SaRonix™
A PERICOM® COMPANY

Crystal Clock Oscillator

3.3 & 5V, HCMOS, TTL, SMD

Technical Data

S1700 / S1703 / S1750 Series

ACTUAL SIZE

Description

The S1700, S1703 and S1750 are crystal-controlled, low-current oscillators providing precise rise and fall times to drive high speed CMOS and TTL loads. The sub-miniature, ceramic package has gold-plated contact pads, ideal for today's pick-and-place SMT environments and lead-free soldering. The S1750 is a high output load version available to 67 MHz.

Applications & Features

- Sub-miniature, very low profile package is ideal for SMT applications
- Ideal for lead-free soldering
- CMOS, HCMOS & TTL compatible
- Perfect for PC's; notebook, palmtop computers; portable applications; PCMCIA cards; disc drives.
- S1700 for low power 5V application
- S1703 for 3.3V operations. Low-power Stand-by above 66.667MHz
- S1750 for high output load, higher fan-out applications
- Available on tape & reel; 16mm tape, 500pcs per reel

Frequency Range: 1.8432 MHz to 80 MHz

Frequency Stability: ±50 or ±100 ppm over all conditions; calibration tolerance, operating temperature, rated input (supply) voltage change, load change, aging*.

*Aging: 1 year @ 25°C average ambient temperature), shock and vibration.

Temperature Range:

Operating: 0 to +70°C

Storage: -55 to +125°C

Supply Voltage: 5.0V ±10% (S1700 & S1750)
3.3V ±10% (S1703)

Supply Current:

S1700: 15mA max 1.8432 to 35MHz
30mA max 35+ to 66MHz
50mA max 66+ to 80MHz

S1750: 20mA max 1.8432 to 20MHz
35mA max 20+ to 50MHz
60mA max 50+ to 67MHz

S1703: 8mA max 1.8432 to 34MHz (5mA max disable)
12mA max 34+ to 50MHz (8mA max disable)
15mA max 50+ to 64MHz (10mA max disable)
35mA max 64+ to 66.667MHz (23mA max disable)
35mA max 66.667+ to 80MHz (10µA max disable low power standby)

Output:

TTL (S1750 only)	Symmetry:	40/60% max @ 1.5V
	Rise & Fall Times:	5ns max 0.5 to 2.5V
	Logic 0:	0.5V max
	Logic 1:	2.5V min
	Load:	5 TTL
	Period Jitter RMS:	8ps max
HCMOS	Symmetry:	45/55% max @ 50% V_{DD}, 40/60% max for S1703
	Rise & Fall Times:	10ns max, 20% to 80% V_{DD} (5ns max S1703 67+ MHz)
	Logic 0:	10% V_{DD} max
	Logic 1:	90% V_{DD} min
	Load max:	S1700: 15pF, S1703: 15pF (≤64MHz) & 30pF (64+MHz), S1750: 50pF
	Period Jitter RMS:	8ps max

Output Enable Characteristics

	S1700	S1750	S1703
Output Ocillation (V_{IN}):	≥ 90% V_{DD} or N/C	≥ 2.2V or N/C	≥ 2.2V or N/C
Output High Impedance (V_{IN}):	≤ 10% V_{DD} or GND	≤ 0.8V GND	≤ 0.5V or GND
Disable Output Delay:	≤ 100ns	≤ 100ns	≤ 150ns
Enable Output Delay:	≤ 100ns	≤ 100ns	≤ 150ns*
Internal Pullup Resistance:	≥ 50kΩ	≥ 50kΩ	≥ 50kΩ

* 10ms above 66.667 MHz for S1703

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
	Resistance to Soldering Heat:	MIL-STD-202, Method 210, Condition I or J

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
Humidity:	MIL-STD-883, Method 1004

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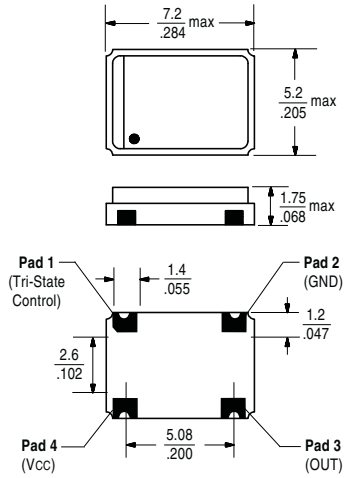
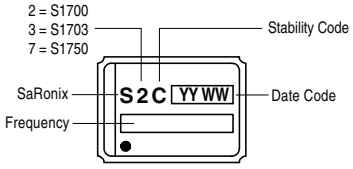
Package Details

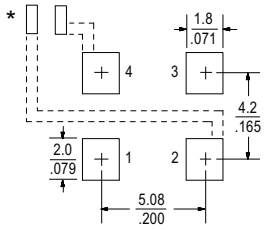


Marking Format*



*Exact Locations May Vary

Recommended Land Pattern



* External power supply decoupling required.

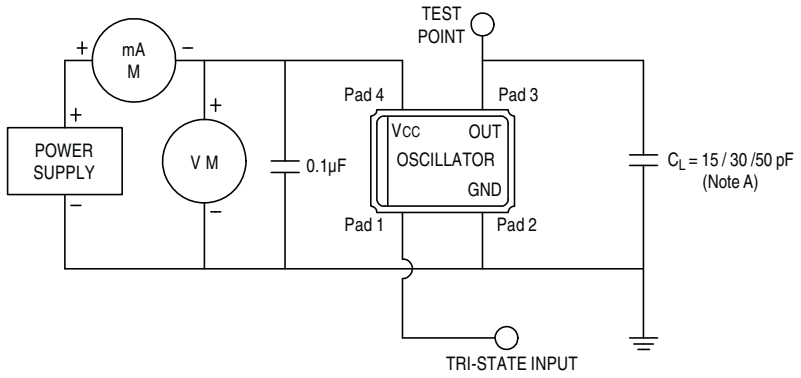
Scale: None (Dimensions in $\frac{mm}{inches}$)

Part Numbering Guide

S 1700 C – 50.0000 (T)

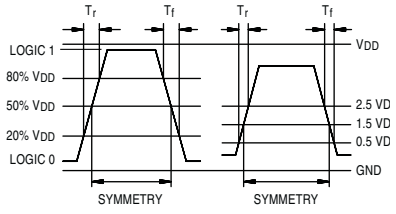
- SaRonix
- Series
  - S1700 = 15pF max load to 80MHz, 5V
  - S1703 = 3.3V
  - S1750 = 50pF max load to 67MHz, 5V
- Stability Tolerance
  - B = ±50 ppm (0 to 70ºC)
  - C = ±100 ppm (0 to 70ºC) Note: use stability B for new designs
- Frequency (MHz)
  - Contact SaRonix for developed frequencies
- (T) = Tape & Reel
  - full reel increments only
  - Blank = Bulk

Test Circuit



Note A: CL includes probe and fixture capacitance
- 15 pF S1700 to 80 MHz
- 15pF S1703 to 64 MHz (30pF to 80MHz)
- 50 pF S1750 to 67 MHz

Output Waveform



Solder Reflow Guide