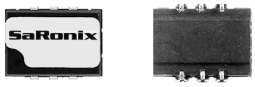
Voltage Controlled Crystal Oscillator 3.3 & 5V, HCMOS, SMD

Technical Data

S1318 / S1518 Series



ACTUAL SIZE

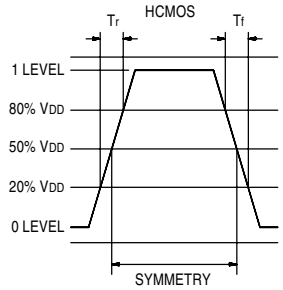
Description

A voltage controlled, low current crystal oscillator, providing precise rise and fall times to drive high performance applications. The device is packaged in a 6-pin, SMD, J-leaded package. The plastic molded surface mountable package is ideal for today's automated assembly environments.

Applications

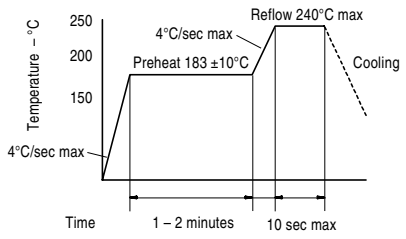
- For use in phase-locked loop (PLL) clock and data recovery, frequency translation, or frequency synthesis applications in video, video compression, telephony, and LAN/WAN data communication environments.
- High and wide frequency range from 32 MHz to 125 MHz
- 3.3 or 5 Volt operation
- Compact, plastic molded surface mount package
- HCMOS and TTL compatible
- Tri-state output
- Available on tape & reel; 24mm tape, 500pcs per reel

Output Waveform



Frequency Range:	32 MHz to 125 MHz
Frequency Stability:	±50 ppm over all conditions: operating temperature, voltage change, load change, calibration tolerance, aging, with V_C = 2.5V @ 5V, V_C = 1.65V @ 3.3V
Temperature Range:	
Operating:	0 to +70°C, -40 to +85°C
Storage:	-55 to +125°C
Supply Voltage:	
Recommended Operating:	+5 VDC ±5% or 3.3V ±10%
Supply Current:	
32 to 70 MHz:	50mA max, 35mA max @ 3.3V
70+ to 125 MHz:	65mA max, 35mA max @ 3.3V
Output Drive:	
Symmetry:	45/55% @50% V_{DD}, 3.3V version 0 to +70°C only 40/60% @1.4V level, 3.3V version @50% V_{DD}, -40 to +85°C
Rise & Fall Times:	4ns max 20 to 80% V_{DD}, 1.5ns max @5V with TTL load only
Logic 0:	0.5V max, 20% V_{DD} max @3.3V
Logic 1:	2.5V min, 80% V_{DD} max @3.3V
Load:	50pF or 5TTL 32 to 50 MHz, 30pF up to 80 MHz @ 3.3V 30pF or 5TTL 50+ to 120 MHz, 95Ω AC up to 125 MHz @ 3.3V
Period Jitter RMS:	20ps max
Pull Characteristics:	
Input Impedance:	50KΩ min
Frequency Response (-3dB):	50 kHz min
Pullability:	±25, ±50, ±75 ppm APR* (See Part Numbering Guide)
Control Voltage:	0.5 to 4.5V, 0.3 to 3.0V
Transfer Function:	Frequency Increases when Control Voltage Increases
Linearity:	10% max
Center Control Voltage:	2.5V @ 5V or 1.65V @ 3.3V
Phase Noise:	-95 dBc/Hz @ 100 Hz -110 dBc/Hz @ 1 kHz -100 dBc/Hz @ 10 kHz
Mechanical:	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Terminal Strength:	MIL-STD-202, Method 211, Conditions A & C
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:	
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

Solder Reflow Guide



* APR = (VCXO Pull relative to specified Output Freq. @ nominal control voltage) – (VCXO Freq. Stability)

DS-171 REV C

Voltage Controlled Crystal Oscillator 3.3 & 5V, HCMOS, SMD

Technical Data

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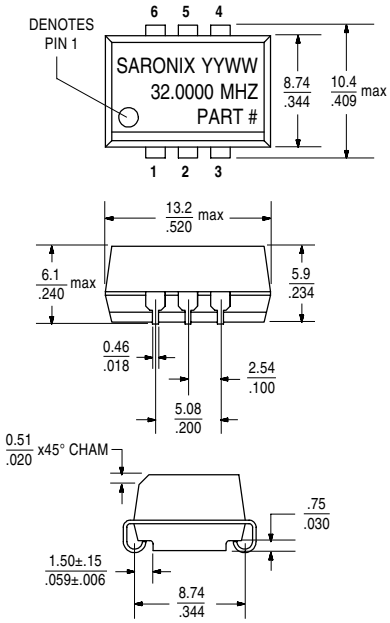
Tri-State Logic Table

