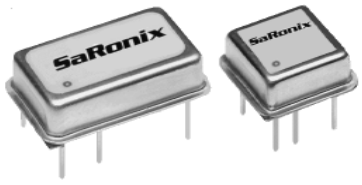
Voltage Controlled Crystal Oscillator

3.3V, HCMOS

Technical Data

S1300 / S1309 Series



ACTUAL SIZE

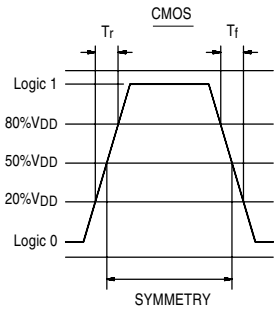
Description

A 3.3V, voltage controlled crystal oscillator designed primarily to be used in phase locked loops, phase shift keying, jitter reduction and other telecommunication applications. The HCMOS output can drive both high speed CMOS and TTL loads. Devices are packaged in standard 14-pin DIP compatible all metal, resistance welded packages. Pin 7(4 on 1/2 size) is grounded to reduce EMI.

Applications & Features

- 3.3 Volt operation
- HCMOS / TTL compatible
- 3.5ps max RMS period jitter
- Wide range of performance options available: ±50 to ±100ppm APR*; ±20 to ±50ppm frequency stability
- Tri-State version available
- Gull Wing for IR reflow available

Output Waveform



Frequency Range:	1.5 MHz to 28.6363 MHz
Frequency Stability:	±20, ±25 or ±50ppm over all conditions: operating temperature, voltage change, load change, calibration tolerance, shock and vibration, with V_C = 1.65V
Aging @ 25°C:	± 3ppm max per year, ±10ppm max for 10 years
Temperature Range:	
Operating:	0 to +70°C or -40 to +85°C
Storage:	-55 to +125°C
Supply Voltage:	
Recommended Operating:	3.3V ±10%
Supply Current:	10mA typ, 15mA max
Output Drive:	
Symmetry:	45/55% max @ 50% V_{DD}
Rise & Fall Times:	9ns max 20% to 80% V_{DD}
Logic 0:	10% V_{DD} max
Logic 1:	90% V_{DD} min
Load:	30pF
Jitter:	3.5ps max RMS period jitter
Pull Characteristics:	
Input Impedance (pin 1):	50KΩ min
Frequency Response (-3dB):	10 kHz min
Pullability:	±50, ±70, ±100ppm APR* min
Control Voltage:	0.3 to 3.0V
Transfer Function:	Frequency Increases when Control Voltage Increases
Linearity:	5 or 10% max
Center Control Voltage:	1.65V
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, Conditions A, B or C (I or J for Gull Wing)
Environmental:	
Gross Leak Test:	MIL-STD-883C, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883C, Method 1014, Condition A2
Thermal Shock:	MIL-STD-883C, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883C, Method 1004

* APR = (VCXO Pull relative to specified Output Frequency) – (VCXO Frequency Stability)

SaRonix 141 Jefferson Drive • Menlo Park, CA 94025 • USA • 650-470-7700 • 800-227-8974 • Fax 650-462-9894

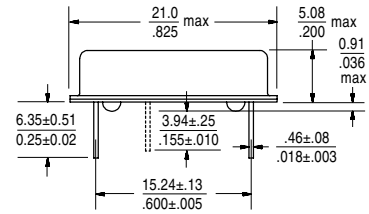
Voltage Controlled Crystal Oscillator

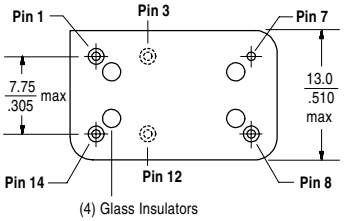
3.3V, HCMOS

Technical Data

S1300 / S1309 Series

Package Details



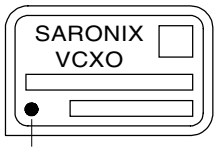


(4) Glass Insulators

Pin Function:

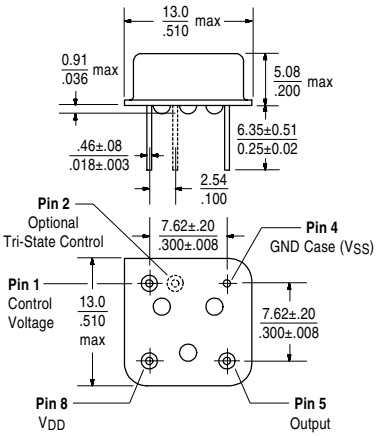
Pin 1: Control Voltage
Pin 3: Tri-State control (optional)
Pin 7: GND/Case (V_{SS})
Pin 8: OUTPUT
Pin 12: N/C (optional)
Pin 14: +3.3VDC (V_{DD})

Marking Format**
Includes Date Code, Frequency & Model



Denotes Pin 1

HALF SIZE PACKAGE



Marking Format**
Includes Date Code, Frequency & Model

Denotes Pin 1

**Exact location of items may vary

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

Part Numbering Guide

S T 130 9 A A A J - 19.4400

SaRonix

Blank = Non Tri-State
T = Tri-State

Supply Voltage
130 = 3.3V

Package Size
0 = Full Size
9 = 1/2 Size

Stability Tolerance
AA = ±20ppm, 0 to +70°C
A = ±25ppm, 0 to +70°C
B = ±50ppm, 0 to +70°C
E = ±50ppm, -40 to +85°C

Pullability (Minimum APR)**
A = ±50 ppm
M = ±70 ppm
B = ±100 ppm, not available at all frequencies

Linearity
A = 5%
B = 10%

Lead/Package Types
Blank = Thru-Hole
J = Gull Wing

Frequency (MHz)

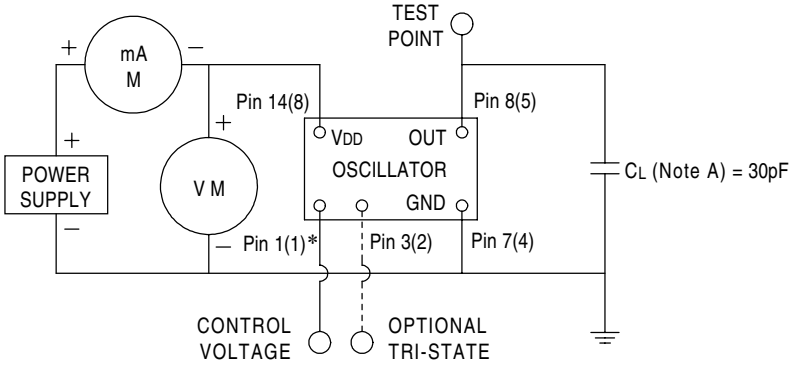
** APR = (VCXO Pull relative to specified Output Frequency) – (VCXO Frequency Stability)

Tri-State Logic Table

Pin 3(2) Input	Pin 8(5) Output
Logic 1 or NC	Oscillation
Logic 0 or GND	High Impedance

Required Input Levels on Pin 3(2):
Logic 1 = 70% V_{DD} min
Logic 0 = 30% V_{DD} max

Test Circuit



NOTE A: C_L includes probe and fixture capacitance
* Items in brackets( ) represent Half Size model

All specifications are subject to change without notice.

SaRonix 141 Jefferson Drive • Menlo Park, CA 94025 • USA • 650-470-7700 • 800-227-8974 • Fax 650-462-9894