

### Technical Data

PrO™ S8002 Series



#### Description

A crystal controlled, HCMOS/TTL compatible oscillator with an internal programming feature that allows SaRonix to supply any frequency in the 1 to 125MHz range. This technology significantly reduces lead-times from weeks to days. The parts are built and stocked un-programmed then programmed by SaRonix to the frequency required by the customer before final test and marking. The parts exhibit the same low power, precise rise and fall times, tight symmetry and HCMOS/TTL compatible drive capability as conventional SaRonix SMD oscillators. The parts feature tri-state enable or standby control on pin 1. The packages are fully compatible with standard SO-J-20 footprints.

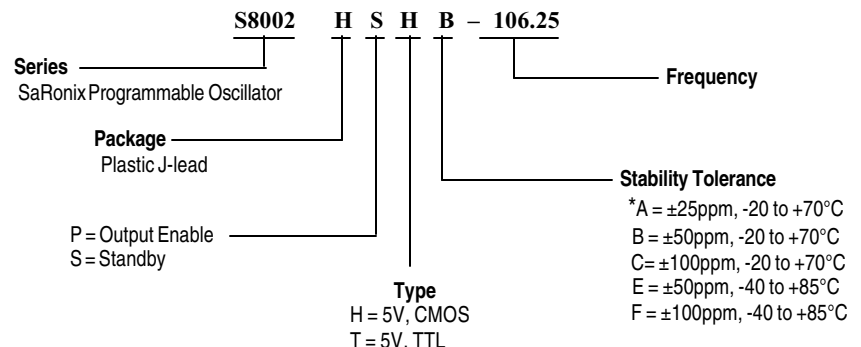
#### Applications & Features

- Quick delivery - days instead of weeks for any frequency - standard or not - between 1 and 125MHz.
- Suited for use with new HCMOS MPU's.
- Tri-State output or standby mode
- High Drive HCMOS capability
- Stabilities of  $\pm 25$ ,  $\pm 50$ ,  $\pm 100$ ppm
- EIA standard SO-J-20 footprint
- Fully compatible with the Epson SG-8002JA Series configurations.
- Other SaRonix products with compatible electrical and mechanical specifications are available, please see data sheets for the ST410H or NTH/NCH H.

Example PN: S8002HSHB - 106.2500

<b>Frequency Range:</b>	1MHz to 125MHz				
<b>Frequency Stability:</b>	$\pm 25^*$ , $\pm 50$ or $\pm 100$ ppm over all conditions: calibration tolerance, operating temperature, input voltage change, load change, aging, shock and vibration.				
<b>Temperature Range:</b>	Operating: -20 to +70°C or -40 to +85°C Storage: -55 to +125°C				
<b>Supply Voltage:</b>	Recommended Operating: +5V $\pm 10\%$				
<b>Supply Current:</b>	10TTL / 5TTL Load: 40mA from 1 to 40MHz, 50mA from 40+ to 125MHz 50pF / 20pF Load: 40mA from 1 to 50MHz, 50mA from 50+ to 125MHz				
<b>Standby Current:</b>	50 $\mu$ A max (use option S, see part number builder)				
<b>Output Drive:</b>	Symmetry:	@.50% VDD HCMOS 1 to 50MHz -20 to +70°C: 45/55% -40 to +85°C: 40/60%	@.50% VDD HCMOS 50+ to 125MHz 40/60% 40/60%	@.1.5V TTL 1 to 27MHz 45/55% 40/60%	@.1.5V TTL 27+ to 125MHz 40/60% 40/60%
	Rise & Fall Times:	5ns max 20% to 80% VDD, 0.8 to 2V (TTL)			
	Logic 0:	10% VDD max, 0.5V max (TTL)			
	Logic 1:	90% VDD min, 2.5V min (TTL)			
	Load:	50pF max 1 to 50MHz, 20pF max 50+ to 125MHz or 10TTL 1 to 40MHz, 5TTL 40+ to 125MHz			
	Jitter, peak-to-peak:	100ps typ, 200ps max 33+ to 125MHz 200ps typ, 550ps max 1 to 33MHz			
<b>Mechanical:</b>	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 I or J			
<b>Environmental:</b>	Thermal Shock:	MIL-STD-883, Method 1011, Condition A			
	Moisture Resistance:	MIL-STD-883, Method 1004			

#### Part Numbering Guide

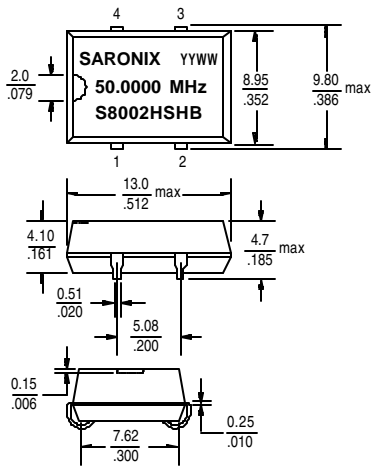


\* $\pm 25$ ppm is only available at certain frequencies, please contact SaRonix.

