



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.

TEL: 886-3-4690038 FAX: 886-3-4697532

E-mail: tstsales@mail.taisaw.com Web: www.taisaw.com

Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 7.0x5.0 16.8MHz

TST Parts No.: TZ1864A

Customer Parts No. : _____

Company: _____
Division: _____
Approved by: _____
Date: _____

Checked by: _____ Yifan Chen *Yifan Chen*

Approval by: _____ Kelly Huang *Kelly Huang*

Date: _____ 06/12/2013

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.

REV. NO.: 1

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	06/12/13'	N/A	Yifan Chen



MODEL NO.: TZ1864A

REV. NO.: 1

Features:

- Surface Mount Seam Weld Package
- Good Frequency Perturbation and Stability over temperature

RoHS Compliant
Lead free
Lead-free soldering

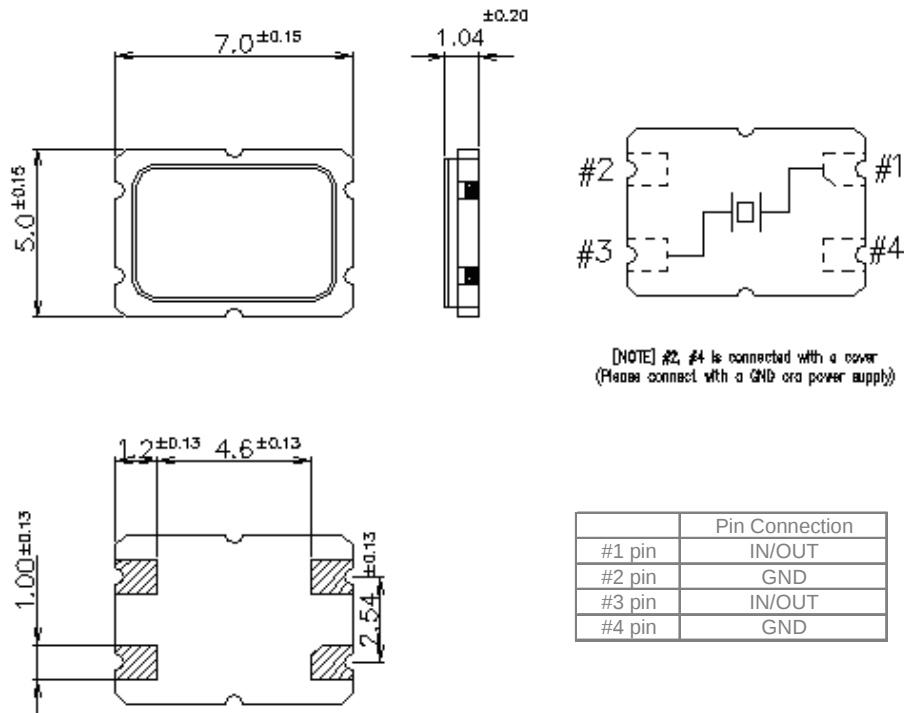
Description and Applications:

Surface mount 7.0x5.0 mm crystal unit for customer

Electrical Specifications:

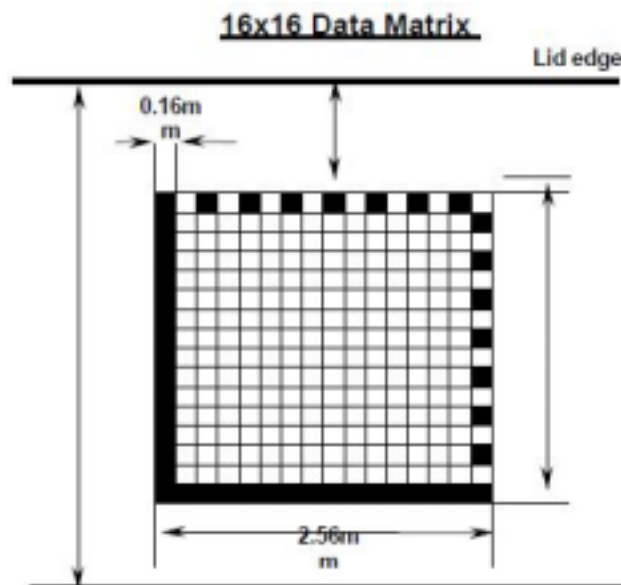
TZ1864A	Specification
Nominal Frequency	16.800000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +100°C
Operating Temperature Range	-30°C to +85°C
Frequency Stability over Operating Temperature Range	+/-15 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+/-10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	25Ω max.
Nominal Drive Level	150 uW typ.
Shunt Capacitance (Co)	7.0 pF MAX
Load Capacitance (CL)	20pF
Aging	±1.0 ppm/year, ±5.0ppm/10year
Insulation Resistance	500 MΩ min./DC 100V
Marking	Laser marking
Pullability{(FL-FS/FS)} FL is the resonant frequency with a load of 20pF	175 to 250ppm

Mechanical Dimensions (mm):

