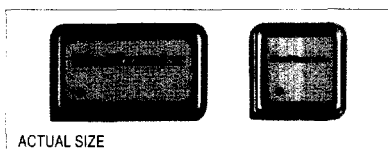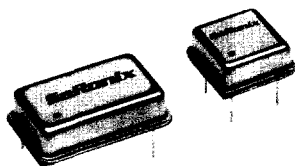# SaRonix

Crystal Clock Oscillator
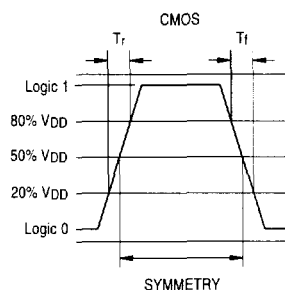
3.3V, Tri-State, HCMOS

Technical Data

ACTUAL SIZE

Description

A 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

- Gigabit Ethernet
- Fibre Channel
- 32 Bit Microprocessors
- Tri-State output on NTH
- HCMOS compatible
- Available up to 106.25 MHz
- Grounded, all metal, full or half size packages, gull wing leads available
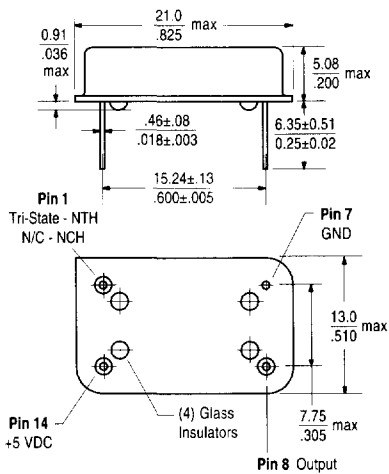- Plastic SMD available, see separate data sheet

Output Waveform

CMOS

Logic 1
80% V_{DD}
50% V_{DD}
20% V_{DD}
Logic 0

T_r T_f

SYMMETRY

Frequency Range:	1 MHz to 106.25 MHz
Frequency Stability:	±25, ±50 or ±100 ppm over all conditions: calibration tolerance, operating temperature, input voltage change, load change, 30 day aging, shock and vibration.

Temperature Range:

Operating:	0 to +70°C or -40 to +85°C, See Part Numbering Guide
Storage:	-55 to +125°C

Supply Voltage:

Recommended Operating:	3.3V ±10%

Supply Current:

Frequency: 1 to 27 MHz	15mA max
27+ to 80 MHz	25mA max
80+ to 106.25 MHz	35mA max

Output Drive:

HCMOS

Symmetry:	40/60% or 45/55% max @ 50% V_{DD}, See Part Numbering Guide
Rise and Fall Times:	4ns max 20% to 80% V_{DD} to 80 MHz
	2ns max 80+ to 106.25 MHz
Logic 0:	10% V_{DD} max
Logic 1:	90% V_{DD} min
Load:	30pF, 1 to 80 MHz
Load:	15pF, 80+ to 106.25 MHz
Period Jitter RMS:	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

Environmental:

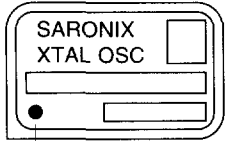|	
Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883, Method 1014, Condition A2
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

