SaRonix™
A PERICOM® COMPANY

Crystal Clock Oscillator

3.3 & 5V, HCMOS/LVCMOS, TTL

Technical Data

S1800 / S1803 / S1850 Series





ACTUAL SIZE

Description

The 5V S1800, S1850 and 3.3V S1803 are crystal-controlled, low-current oscillators providing precise rise and fall times to drive high speed CMOS and TTL loads. The sub-miniature, very low profile lead-less ceramic packages have gold-plated contact pads, ideal for today's pick-and-place SMT environments. The S1850 is a high output load version available to 80 MHz.

Applications & Features

- Sub-miniature, 1.1 mm high ceramic package ideal for SMT applications
- 10µA max standby mode on S1800 and S1803
- Tight Stability, low power, and low profile ideal for 802.11 applications
- Available as 3.3V and 5V versions LVCMOS, HCMOS, TTL compatible
- Perfect for PC's; notebook, palmtop computers; portable applications; PCMCIA cards;disc drives. Anywhere small size, low power, surface mount-ability are a priority
- Available on tape & reel; 16mm tape, 1000pcs per reel

Frequency Range:	1.5440 MHz to 80 MHz		
Frequency Stability:	±20, ±25, ±50, ±100 ppm over all conditions; calibration, tolerance, operating temperature, input voltage change, load change, shock and vibration and aging*		
*Aging	(1 Year @ 25°C average ambient temperature)		
Temperature Range:			
Operating:	-10 to +70°C or -40 to +85°C		
Storage:	-55 to +125°C		
Supply Voltage:	+5.0V ±10%, 3.3V ±10%		
Supply Current:	S1800	S1803	S1850
1.544 to 32 MHz:	25mA max	15mA max	27mA max
32+ to 50 MHz:	35mA max	25mA max	35mA max
50+ to 80 MHz:	n/a	40mA max	75mA max
Output disabled (Standby):	10µA max	10µA max	n/a
Output:			
Symmetry:	45/55% max @ 50% V_{DD}, 40/60% max @ 1.5V on S1800 & 1850		
Rise & Fall Times:	S1800: 10ns max, 20% to 80% V_{DD}		
	S1803: 7ns max, (to 50MHz), 5ns (>50 MHz), 20% to 80% V_{DD}		
	S1850: 7ns max, 20% to 80% V_{DD}		
Logic 0:	10% V_{DD} max		
Logic 1:	90% V_{DD} min		
Load:	S1800/S1803: 15pF max, 10 LSTTL		
	S1850: 50 pF max 1.544 to 50 MHz, 10 TTL		
	30 pF max 50+ to 70 MHz, 10 TTL		
	20 pF max 70+ to 80 MHz (HCMOS), 10 TTL		
Accumulated Jitter:	5ps RMS (1-sigma) max in 20,000 adjacent periods		
Phase Jitter:	1.5ps RMS (1-sigma) max in 10kHz ~ 20MHz freq. band		
Total Jitter:	50ps max peak-to-peak in 100,000 random periods		
Mechanical:			
Shock:	MIL-STD-883, Method 2002, Condition B		
Solderability:	MIL-STD-883, Method 2003		
Vibration:	MIL-STD-883, Method 2007, Condition A		
Solvent Resistance:	MIL-STD-202, Method 215		
Terminal Strength:	MIL-STD-883, Method 2004, Condition D		
Resistance to Soldering Heat:	MIL-STD-202, Method 210, Condition I or J		
Environmental:			
Thermal Shock:	MIL-STD-883, Method 1011, Condition A		
Moisture Resistance:	MIL-STD-883, Method 1004		