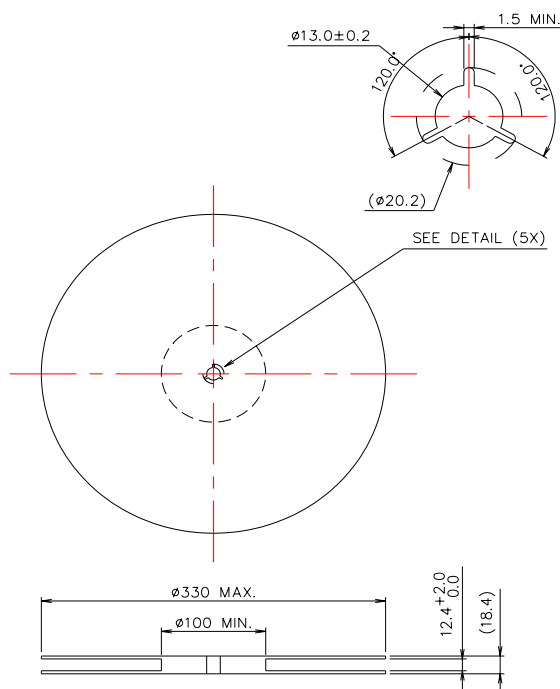


Marking:

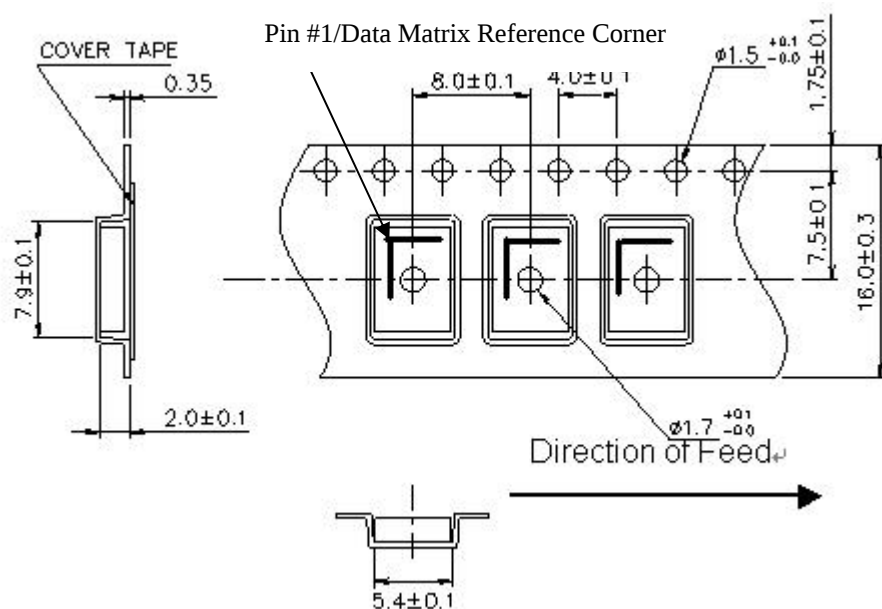
The 8-digit code shall be converted to a Data Matrix format readable by the readers used in customer production process. The last four digits will represent the date code; i.e. XXXXXXXX5049825 implies year 1998 week 25th. The remaining 9 digits may be used by the vendor for codes to track other factory specific details such as assembly line, lot number, tray number, and day/time codes. The Data Matrix must be the only marking present, and it must be centered, vertically and horizontally, on the top of the package. 5x7 Surface Mount Package sample Laser etched 2D Bar code- 16x16 Data Matrix symbol The inner 14 rows and columns will be filled with dark and light square cells according to ECC200 format.



Reel Dimensions (mm):



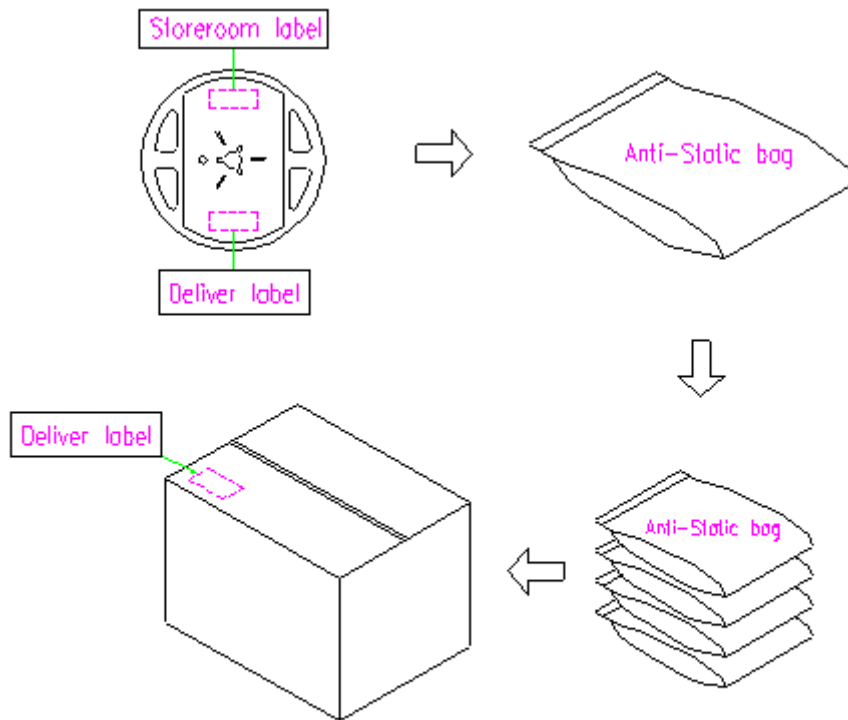
Tape Dimensions (mm):



