Crystal Clock Oscillator   3.3V, Tri-State, HCMOS

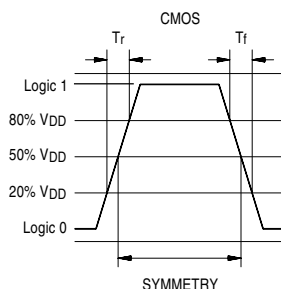## Technical Data   NTH / NCH Series

ACTUAL SIZE

Description

A crystal controlled, low current, low jitter and high frequency oscillator with precise rise and fall times demanded in networking applications. 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

- ADSL, DSL
- DS3, ES3, E1, STS-1, T1
- Ethernet Switch, Gigabit Ethernet
- Fibre Channel Controller
- MPEG
- Network Processors
- Voice Over Packet
- 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
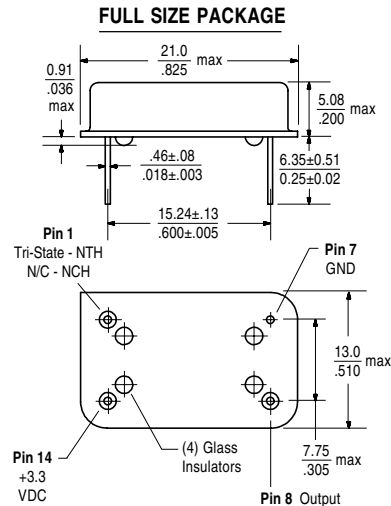
Output Waveform

Frequency Range:	0.5 MHz 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.

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:
20mA max, 0.5 to 30 MHz
25mA max, 30+ to 50 MHz
30mA max, 50+ to 80 MHz
35mA max, 80+ to 106.25 MHz

Output Drive:

HCMOS	Symmetry:	40/60% max @ 50% V_{DD}
		45/55% max to 70 MHz max
	Rise and Fall Times:	4ns max 0.5 to 50 MHz, 20% to 80% V_{DD}
		3ns max 50+ to 80 MHz
		1.5ns max 80+ to 106.25 MHz
	Logic 0:	10% V_{DD} max
	Logic 1:	90% V_{DD} min
	Load:	50 pF, 0.5 to 50 MHz
		30pF, 50+ to 70 MHz
		15pF, 70+ 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-883, Method 2004, 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:

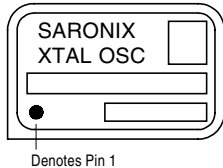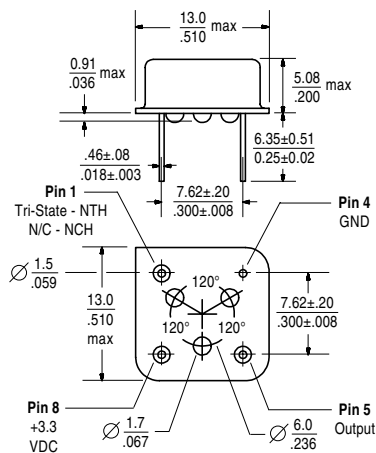| Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883, Method 1014, Condition A2
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

DS-159   REV C01

SaRonix

Crystal Clock Oscillator   3.3V, Tri-State, HCMOS

Technical Data

Package Details

FULL SIZE PACKAGE

21.0 / .825 max

0.91 / .036 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
+3.3 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

7.62±.20 / .300±.008

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

Pin 4 GND

⌀ 1.5 / .059

13.0 / .510 max

120° 120° 120°

7.62±.20 / .300±.008

Pin 8
+3.3 VDC

⌀ 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

Part Numbering Guide

NTH 0 8 0 C 3 - 40.0000

NTH = Tri state, HCMOS Compatible
NCH = Pin 1 N/C, HCMOS Compatible

Frequency (MHz)

3.3V Supply

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

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

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

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)

V M

POWER SUPPLY

V_{DD} OUT

OSCILLATOR

GND

Pin 1 (1)*

Pin 7 (4)

C_L = 50pF, 0.5 to 50 MHz
C_L = 30pF, 50+ to 70 MHz
C_L = 15pF, 70+ to 106.25 MHz
(Note A)

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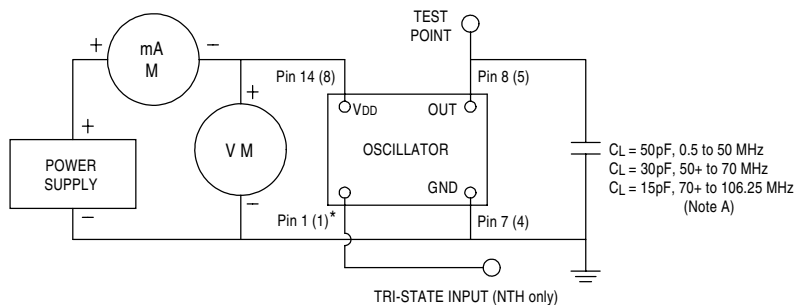
NOTE A: C_L includes probe and fixture capacitance
*( ) Indicates pin numbers for half-size package

All specifications are subject to change without notice.

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