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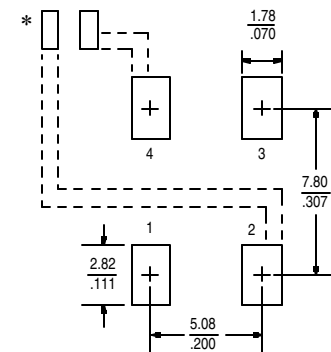
#### Package Details, Type H



#### Pin Function:

Pin 1: Tri-State Control  
Pin 2: GND  
Pin 3: Output  
Pin 4: +5 VDC

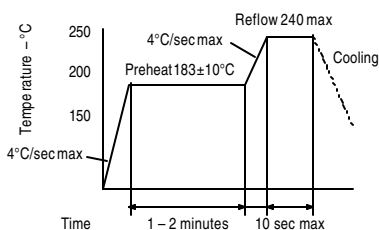
#### Recommended Land Pattern



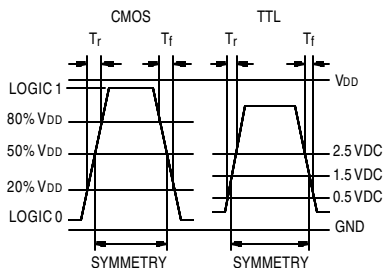
\* External high frequency power supply

Scale: None (Dimensions in mm/inches)

#### Solder Reflow Guide



#### Output Waveform

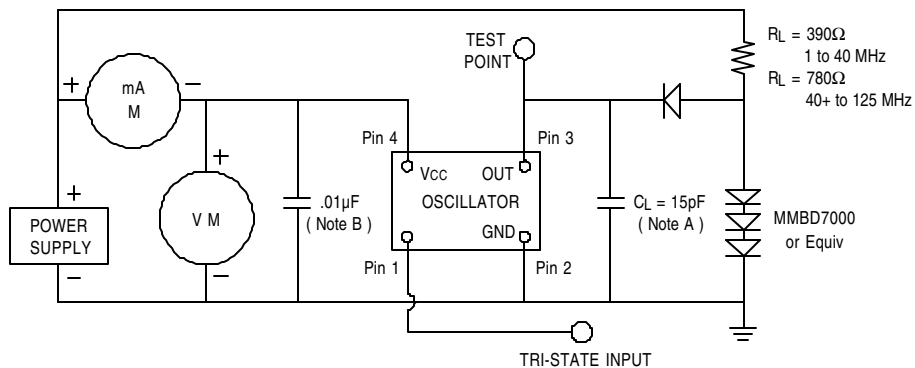


#### Tri-State or Standby Logic Table

Pin 1 Input	Pin 3 Output
Logic 1 or NC	Oscillation
Logic 0 or GND	High Impedance/Standby

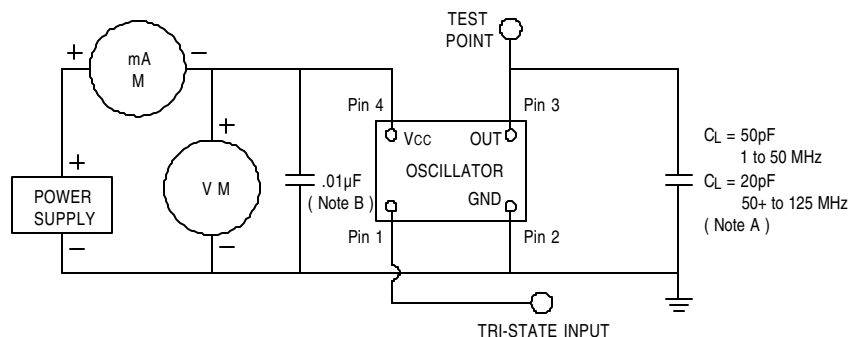
Required Input Levels on Pin 1:  
Logic 1 = 2.0V min  
Logic 0 = 0.8V max

#### Test Circuits



NOTE: A. C<sub>L</sub> includes probe and fixture capacitance.  
NOTE: B. An external .01µF bypass capacitor close to package ground and V<sub>CC</sub> pin is required

FIGURE 1 - TTL TEST CIRCUIT, 5V OPERATION



NOTE: A. C<sub>L</sub> includes probe and fixture capacitance.  
NOTE: B. An external .01µF bypass capacitor close to package ground and V<sub>CC</sub> pin is required

FIGURE 2 - HCMOS TEST CIRCUIT, 5V OPERATION

All specifications are subject to change without notice.