



SW11B Series Sine Wave Oscillators

December 2006



- Pletronics' SW11B Series is a quartz crystal controlled precision sine wave signal source.
- FR4 base with a mechanical metal cover.
- Low Profile (2.9mm maximum)
- Tape and Reel or Tube packaging is available.
- 10 to 700 MHz
- 14.0mm x 9.9mm package
- 5V Operation
- Excellent phase noise performance
- 50 ohm load with internal blocking capacitor

**Pletronics Inc. certifies this device is in accordance with the
RoHS 6/6 (2002/95/EC) and WEEE (2002/96/EC) directives.**

Pletronics Inc. guarantees the device does not contain the following:
Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 1.33 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020C
Second Level Interconnect code: e4

Absolute Maximum Ratings:

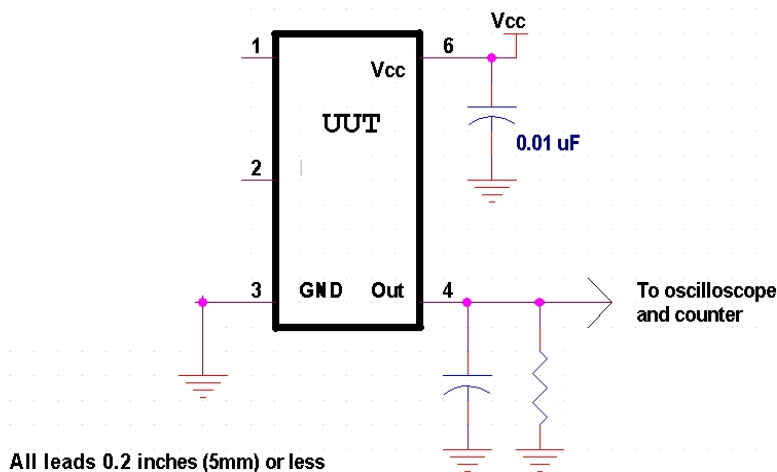
Parameter	Unit
V _{CC} Supply Voltage	-0.5V to +7.0V
V _i Input Voltage	-0.5V to V _{CC} + 0.5V
V _o Output Voltage	-0.5V to V _{CC} + 0.5V

Thermal Characteristics

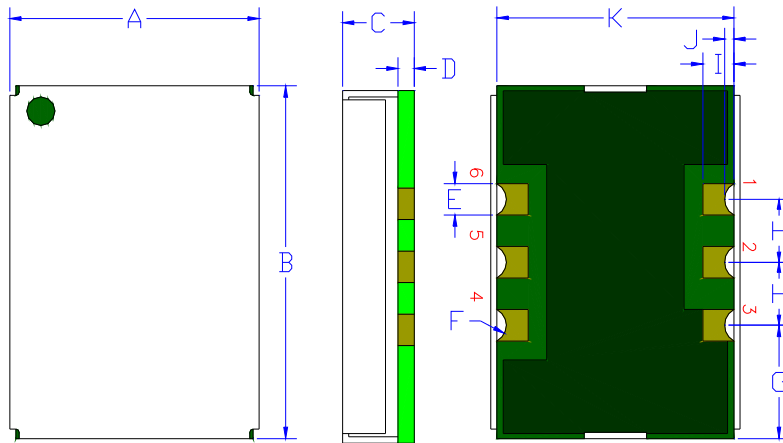
The maximum die or junction temperature is 155°C
The thermal resistance junction to board is 60 to 100°C/Watt depending on the solder pads, ground plane and construction of the PCB.

Item	Min	Max	Unit	Condition	
Frequency Range	10	700	MHz		
Frequency Accuracy	--	--	ppm	Determined by part number and inclusive for power supply, temperature and load	
Harmonic Output	--	-15	dBc		
Spurious Output	--	-50	dBc	of V_{CC} (See load circuit)	
Output Level	-7.0	-4.0	dBm	Load of 50 ohms	
Aging	Year 1	-5.0	+5.0	ppm	at 25°C
	Subsequent	-2.0	+2.0	ppm	
Phase Noise	10 Hz offset	--	-59	dBc/Hz	Example at 200MHz
	100 Hz	--	-87		
	1 KHz	--	-118		
	10 KHz	--	-147		
	100 KHz	--	-150		
	1 MHz	--	-152		
	10 MHz	--	-152		
Current I_{CC}	-	90	mA	Pin 1 low, device disabled	
Start up time	-	10	mS	Time for output to reach specified frequency	
Operating Temperature Range	0	+70	°C	Standard Temperature Range	
	-40	+85	°C	Extended Temperature Range "E" Option	
Storage Temperature Range	-55	+125	°C		

Load Circuit (50 ohm nominal load and no capacitance)



Mechanical



FR4 PCB Base:

Solder masked

All via holes tented on bottom

Copper Clad ½ oz. Typical

Gold plated 0.02 µinch (0.5 µm)

Label:

White Kapton with Black Letters

–or–

Blue Epoxy heat cure covering top with laser marked lettering

Cover:

Centered on the base

304 Stainless Steel

0.010 inch (0.25µm)

