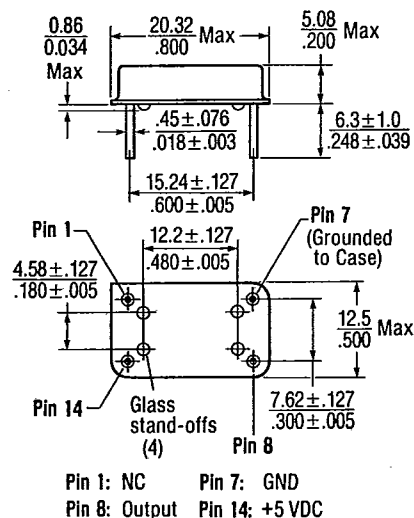
A crystal controlled, highly accurate and stable CMOS compatible oscillator. Device features include low power consumption, low aging, and a hermetically sealed all metal package.

(See "32.768 kHz CMOS" data sheet for real time applications.)

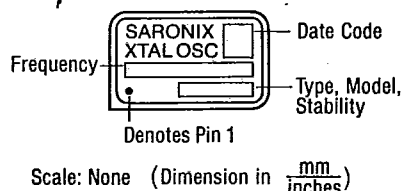
Output Waveform



Package



Standard Marking Format



Frequency Range: 10 kHz - 2.000000 MHz

Frequency Tolerance:

Freq. Range kHz	AA	A	B	C
10-74.9	±0.001%	±0.003%	±0.010%	±0.100%
75-169	±0.003%	±0.005%	±0.010%	±0.100%
170-249	±0.005%	±0.010%	±0.020%	±0.200%
250-499	±0.010%	±0.020%	±0.050%	±0.500%
500-2000	±0.025%	±0.050%	±0.100%	±1.000%

Temperature Characteristic:

$\Delta f/f = K (T_0 - T)^2$ where T = point of temperature comparison, K = -0.038 ppm/°C² typ.

Temperature Range:

Operating: -20°C to +70°C
Storage: -30°C to +85°C

Input Voltage:

Rated: +5 VDC ±10%
Operating: +3 VDC min. +10 VDC max.

Input Current @ +5.0V:

40 µA typical @ 40.0000 kHz

CMOS Output:

Symmetry: 50% ±10% at 50% V_{DD}
Rise & Fall Times: 40 ns typical, 60 ns max.
"0" Level: V_{SS} +0.5V max.
"1" Level: V_{DD} -0.5V min.
Output Load: 200 kΩ at 15 pF

Mechanical:

Shock: MIL-STD-883C, Method 2002.3, Condition B
Solderability: MIL-STD-883C, Method 2003.5
Terminal Strength: MIL-STD-202F, Method 211A, Conditions A and C
Vibration: MIL-STD-883C, Method 2007.1, Condition A
Solvent Resistance: MIL-STD-202F, Method 215C
Resistance to Soldering Heat: MIL-STD-202F, Method 210A, Condition B

Environmental:

Gross Leak Test: MIL-STD-883C, Method 1014.8, Condition C1
Fine Leak Test: MIL-STD-883C, Method 1014.8, Condition A2, <5 × 10⁻⁸ ATM cc/sec.
Thermal Shock: MIL-STD-883C, Method 1011.7, Condition A
Moisture Resistance: MIL-STD-883C, Method 1004.6

Part Numbering Guide

Type **NCL** 020 C-100.0000
Model 020 10 kHz to 250 kHz
030 250 + kHz to 2.0000 MHz
Frequency in kHz
Frequency Tolerance (see table above)