New
True SMD Package

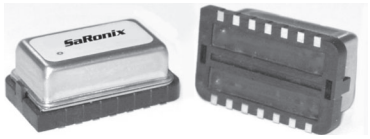
SaRonix

Crystal Clock Oscillator

3.3 & 5V, High Frequency, ECL

Technical Data

SEL24xx / SEL25xx Series



ACTUAL SIZE

Description

A crystal controlled, high frequency, highly stable oscillator, compatible with Motorola 10KH,10KE or 100LVE logic families. The output can be disabled and wired-OR for testing or combining multiple clocks. Open emitter output allows the user to select the load termination to optimize performance. Complementary outputs are available.

Applications & Features

- SONET/ATM/SDH - 155.5200 MHz
- Forward Error Correction (FEC) - 166.6285 MHz
- Gigabit Ethernet - 125.0000 MHz
- Fibre Channel - 106.2500 MHz
- Ideal for high resolution graphics & imaging applications
- Provides 10KH and 10KE (Motorola ECLinPS) compatible outputs
- 3.3V PECL versions are LVDS compatible
- Disable/wired-OR output feature and complementary output are available
- Superior stability with AT-cut crystal performance compared to SAW technology
- Fundamental or overtone crystal operation results in superior jitter characteristics over PLL implementations
- True SMD DIL 14 version available

Frequency Range:	7 MHz to 200 MHz
Frequency Stability:	±20, ±25, ±50 or ±100 ppm over all conditions: calibration tolerance, operating temperature, input voltage change, load change, aging, shock and vibration.
Temperature Range:	
Operating:	0 to +70°C or -40 to +85°C
Storage:	-55 to +125°C
Supply Voltage:	5.0V or -5.2V, 3.3V PECL
Supply Current:	48mA typ / Complementary 45mA typ / E/D (40mA/Disabled) 43mA typ / Single Output 80mA max
Output Drive:	
Symmetry:	45/55% max @ V_{BB} or Complementary Outputs Crossing
Rise & Fall Times:	1ns typ, 3ns max 20% to 80% for 10KH Logic 350ps typ, 550ps max 20% to 80% for 10KE Logic
Logic 0:	V_{CC} -1.595 max, 0 to +70°C V_{CC} -1.595 max, -40 to +85°C
Logic 1:	V_{CC} -1.02 min, 0 to +70°C V_{CC} -1.08 min, -40 to +85°C
Load:	50Ω to V_{CC} -2V
Jitter:	3.5ps max RMS period jitter, 1ps max 1σ cycle-to-cycle jitter
Mechanical:	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Terminal Strength:	MIL-STD-883, Method 2004, Conditions B2
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

Part Numbering Guide

SEL 2410 B - 106.2500

Series
ECL/PECL

Frequency (MHz)

Blank = Thru-hole
K = Gull Wing Package
S = True SMD Adaptor
(see product photo)

Stability Tolerance
AA = ±20 ppm, 0 to +70°C
A = ±25 ppm, 0 to +70°C
B = ±50 ppm, 0 to +70°C
C = ±100 ppm, 0 to +70°C
E = ±50 ppm, -40 to +85°C
F = ±100 ppm, -40 to +85°C

Type= Voltage/Logic	Pin 1 Function	Frequency (MHz)
2410= +5.0V / 10KH	$\overline{\text{Enable}}$	7 to 133.3333
2411= +5.0V / 10KH	$\overline{\text{Q}}$ Comp	7 to 200.0000
2412= +5.0V / 10KH	No Connct	7 to 133.3333
2430= +3.3V / 10KE	$\overline{\text{Enable}}$	84 to 200.0000
2431= +3.3V / 10KE	$\overline{\text{Q}}$ Comp*	25 to 200.0000
2432= +3.3V / 10KE	No Connct	25 to 200.0000
2511= -5.2V / 10KH	$\overline{\text{Q}}$ Comp*	7 to 200.0000
2512= -5.2V / 10KH	No Connect	7 to 133.3333

*$\overline{\text{Q}}$ Complementary - both outputs require termination

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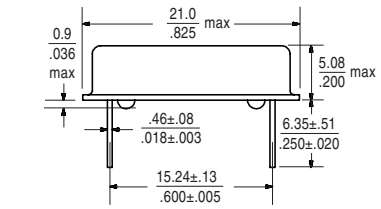
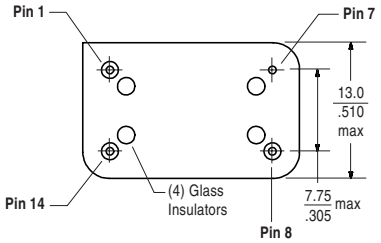




