

Actual Size = 3.2 x 2.5mm



#### Product Features

- Very low jitter with non-PLL clock circuit
- 2.5V CMOS compatible logic levels
- Pin-compatible with standard 3.2x2.5mm packages
- Designed for standard reflow and washing techniques
- Low power standby mode
- Pb-free and RoHS/Green compliant

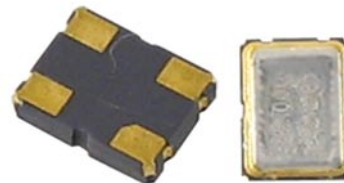
#### Product Description

The S1644 Series is a 2.5V crystal clock oscillator that achieves superb stability and low power consumption over a broad range of operating conditions and frequencies. The low jitter output clock signal, generated internally with a non-PLL oscillator design, is compatible with LVCMOS logic levels. The device, available on tape and reel, is contained in a 3.2x2.5mm surface-mount ceramic package.

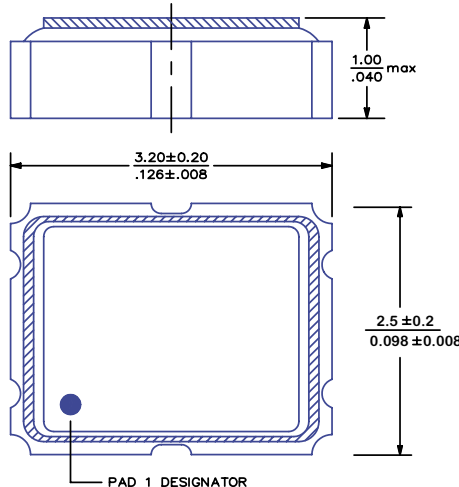
#### Applications

The S1644 Series is an ideal reference clock for compact, high-density applications requiring low power or tight stability, including:

- Network adapter cards
- Portable Multimedia Devices
- Hard Disk Drives
- GPS/Navigation
- Bluetooth
- 802.11a/b/g WiFi



#### Packaging Outline



#### Pin Functions

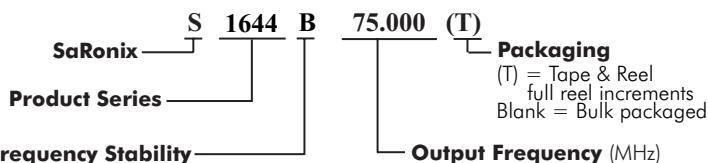
Pin	Function
1	OE Function
2	Ground
3	Clock Output
4	V <sub>DD</sub>

#### Common Frequencies

Contact SaRonix for additional frequencies

1.8432 MHz	14.7456 MHz	37.5000 MHz
3.072 MHz	18.4320 MHz	40.0000 MHz
3.6864 MHz	20.0000 MHz	48.0000 MHz
10.0000 MHz	24.0000 MHz	50.0000 MHz
12.0000 MHz	24.5760 MHz	75.0000 MHz
12.2880 MHz	25.0000 MHz	
13.0000 MHz	26.0000 MHz	
13.5000 MHz	27.0000 MHz	

#### Ordering Information



#### Frequency Stability

\*A = ±25 ppM (-20 to +70 °C)

B = ±50 ppM (-20 to +70 °C)

\*E = ±50 ppM (-40 to +85 °C)

\* Availability varies by frequency.

**Electrical Performance**

Parameter	Min.	Typ.	Max.	Units	Notes
Output frequency	1.8432		80	MHz	As specified
Supply voltage	+2.375	+2.5	+2.625	V	
Supply current, output enabled			8	mA	1.8432 to 50 MHz
			15		>50 MHz
Supply current, standby mode			10	μA	Output Hi-Z
Frequency stability			±25 to ±50	ppM	See Note 1 below
Operating temperature	-40		+85	°C	As specified
Output logic 0, VOL			10% V <sub>DD</sub>	V	I <sub>OL</sub> = 6mA min
Output logic 1, VOH	90% V <sub>DD</sub>			V	I <sub>OH</sub> = -6mA max
Output load			15	pF	
Duty cycle	45		55	%	-40 to +85°C measured 50%V <sub>DD</sub>
Rise and fall time			5	ns	measured 10/90% of waveform

**Note:**  
1. As specified. Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (1 year at 25°C average effective ambient temperature), shock and vibration.

