

**New
True SMD Package**

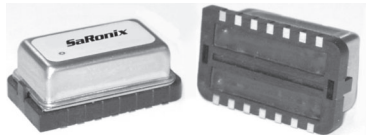
SaRonix

Crystal Clock Oscillator

3.3 & 5V, High Frequency, ECL

Technical Data

SEL24xx / SEL25xx Series



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

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

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

* \bar{Q} Complementary - both outputs require termination

DS-217 REV B

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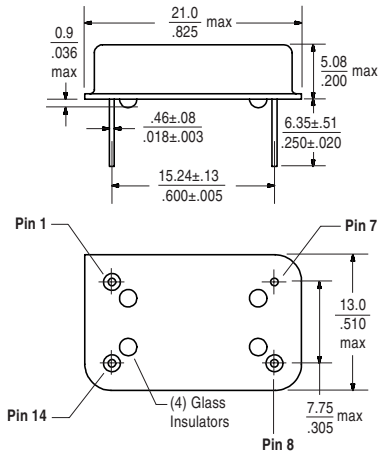
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Package Details

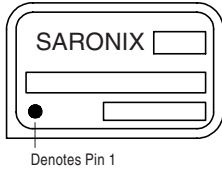


Pin Functions:

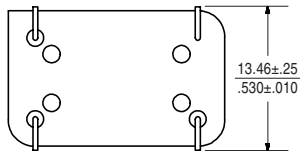
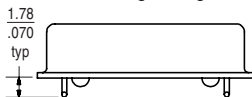
- Pin 1:** \bar{Q} SEL2xx1, E/D SEL24x0, N/C SEL2xx2
Pin 7: Case VEE SEL24xx, Vcc SEL251x
Pin 14: Vcc SEL24xx, VEE SEL251x
Pin 8: Q

Marking Format**

Includes Date Code, Frequency, Model



Gull Wing Package

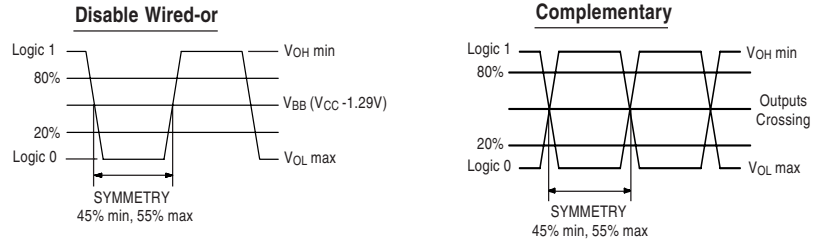


Scale: None (Dimensions in mm/inches)

**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 \bar{EN} | Pin 8 |
|---------------------|--------------|
| Logic 0 | Clock Output |
| Logic 1 | Logic 0 |

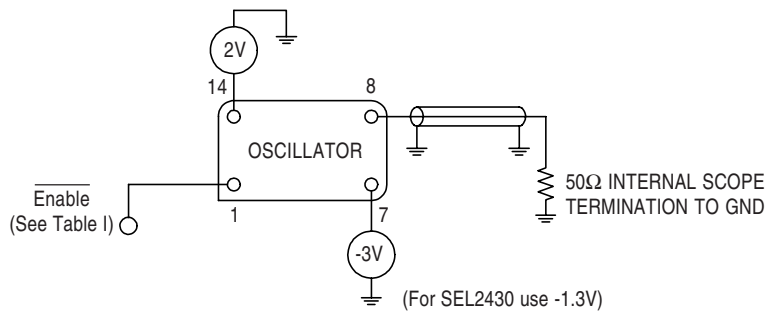
Table II

| Device | Pin 7 (Case) | Pin 14 |
|---------|--------------|----------------------|
| SEL24xx | VEE 0V | VCC +5V (+3.3V 10KE) |
| SEL251x | VCC 0V | VEE -5V (-3.3V) |

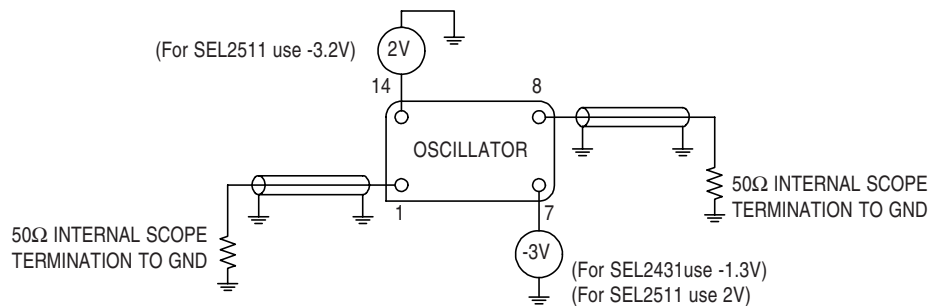
Enable/Disable Propagation Delay:
 10K: ((1/f)/2) +250ps max
 10KH: ((1/f)/2) +2ns max

Test Circuits

SEL24x0



SEL24x1



All specifications are subject to change without notice.

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