Pin Functions:

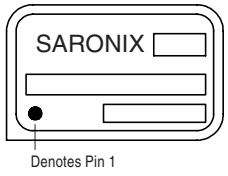
Pin 1: $\overline{Q}$ SEL2xx1
E/D SEL24x0
N/C SEL2xx2

Pin 7: Case
V_{EE} SEL24xx
V_{CC} SEL251x

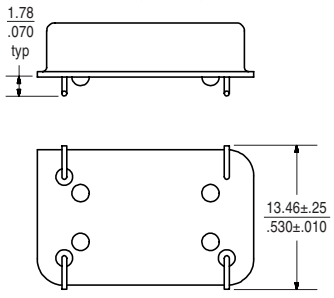
Pin 14: V_{CC} SEL24xx
V_{EE} SEL251x

Pin 8: Q

Marking Format**
Includes Date Code, Frequency, Model



Gull Wing Package

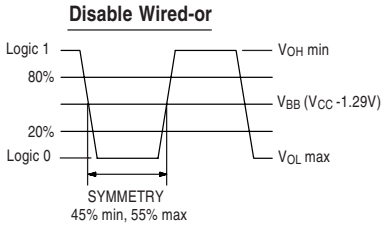


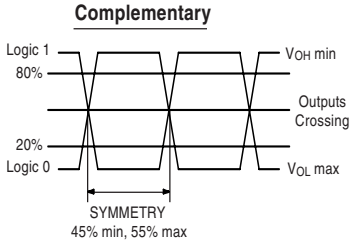
Scale: None (Dimensions in $\frac{mm}{inches}$)

**Exact location of items may vary

*** Package with true SMD adapter is not shown, please see separate data sheet.**

Output Waveforms





Enable Function and Supply Options

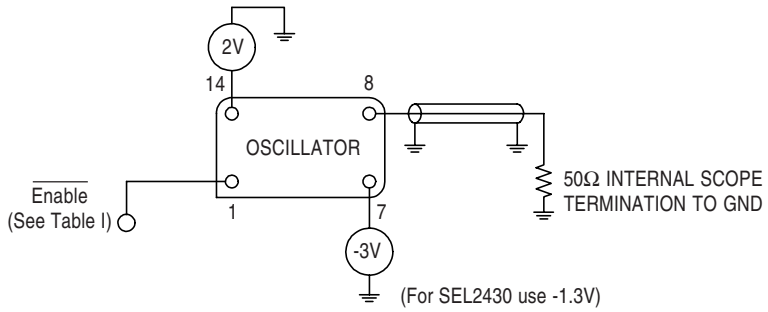
Truth Table I - Positive Supply	
Pin 1 $\overline{EN}$	Pin 8
Logic 0	Clock Output
Logic1	Logic 0

Enable/Disable Propagation Delay:
10K: ((1/f) / 2) +250ps max
10KH: ((1/f) / 2) +2ns max

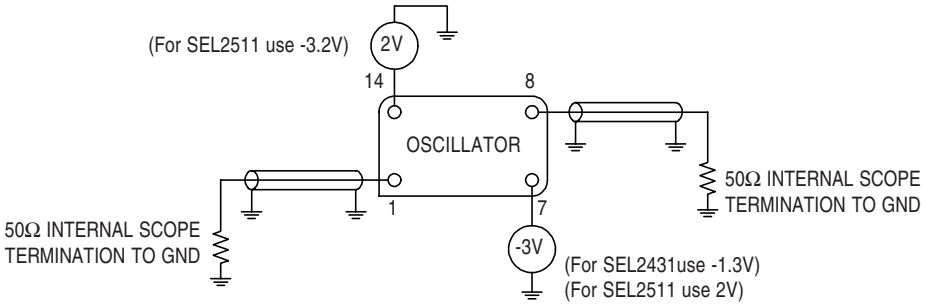
Table II		
Device	Pin 7 (Case)	Pin 14
SEL24xx	V_{EE} 0V	V_{CC} +5V (+3.3V 10KE)
SEL251x	V_{CC} 0V	V_{EE} -5V (-3.3V)

Test Circuits

SEL24x0



SEL24x1



All specifications are subject to change without notice.