Electroless Nickel Plated

1 µinch (25 µm) typical

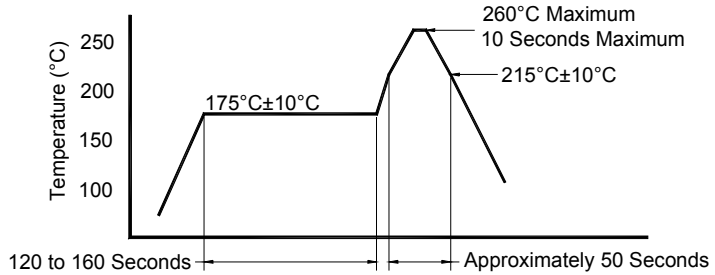
Pin 2 Ground plane is typical

Not to scale

	Inches	mm
A	0.390 ±0.010	9.90 ±0.25
B	0.550 ±0.010	13.97 ±0.25
C	0.115 max	2.92 max
D ¹	0.026 typ.	0.66
E ¹	0.050	1.27
F ¹	0.028 R	0.72 R
G ¹	0.180	4.57
H ¹	0.200	5.08
I ¹	0.050	1.27
J ¹	0.015	0.38
K ¹	0.380	9.65

Pad	Function	Note
1	NC	no connection
2	NC	no connection
3	Ground (GND)	
4	Output	50 ohm load, internal DC blocking capacitor rated at 25V
5	NC	no connection
6	Supply Voltage (V _{CC})	Recommend connecting appropriate power supply bypass capacitors as close as possible.

Reflow Cycle (typical for lead free processing)



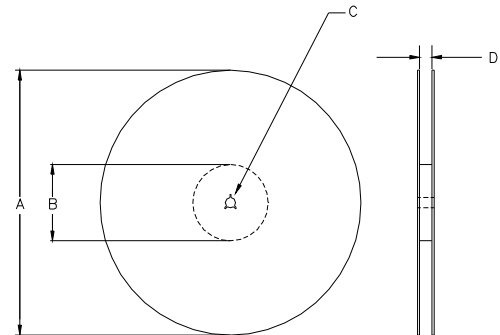
The part may be reflowed 2 times without degradation.

Allowed rate of temperature change
Maximum 4°C per second

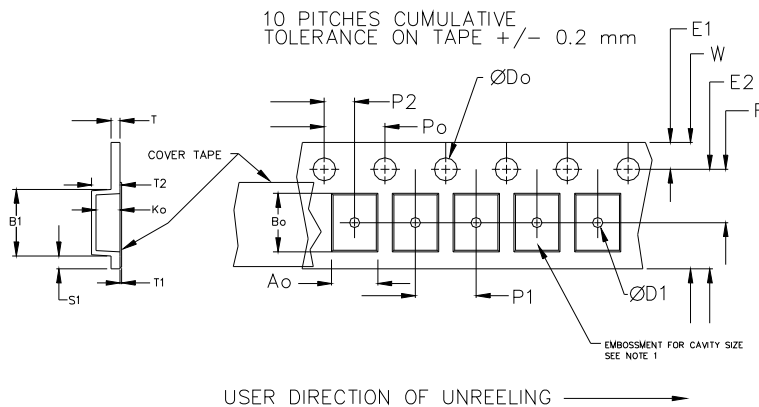
Tape and Reel: available for quantities of 250 to 1000 per reel

Constant Dimensions Table 1								
Tape Size	D0	D1 Min	E1	P0	P2	S1 Min	T Max	T1 Max
8mm	1.5	1.0	1.75	4.0	2.0 +0.05	0.6	0.6	0.1
12mm		1.5			2.0 ±0.1			
16mm		+0.1 -0.0			±0.1			
24mm		1.5			±0.1			

Variable Dimensions Table 2							
Tape Size	B1 Max	E2 Min	F	P1	T2 Max	W Max	Ao, Bo & Ko
24 mm	15.54	22.25	11.5 ± 0.1	16.0 ± 0.1	5.16	24.3	Note 1



Note 1: Embossed cavity to conform to EIA-481-B Dimensions in mm Not to scale



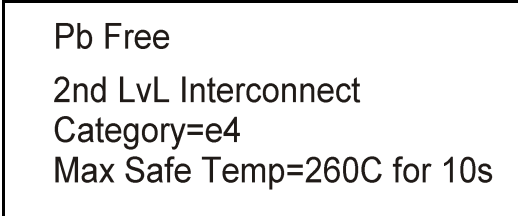
REEL DIMENSIONS					
A	inches	7.0	10.0	13.0	Tape Width
	mm	177.8	254.0	330.2	
B	inches	2.50	4.00	3.75	Tape Width
	mm	63.5	101.6	95.3	
C	mm	13.0 +0.5 / -0.2			Tape Width
D	mm	16.4 +2.0 -0.0	16.4 +2.0 -0.0	16.4 +2.0 -0.0	
		mm	---	---	24.4 +2.0 -0.0
	mm	---	---	32.4 +2.0 -0.0	32.0

Reel dimensions may vary from the above

Tape and Reel labeling

Label is 1" x 2.6" (25.4mm x 66.7mm)
 Font is Courier New
 Bar code is 39-Full ASCII
 (Part number will read
 SW11xxBY-106.25M for example)

Label is 1" x 2.6" (25.4mm x 66.7mm)
 Font is Arial



Layout and application information

For Optimum Jitter Performance, Pletronics recommends:

- a ground plane under the device
- no large transient signals (both current and voltage) should be routed under the device
- do not layout near a large magnetic field such as a high frequency switching power supply
- do not place near piezoelectric buzzers or mechanical fans.

Reliability: Environmental Compliance

Parameter	Condition
Mechanical Shock	MIL-STD-883 Method 2002, Condition B
Vibration	MIL-STD-883 Method 2007, Condition A
Solderability	MIL-STD-883 Method 2003
Thermal Shock	MIL-STD-883 Method 1011, Condition A

ESD Rating

Model	Minimum Voltage	Conditions
Human Body Model	1500	MIL-STD-883 Method 3115
Charged Device Model	1000	JESD 22-C101

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