Pin 2 Input	Pin 4 Output
Logic 1 or NC	Oscillation
Logic 0 or GND	High Impedance

Required Input Levels on Pin 2:
Logic 1 = 3.0V min
Logic 0 = 0.5V or 0.3V max

Package Details

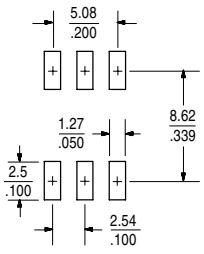


Pin Functions:

Pin 1: Control Voltage
Pin 2: Tri-State Control
Pin 3: GND
Pin 4: Output
Pin 5: N/C
Pin 6: V_{CC}

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

Recommended Land Pattern



Part Numbering Guide

S T 1518 E G B - 32.0000 (T)

Model

Output
T = Tri-State
Blank = non Tri-State

Series
S1318 = 3V, HCMOS/TTL, SMD VCXO
S1518 = 5V, HCMOS/TTL, SMD VCXO

Stability Tolerance
B = ±50 ppm, 0 to +70°C
E = ±50 ppm, -40 to +85°C

Pullability (Minimum APR)*
A = ±50 ppm
G = ±25 ppm
H = ±75 ppm, 5V only

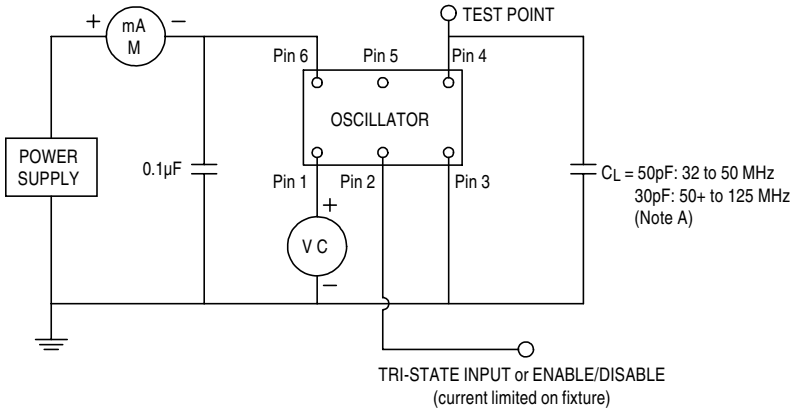
Linearity
B = 10%

Frequency (MHz)

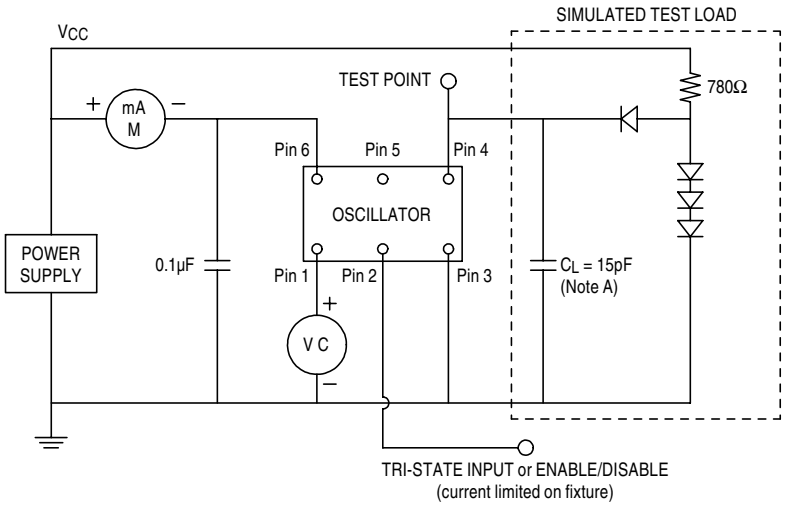
(T) = Tape & Reel
full reel increments only

* APR = (VCXO Pull relative to specified Output Freq. @ nominal control voltage) – (VCXO Freq. Stability)

Test Circuits:



NOTE A: C_L includes probe and jig capacitance.



NOTE A: C_L includes probe and jig capacitance.

All specifications are subject to change without notice.

DS-171 REV C

SaRonix 141 Jefferson Drive • Menlo Park, CA 94025 • USA • 650-470-7700 • 800-227-8974 • Fax 650-462-9894