SaRonix

Crystal Clock Oscillator

5V, HCMOS

Technical Data

NTH / NCH Series

ACTUAL SIZE

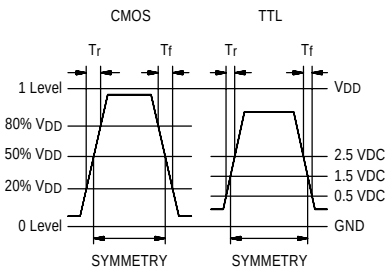
Description

A 5V crystal controlled, low current, low jitter and high frequency oscillator with precise rise and fall times demanded in networking applications, such as Gigabit Ethernet and Fibre Channel. The tri-state function on the NTH enables the output to go high impedance. Device is packaged in a 14 or an 8-pin DIP compatible resistance welded, all metal grounded case, to reduce EMI.

Applications & Features

- Fibre Channel
- Gigabit Ethernet
- 32 Bit Microprocessors
- Tri-State output on NTH
- HCMOS compatible
- Grounded, all metal full size or half size case, available in various other package configurations, such as SMD plastic and Gull Wing metal.
- 3.3V version available, please see separate data sheet

Output Waveform



Frequency Range:	500 kHz to 106.25 MHz
Frequency Stability:	±20*, ±25, ±50 or ±100 ppm over all conditions: calibration tolerance, operating temperature, input voltage change, load change, 30 day aging, shock and vibration.
*See Part Numbering Guide	
Temperature Range:	
Operating:	0 to +70°C or -40 to +85°C
Storage:	-55 to +125°C
Supply Voltage:	
Recommended Operating:	+5VDC ±10%
Supply Current:	
0.5 to 8 MHz:	12mA
8+ to 25 MHz:	20mA
25+ to 50 MHz:	35mA
50+ to 106.25 MHz:	50mA
Output Drive:	
HCMOS	
Symmetry:	See Part Numbering Guide
Rise and Fall Times:	8ns max to 25 MHz, 20% to 80% V_{DD} 5ns max 25+ to 80 MHz 3ns max 80+ to 106.25 MHz
Logic 0:	10% V_{DD} max
Logic 1:	90% V_{DD} min
Load:	50 pF to 50 MHz, 30 pF 50+ to 70 MHz, 15 pF 70+ to 106.25 MHz
RMS Period Jitter:	8ps max
TTL	
Symmetry:	See Part Numbering Guide
Rise and Fall Times:	6ns max to 25 MHz, 0.5 to 2.5V 5ns max 25+ to 80 MHz 2ns max 80+ to 106.25 MHz
Logic 0:	0.5 V max
Logic 1:	V_{CC} -0.6V min
Load:	10 TTL to 50 MHz, 5 TTL 50+ to 106.25 MHz
RMS Period Jitter:	8ps max
Mechanical:	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Terminal Strength:	MIL-STD-202, Method 211, Conditions A & 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 A, B or C (I or J for Gull Wing)
Environmental:	
Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883, Method 1014, Condition A2
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

Tri-State Logic Table (NTH only)

Pin 1 Input	Pin 8 (5) Output
Logic 1 or NC	Oscillation
Logic 0 or GND	High Impedance

Required Input Levels on Pin 1:
Logic 1 = 3.0 V min
Logic 0 = 0.5V max

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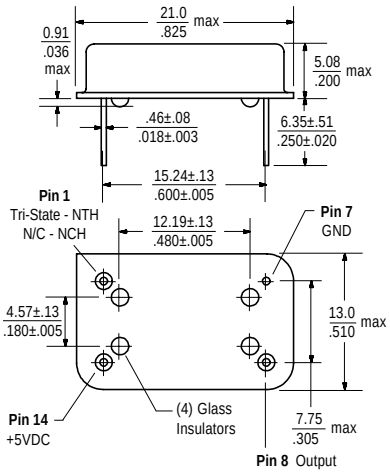
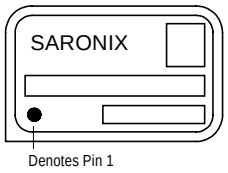
Package Details