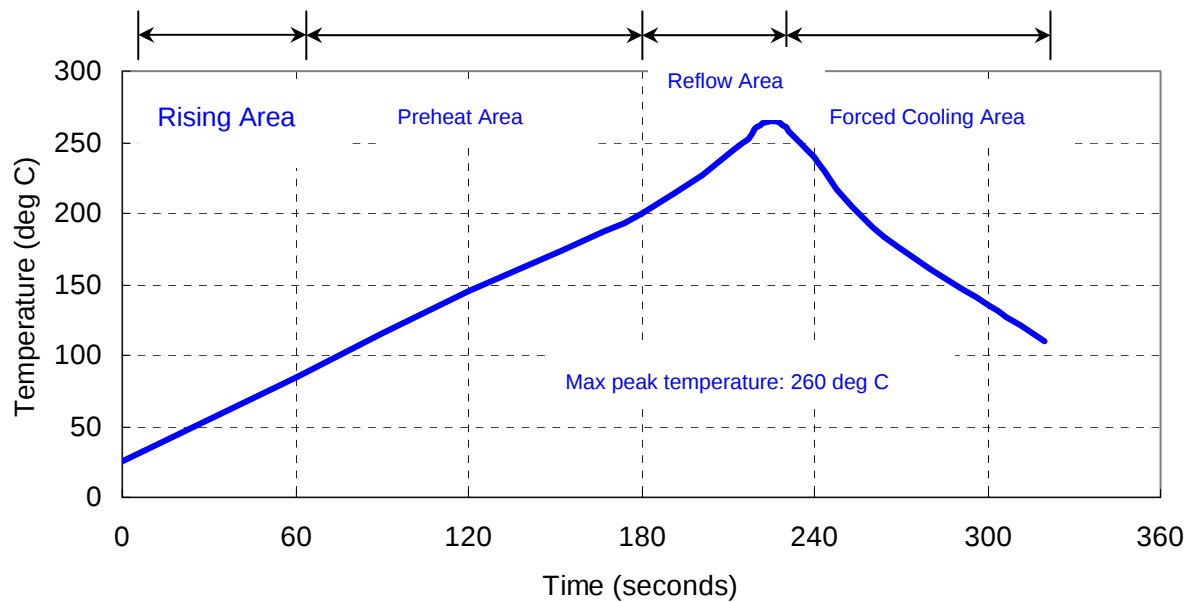
[NOTE]:

1. Unless otherwise specified tolerance on dimension ± 0.1 mm.
2. Material: conductive polystyrene with color black
3. 10 pitch cumulative tolerance ± 0.2 mm.

Packing Quantity/Packing: 1K pcs maximum per reel



Reflow Profile:



Note: 1. Max peak temperature: 260 $\pm$ 5 deg C; Time: 10 $\pm$ 2 sec
 2. Temperature: 217 $\pm$ 5 deg C; Time: 90~100 sec

Reliability Specifications

Test name	Test process / method	Reference standard
Mechanical characteristics		
resistance to Soldering heat (IR reflow)	Temp./ Duration : 260°C /10sec ×2 times Total time : 4min.(IR-reflow)	EIAJED-4701 -300(301)M(II)
Vibration	Total peak amplitude : 1.5mm Vibration frequency : 10 to 55 Hz Sweep period : 1.0 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202F method 201A
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202F method 213C
Solderability	Solder Temperature:265±5°C Duration time: 5±0.5 seconds.	MIL-STD 883G method 2003
Environmental characteristics		
Thermal Shock	Heat cycle conditions -55 (30min) ← → 125 (30min) * cycle time : 10 times	MIL-STD 883G method 1010.7
Humidity test	Temperature : 70 ± 2 °C Relative humidity : 90~95% Duration : 96 hours	MIL-STD 202F method 103B
Dry heat (Aging test)	Temperature : 125 ± 2 °C Duration : 168 hours	MIL-STD 883G method 1008.2 condition C
PCT test	Pressure: 2.06kg/cm ² (2.03*10 ⁵ pa) Temperature : 121 ± 2 °C Relative humidity : 100% Duration : 24 hours	EIAJED-4701-3 B-123A