DS-159   REV C

SaRonix

Crystal Clock Oscillator

3.3V, Tri-State, HCMOS

Technical Data

NTH / NCH Series

Package Details

FULL SIZE PACKAGE

0.91 / .036 max

21.0 / .825 max

5.08 / .200 max

.46±.08 / .018±.003

6.35±0.51 / 0.25±0.02

15.24±.13 / .600±.005

Pin 1
Tri-State - NTH
N/C - NCH

Pin 7
GND

13.0 / .510 max

Pin 14
+5 VDC

(4) Glass Insulators

7.75 / .305 max

Pin 8 Output

Standard Marking Format**
Includes Date Code, Frequency & Model

SARONIX
XTAL OSC

Denotes Pin 1

HALF SIZE PACKAGE

13.0 / .510 max

0.91 / .036 max

5.08 / .200 max

.46±.08 / .018±.003

6.35±0.51 / 0.25±0.02

Pin 1
Tri-State - NTH
N/C - NCH

7.62±.20 / .300±.008

Pin 4
GND

⌀ 1.5 / .059

13.0 / .510 max

120° 120° 120° 120°

7.62±.20 / .300±.008

Pin 8
VDD
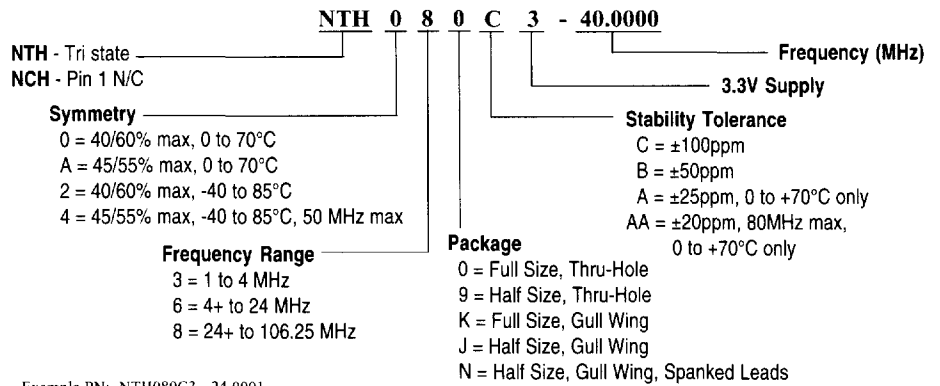
⌀ 1.7 / .067

⌀ 6.0 / .236

Pin 5
Output

Standard Marking Format**
Includes Date Code, Frequency & Model

SARONIX
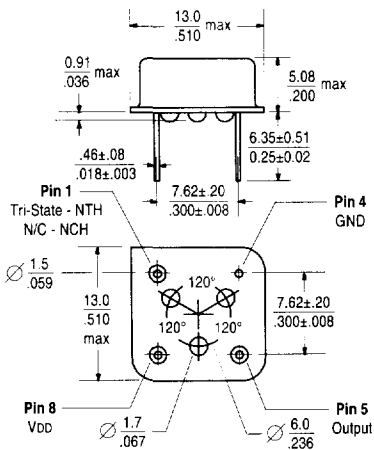
Denotes Pin 1

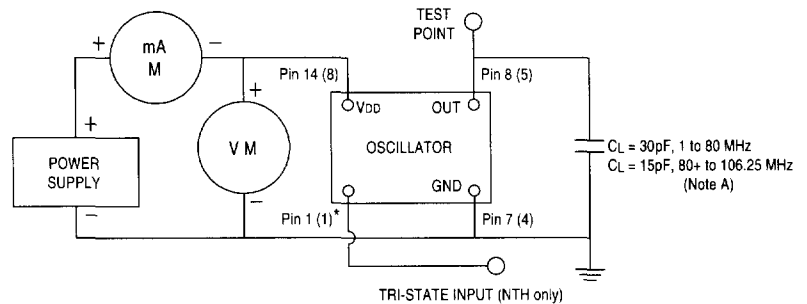**Exact location of items may vary

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Part Numbering Guide

NTH 0 8 0 C 3 - 40.0000

NTH - Tri state
NCH - Pin 1 N/C

Symmetry
0 = 40/60% max, 0 to 70°C
A = 45/55% max, 0 to 70°C
2 = 40/60% max, -40 to 85°C
4 = 45/55% max, -40 to 85°C, 50 MHz max

Frequency Range
3 = 1 to 4 MHz
6 = 4+ to 24 MHz
8 = 24+ to 106.25 MHz

Frequency (MHz)

3.3V Supply

Stability Tolerance
C = ±100ppm
B = ±50ppm
A = ±25ppm, 0 to +70°C only
AA = ±20ppm, 80MHz max, 0 to +70°C only

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

Example PN: NTH080C3 - 24.0001

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 = 2.2V min
Logic 0 = 0.8V max

Test Circuit

TEST POINT

mA M

Pin 14 (8)

Pin 8 (5)

POWER SUPPLY

V M

VDD   OUT

OSCILLATOR

GND

C_L = 30pF, 1 to 80 MHz
C_L = 15pF, 80+ to 106.25 MHz
(Note A)

Pin 1 (1)*

Pin 7 (4)

TRI-STATE INPUT (NTH only)

NOTE A: C_L includes probe and fixture capacitance
*( ) Indicates pin numbers for half-size package

All specifications are subject to change without notice.

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