FULL SIZE PACKAGE

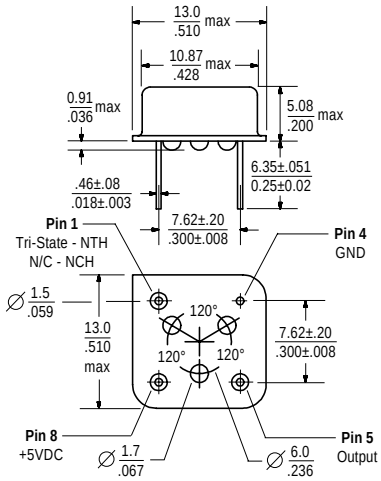


Marking Format **

Includes Date Code, Frequency & Model

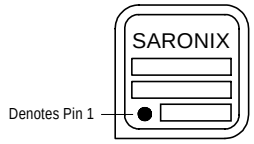


HALF SIZE PACKAGE



Marking Format **

Includes Date Code, Frequency & Model



** Exact location of items may vary

Scale: None (Dimensions in $\frac{mm}{inches}$)

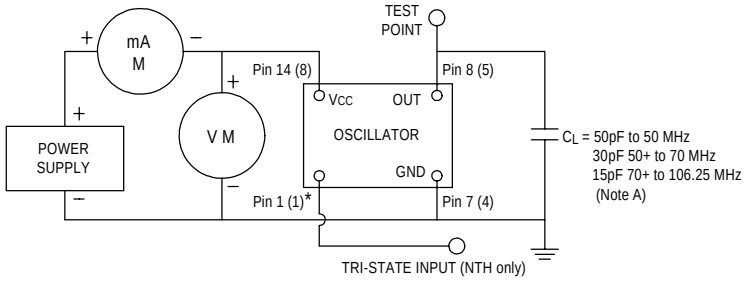
Part Numbering Guide

N T H 0 8 0 B – 106.2500

- T = Tri-State
  C = Pin 1 N/C
- **Series**
  H = CMOS compatible
- **Symmetry / Temperature Range**
  0 = 40/60%, 0 to +70°C
  2 = 40/60%, -40 to +85°C
  4 = 45/55%, -40 to +85°C, TTL
  0.5 to 40 MHz only
  6 = 45/55%, 0 to +70°C, TTL
  0.5 to 50 MHz only
  A = 45/55%, 0 to +70°C, CMOS
  0.5 to 70 MHz only
  C = 45/55%, -40 to +85°C, CMOS
  0.5 to 50 MHz only
- **Frequency Range**
  3 = 0.5 to 6 MHz
  6 = 6+ to 24 MHz
  8 = 24+ to 106.25 MHz
- **Package**
  0 = Full Size, Thru Hole
  9 = Half Size, Thru Hole
  K = Full Size, Gull Wing
  J = Half Size, Gull Wing
  N = Half Size, Gull Wing, Spanked Leads
- **Stability Tolerance**
  C = ±100ppm
  B = ±50ppm
  A = ±25ppm, 0 to +70°C only
  AA = ±20 ppm, 80MHz max,
  0 to +70°C only
- **Frequency (MHz)**

Example PN: NTH060C - 24.0000

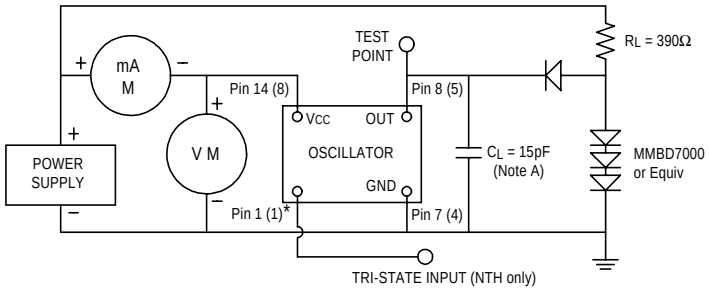
Test Circuits



NOTE A: C_L includes probe and fixture capacitance

*( ) Indicates pin numbers for half-size package

HCMOS (Used at SaRonix)



NOTE A: C_L includes probe and fixture capacitance

*( ) Indicates pin numbers for half-size package

TTL (Optional load)

All specifications are subject to change without notice.

DS-104 REV E