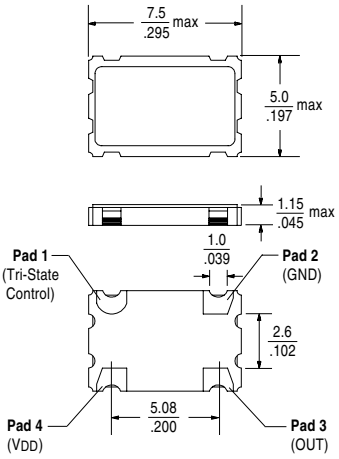
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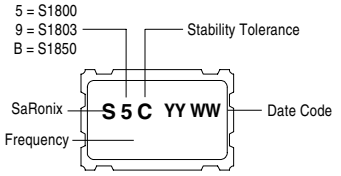
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Package Details

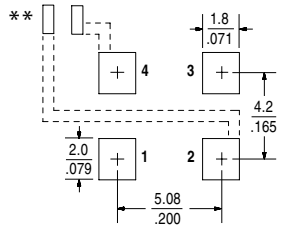


Marking Format*



*Exact location of items may vary

Recommended Land Pattern



** External high frequency power supply decoupling required.

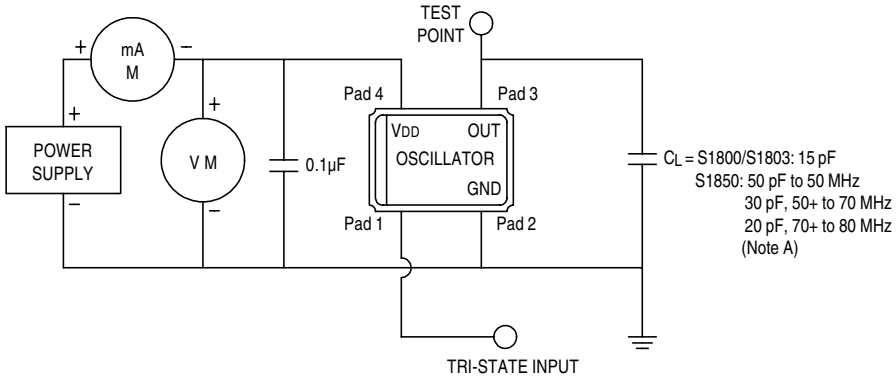
Scale: None (Dimensions in $\frac{mm}{inches}$)

Part Numbering Guide

S 1803 A – 44.0000 (T)

- Saronix
- Series
  - S1800 = 5.0V, 1.544 to 50 MHz, standby
  - S1803 = 3.3V, 1.544 to 80 MHz, standby
  - S1850 = 5.0V, 1.544 to 80 MHz, high drive
- Stability Tolerance
  - AA = ±20ppm, -10 to +70°C
  - A = ±25ppm, -10 to +70°C
  - B = ±50ppm, -10 to +70°C
  - C = ±100ppm, -10 to +70°C
  - E = ±50ppm, -40 to +85°C
  - F = ±100ppm, -40 to +85°C
- Frequency (MHz)
- (T) = Tape & Reel full reel increments only
  Blank = Bulk packaged

Test Circut

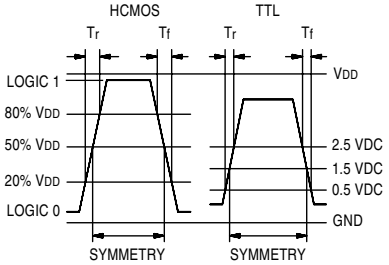


Note A: CL includes probe and fixture capacitance

Tri-State Control Characteristics (low power stand-by for S1800/S1803)

	S1850	S1800/S1803
Output Oscillation (V_{in}):	≥ 2.2V or N/C	≥ 2.2V or N/C
Output High Impdeance (V_{IN}):	≤ 0.8V or GND	≤ 0.8V or GND
Disable Output Delay:	≤100ns	≤100ns (to Stand-by mode)
Enable Output Delay:	≤100ns	≤10ms (from Stand-by mode)
Internal Pullup Resistance:	≥ 50kΩ	≥ 50kΩ

Output Waveform



Solder Reflow Guide

