

SM11T046-25.0M Miniature SMD Crystal

September 2012

- The Pletronics' SM11T Series is a miniature surface mount crystal.
- Package is ideal for automated surface mount assembly and reflow practices.
- Tape and Reel packaging
- 3.2 x 5 mm 4 pad
- AT Cut Crystal

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

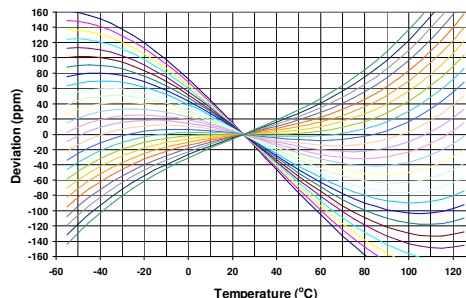
Pletronics Inc. guarantees the device does not contain the following:
Cadmium, Hexavalent Chromium, Lead, Mercury, PBB's, PBDE's
Weight of the Device: 0.06 grams
Moisture Sensitivity Level: 1 As defined in J-STD-020C
Second Level Interconnect code: e4



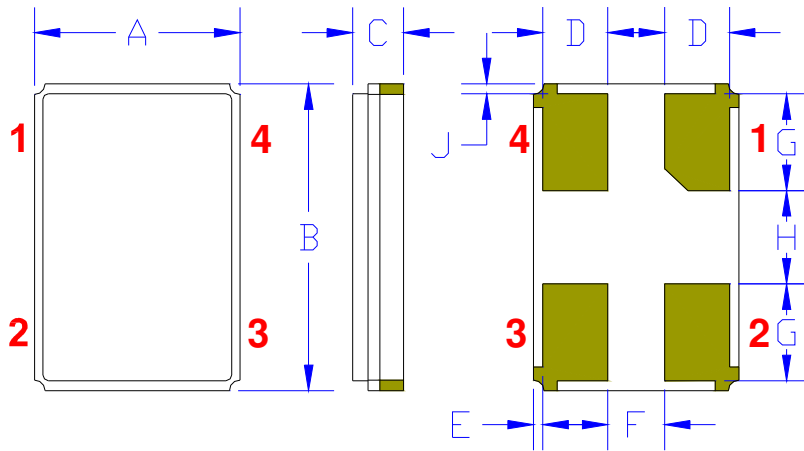
Electrical Specification (25.0MHz AT Cut Fundamental Mode Device):

Item	Min	Max	Unit	Condition
Calibration Frequency Tolerance	-30	30	ppm	at +25°C ± 3°C, Cload of 18.0pF
Frequency Stability over OTR	-30	30	ppm	Cload of 18.0pF
Equivalent Series Resistance (ESR)	-	50	Ohms	
Drive Level	-	500	µW	use 500 µW for testing
Load Capacitance				
Shunt Capacitance (C0)	-	6	pF	Pad to Pad capacitance
Aging at 25°C ± 3°C	-4	+4	ppm /Yr	for the first year
	-2	+2	ppm /Yr	after the first year
Insulation Resistance	500	-	Mohm	measure at 100V DC
Operating Temperature Range	-20	+70	°C	
Storage Temperature Range	-55	+125	°C	

AT Cut Crystal Frequency versus Temperature Typical Performance:



Mechanical:



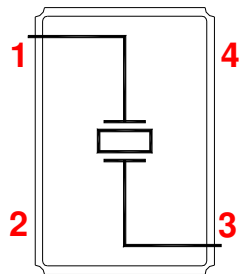
	Inches	mm
A	0.126 ± 0.004	3.2 ± 0.2
B	0.197 ± 0.004	5.0 ± 0.2
C	0.039 max	0.85 max
D ¹	0.031	0.8
E ¹	0.004	0.1
F ¹	0.055	1.4
G ¹	0.043	1.1
H ¹	0.102	2.6
J ¹	0.004	0.1

Contacts :
 Gold 11.8 μinches 0.3 μm minimum over
 Nickel 50 to 350 μinches 1.27 to 8.89 μm

Not to Scale

¹ Typical dimensions

Connection (top view):



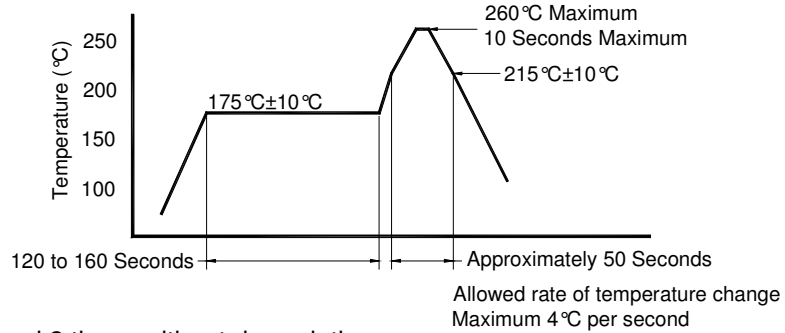
Pad 2 and Pad 4 are common and connected to the metal cover. They are not connected to the crystal.



Layout and application information

- Trace lengths to the crystal should be kept as short as possible.
- The crystal connections are sensitive to noise.
- The package should be grounded for optimum performance, pad 2 and/or pad 4 connected to ground.

Reflow Cycle (typical for lead free processing)



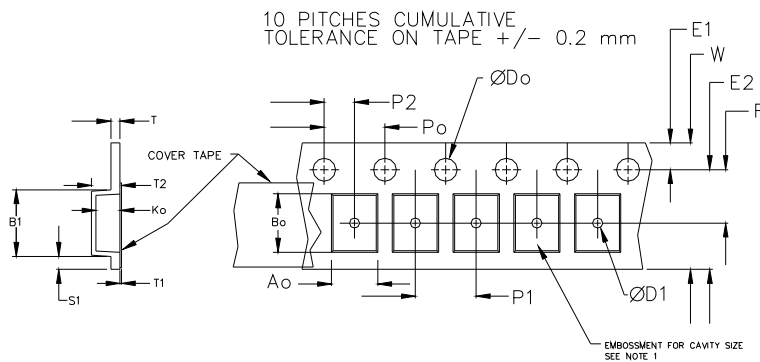
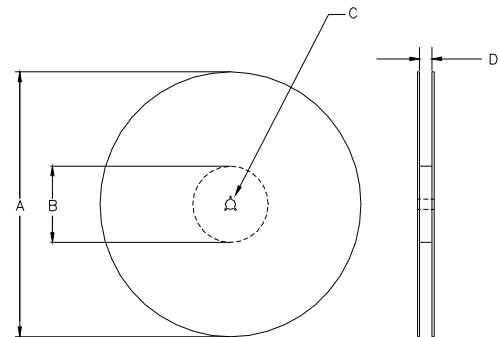
The part may be reflowed 2 times without degradation.

Tape and Reel: available for quantities of 250 to 3000 per reel (<1000 will be cut tape)

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	0.25	0.1
12mm		1.5			2.0 ± 0.1			
16mm	+0.1 -0.0	1.5	± 0.1	± 0.1	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
16 mm	12.1	14.25	7.5 ± 0.1	8.0 ± 0.1	8.0	16.3	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	

USER DIRECTION OF UNREELING →

Reel dimensions may vary from the above

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