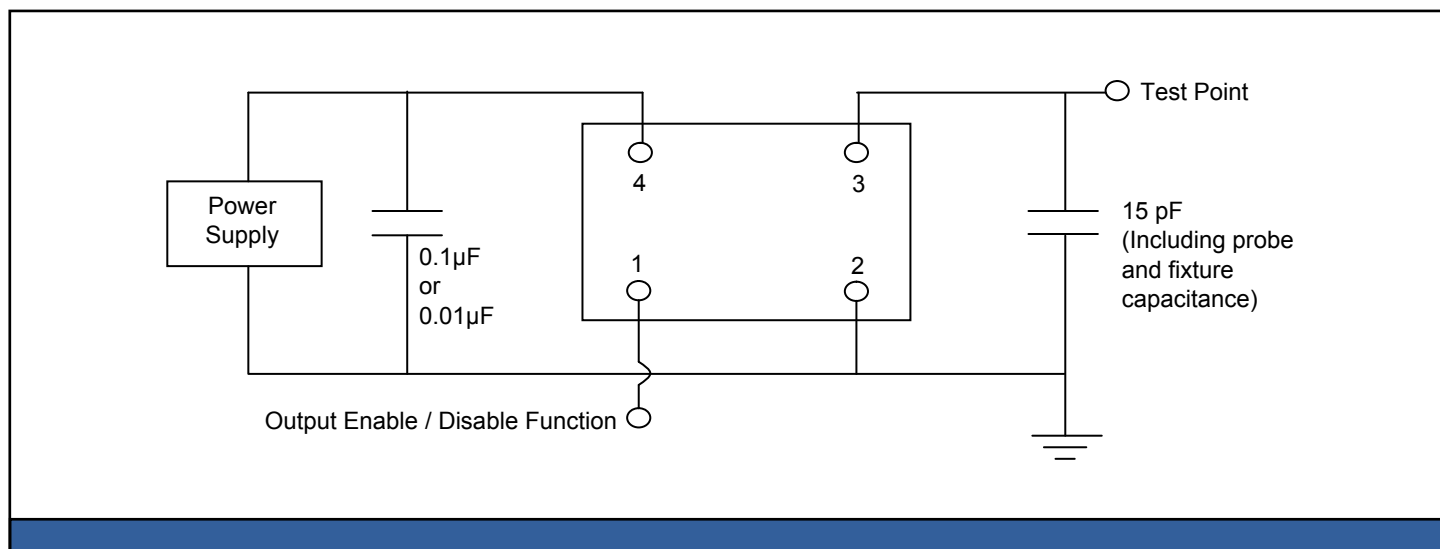
**Output Enable / Disable Function**

Parameter	Min.	Typ.	Max.	Units	Notes
Input Voltage (pin 1), Output Enable	0.7 V <sub>DD</sub>			V	or open
Input voltage (pin 1), Output Disable (low power standby)			0.3 V <sub>DD</sub>	V	Output is Hi-Z
Internal pullup resistance	50			kΩ	
Output disable delay			100	ns	
Output enable delay			10	ms	

**Absolute Maximum Ratings**

Parameter	Min.	Typ.	Max.	Units	Notes
Storage temperature	-55		+125	°C	

**Test Circuit**

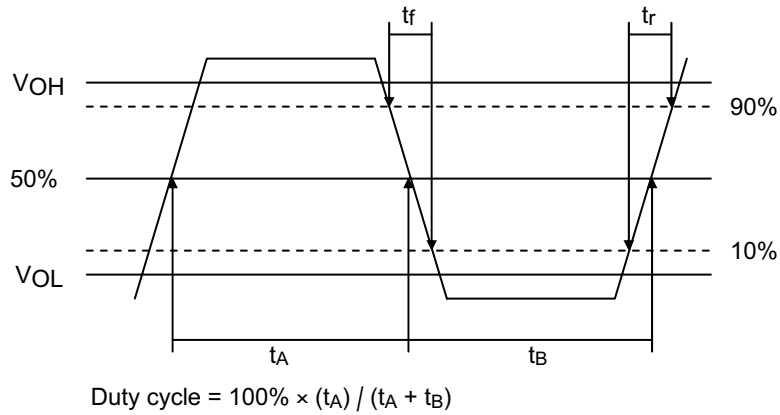


**Reliability Test Ratings**

This product is rated to meet the following test conditions:

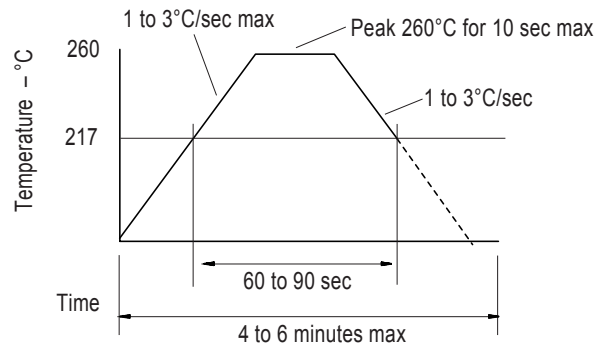
Type	Parameter	Test Condition
Mechanical	Shock	MIL-STD-883, Method 2002, Condition B
Mechanical	Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Mechanical	Terminal strength	MIL-STD-883, Method 2004, Condition D
Mechanical	Gross leak	MIL-STD-883, Method 1014, Condition C
Mechanical	Fine leak	MIL-STD-883, Method 1014, Condition A2 ( $R_1 = 2 \times 10^{-8}$ atm cc/s)
Mechanical	Solvent resistance	MIL-STD-202, Method 215
Environmental	Thermal shock	MIL-STD-883, Method 1011, Condition A
Environmental	Moisture resistance	MIL-STD-883, Method 1004
Environmental	Vibration	MIL-STD-883, Method 2007, Condition A
Environmental	Resistance to soldering heat	J-STD-020C Table 5-2 Pb-free devices (2 cycles max)

