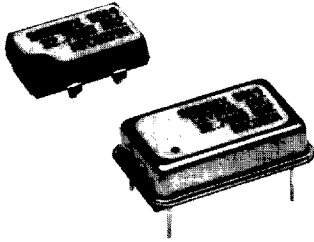


Technical Data

NTC 02



ACTUAL SIZE

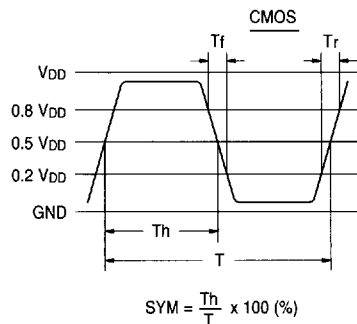
Description

A double sealed crystal controlled, highly accurate and stable CMOS compatible oscillator. Device features include very low power consumption, low aging, and a hermetically sealed all metal or optional surface mount plastic package. The 32.768 kHz frequency, dividing conveniently to 1 Hz, is selected for real time clock applications.

Applications & Features

- Real Time Clock
- 5μA typical supply current
- 2.0V to 7.0V operation
- CMOS output
- Surface mount plastic package available
- Tri-state for testing and power conservation

Output Waveform



Frequency Range: 32.768 kHz

Frequency Tolerance:
(initial accuracy @ +25°C) ±10 or ±25 ppm

Operating Stability:
(from frequency @ +25°C) +0, -25 ppm over 0°C to +50°C
+0, -80 ppm over -20°C to +70°C

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

Supply Voltage:
Recommended Operating: +5V DC ±10% or 3.3 ±10% or 3.0 ±10%
Absolute Maximum: +10V DC
Operating Range: +2.0 to 7.0V DC

Supply Current @ +5.0 V: 5μA typical, 15μA max - no load
20μA typical, 30μA max - with load

Output Drive:

CMOS

Symmetry: 50% ±10% @ 50% V_{DD}
Rise & Fall Times: 25ns typical, 50ns max, 10% to 90% V_{DD}
"0" Level: 10% V_{DD} max
"1" Level: 90% V_{DD} max
Output Load: 200KΩ at 15pF

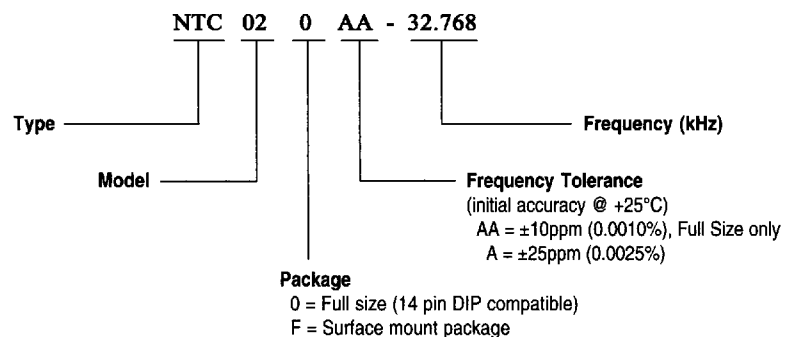
Mechanical:

Shock: MIL-STD-883, Method 2002, Condition B
Solderability: MIL-STD-883, Method 2003
Terminal Strength: MIL-STD-202, Method 211, Conditions A and C
Vibration: MIL-STD-883, Method 2007, Condition A
Solvent Resistance: MIL-STD-202, Method 215
Resistance to Soldering Heat: MIL-STD-202, Method 210, Condition B

Environmental:

Gross Leak Test: MIL-STD-883, Method 1014, Condition C
Fine Leak Test: MIL-STD-883, Method 1014, Condition A2
<5 x 10⁻⁸ ATM cc/sec
Thermal Shock: MIL-STD-883, Method 1011, Condition A
Moisture Resistance: MIL-STD-883, Method 1004

Part Numbering Guide



8003329 0000180 T77

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Technical Data

NTC 02

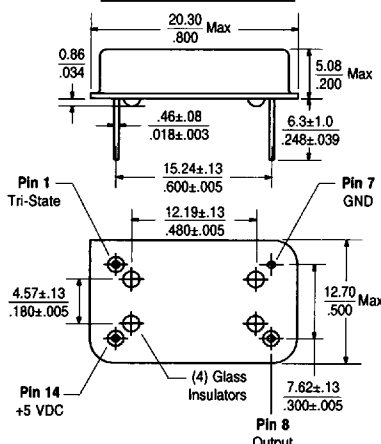
Tri-State Logic Table

Pad 1 Input	Pad 3 Output
Logic "1" or NC	Oscillation
Logic "0" or GND	High Impedance

Required Input Level on Pad 1:
Logic "1" = 2.0V min
Logic "0" = 0.8V max

Package Details

FULL SIZE PACKAGE

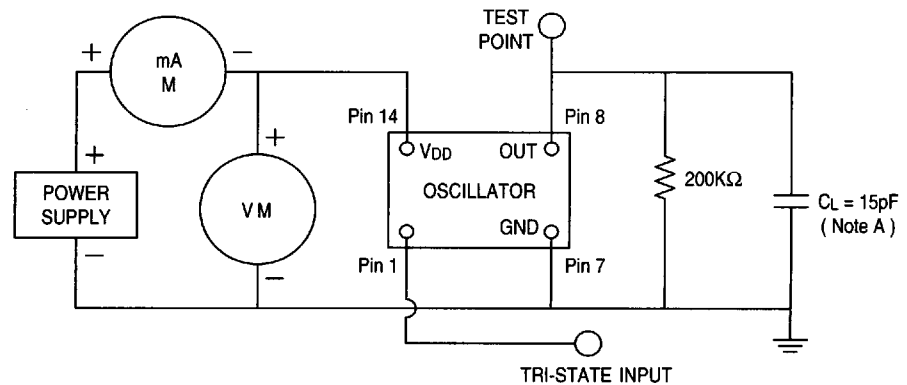


Standard Marking Format



Scale: None (Dimensions in mm inches)

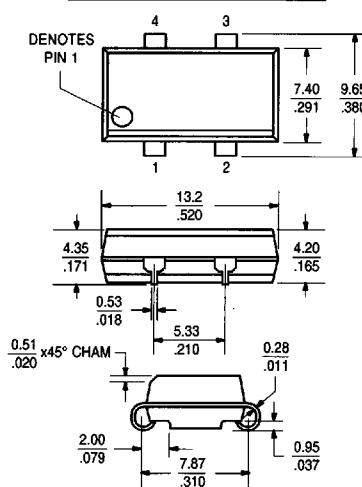
Test Circuit



NOTE: A. CL includes probe and fixture capacitance.

Package Details

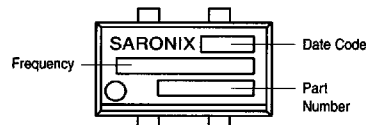
SURFACE MOUNT PACKAGE



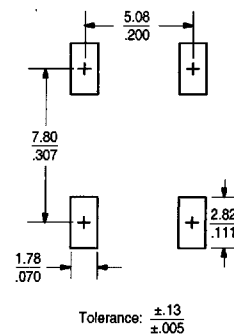
Pin Function:

Pin 1: Tri-State Pin 3: Output
Pin 2: GND Pin 4: +5V DC

Standard Marking Format



Recommended Land Pattern



*External high frequency power supply decoupling required

49414 N

All specifications are subject to change without notice.

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