PLETRONICS
www.pletronics.com 425-776-1880



SW11B Series
Sine Wave Oscillators

December 2006

Lead Free

- 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
Vi Input Voltage	-0.5V to V_{CC} + 0.5V
Vo 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.

Product information is current as of publication date. The product conforms to specifications per the terms of the Pletronics standard warranty. Production processsing does not necessarily include testing of all parameters.

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PART NUMBER:

SW11	45	BY	E	- 230.0M	- XX	
						Internal code or blank
						Frequency in MHz
						Optional Enhanced OTR E = Temperature range -40 to 85°C
						Series Model
						Frequency Stability 45 = ± 50 ppm 44 = ± 25 ppm 20 = ± 20 ppm
						Series Model

Part Marking:

PLE SW11 or SW*YWWXX*
*FF.FFF*M *FF.FFF*M
• *YMDXX* • P*XXXXX*

Legend:
P or PLE = Pletronics
*FF.FFF*M = Frequency in MHz
YWW or *YMD* = Date of Manufacture (year and week, or year, month and day)
All other marking is internal factory codes

Specifications such as frequency stability, supply voltage and operating temperature range, etc. are not identified from the marking. External packaging labels and packing list will correctly identify the ordered Pletronics part number.

Codes for Date Code YMD

Code	6	7	8	9	0	1	2
Year	2006	2007	2008	2009	2010	2011	2012

Code	A	B	C	D	E	F	G	H	J	K	L	M
Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

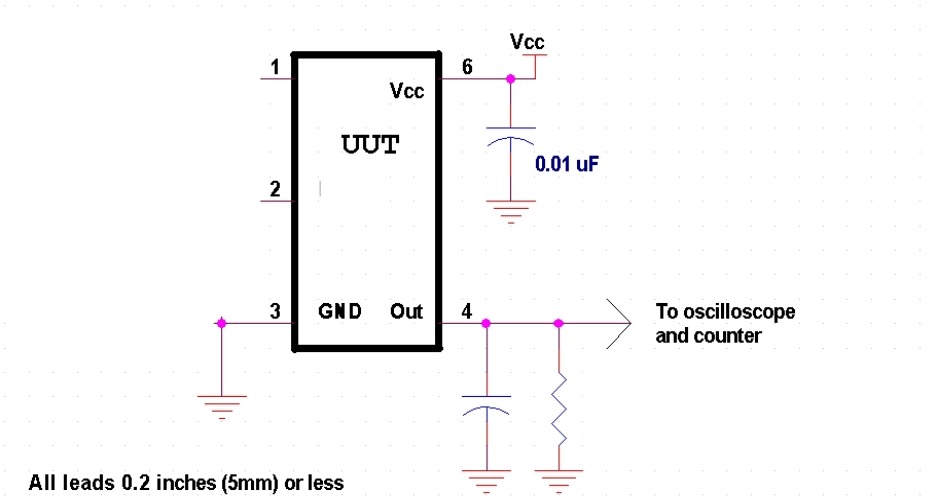
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Day	1	2	3	4	5	6	7	8	9	10	11	12
Code	D	E	F	G	H	J	K	L	M	N	P	R
Day	13	14	15	16	17	18	19	20	21	22	23	24
Code	T	U	V	W	X	Y	Z					
Day	25	26	27	28	29	30	31					

Electrical Specification:

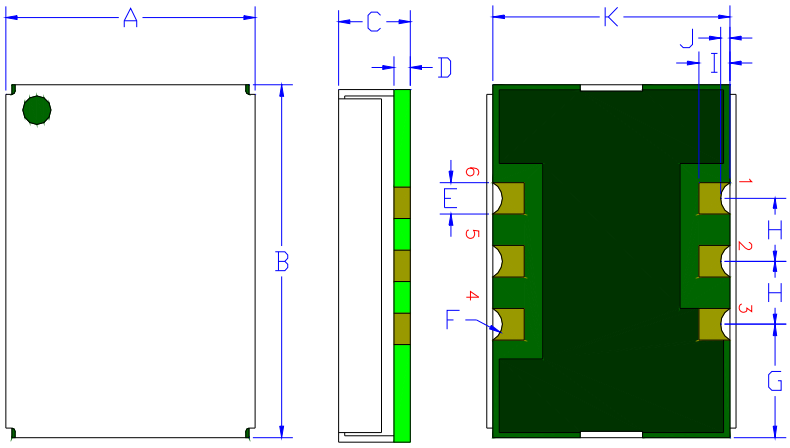
for Supply Voltage V_{CC} of 5.0V ±5%, over the specified temperature range