**Output Waveform**

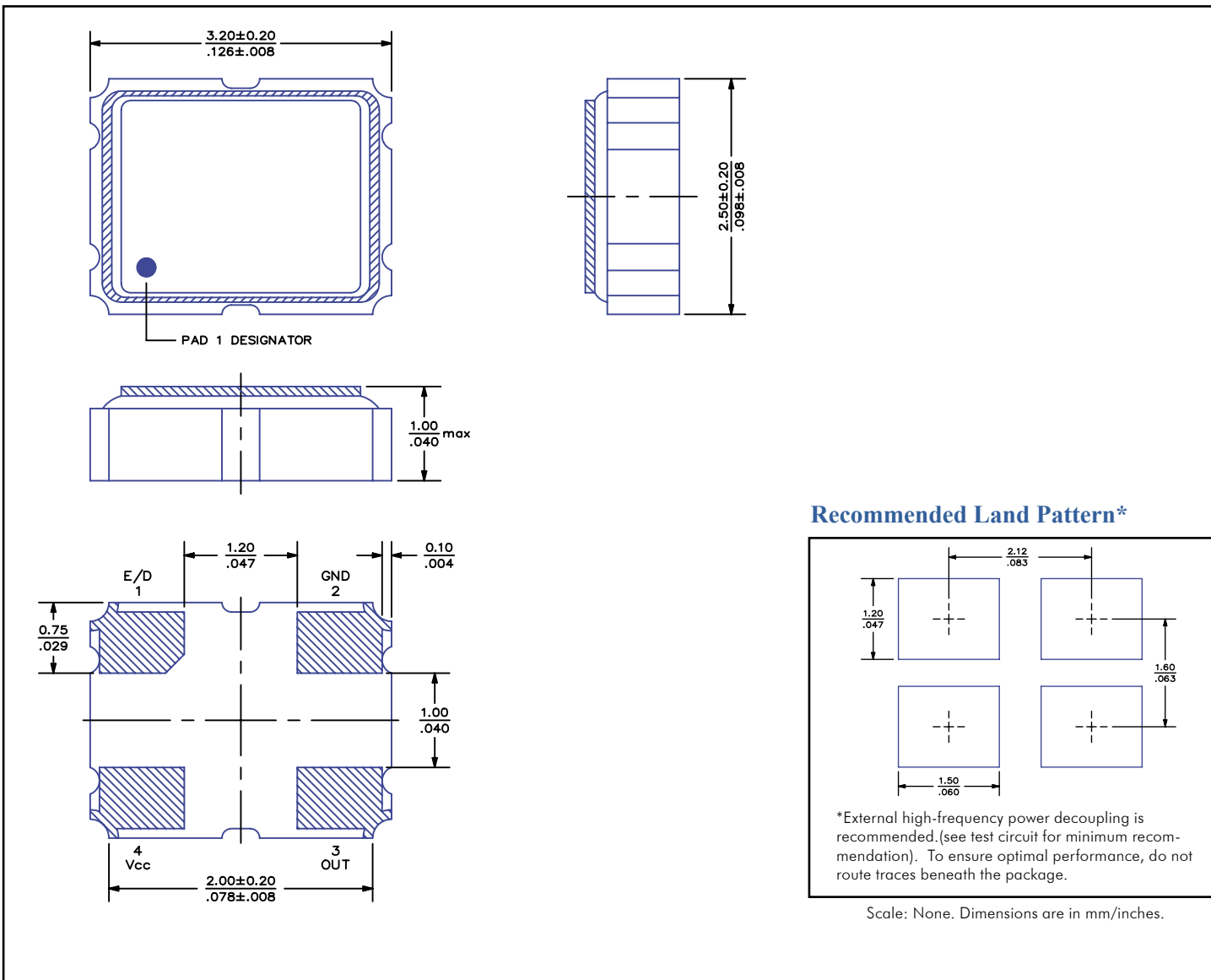


**Reflow Soldering Profile**

**As per IPC/JEDEC J-STD-020C**



Mechanical Drawings



Recommended Land Pattern\*

\*External high-frequency power decoupling is recommended. (see test circuit for minimum recommendation). To ensure optimal performance, do not route traces beneath the package.

Scale: None. Dimensions are in mm/inches.

Marking LINE 1:

S 12.345 (SaRonix, Frequency code)  
● Y WW X 4 X (Pin 1, Year, Week, Origin, Model, Stability)

\*\*Exact location of markings may vary.