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

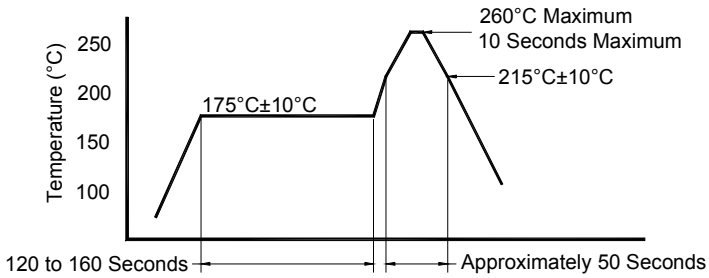
Pin 2 Ground plane is typical

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)



Allowed rate of temperature change
Maximum 4°C per second

The part may be reflowed 2 times without degradation.

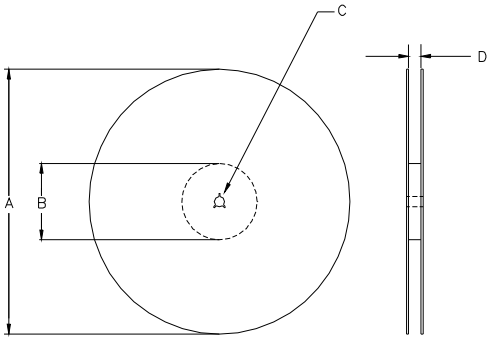
Tape and Reel: available for quantities of 250 to 1000 per reel

Constant Dimensions Table 1

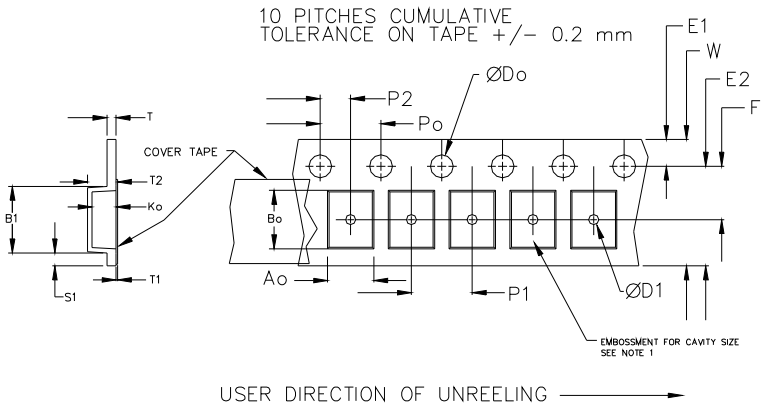
Tape Size	D0	D1 Min	E1	P0	P2	S1 Min	T Max	T1 Max
8mm	1.5 +0.1 -0.0	1.0	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	0.6	0.6	0.1
12mm		1.5						
16mm		1.5			2.0 ±0.1			
24mm		1.5						

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	
	mm	177.8	254.0	330.2	
B	inches	2.50	4.00	3.75	
	mm	63.5	101.6	95.3	Tape Width
C	mm	13.0 +0.5 / -0.2			
D	mm	16.4 +2.0 -0.0	16.4 +2.0 -0.0	16.4 +2.0 -0.0	16.0
	mm	---	---	24.4 +2.0 -0.0	24.0
	mm	---	---	32.4 +2.0 -0.0	32.0

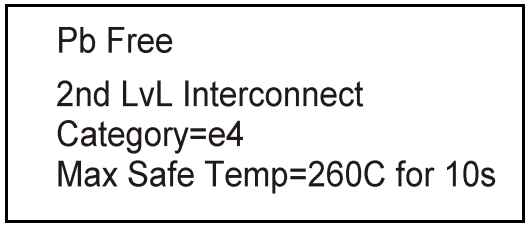
Reel dimensions may vary from the above

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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