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Product Specifications Approval Sheet

Product Description: Crystal Unit SMD 3.2x2.5 26.0MHz

TST Part No.: TZ2019A

Customer Part No.: _____

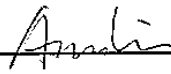
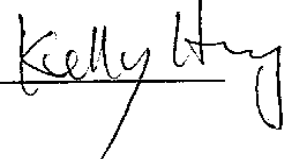
Customer signature required

Company: _____

Division: _____

Approved by : _____

Date: _____

Checked by: _____ Ann Liu Approved by: _____ Kelly Huang 

Date: _____ 10/05/2010

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.	Rev. Page	Rev. Account	Date	Ref. No.	Revised by
1	N/A	Initial release	05/26/10	N/A	Ann Liu
2	3	Freq. perturbation updated	10/05/10	ECN-	Ann Liu



MODEL NO.: TZ2019A

REV. NO.: 2

Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package

RoHS Compliant
Lead free
Lead-free soldering

Description and Applications:

Surface mount 3.2mmx2.5mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

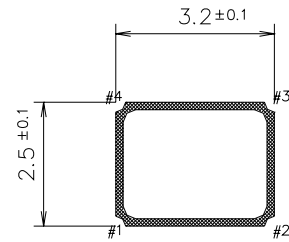
Electrical Specifications:

TZ2019A	Specification
Nominal Frequency	26.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +85°C
Operating Temperature Range	-40°C to +85°C
Frequency Perturbation	+/-0.50 ppm
Frequency Stability over Operating Temperature Range(referred to the value at 25°C)	15°C ~35°C : +/-2.5 ppm -5°C ~55°C : +/-6 ppm -25°C ~85°C : +/-10 ppm -20°C ~-10°C : $\geq$ -7 ppm -30°C ~-25°C : $\geq$ -15 ppm -30°C ~-40°C : $\geq$ -25 ppm
Frequency Make Tolerance (FL)	+/-8 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	30 Ω max.
Drive Level	100uW .
Load Capacitance (CL)	12 pF
Shunt Capacitance (Co)	0.8pF +/-20%
Motional Capacitance (C1)	3.0fF ~ 3.7fF
Trim Sensitivity (TS)	9~11 ppm/pF (Load @ 12pF)
Insulation Resistance	500 M Ω min./DC 100V

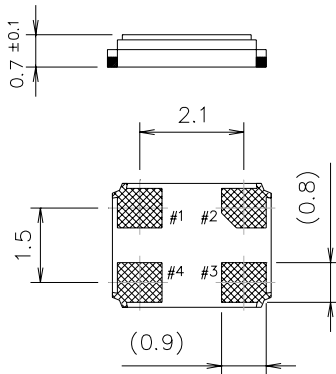
Aging	+/-1ppm max first year, +/-1.5ppm max. second year +/-2.5ppm max. after 5 years +/-5ppm max. after 10 year
Marking	Laser Marking
Unit Weight	0.017+/-0.005 g

Mechanical Dimensions (mm):

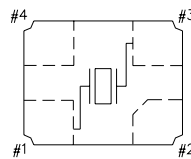
Base 1



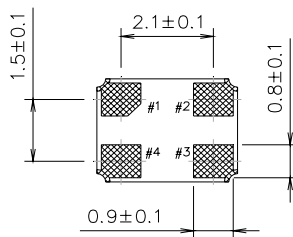
	Pin Connection
#1 pin	GND
#2 pin	GND
#3 pin	IN/OUT
#4 pin	GND



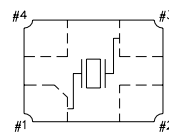
Internal Connections
(Top View)



Base 2



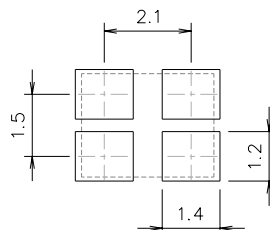
Internal Connections
(Top View)



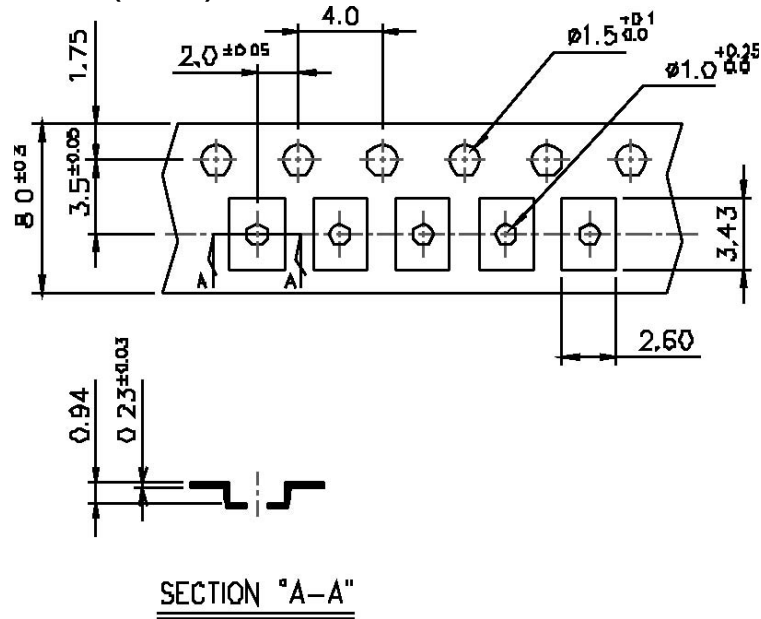
#2, #4 is connected with a cover

Recommended Land Pattern: (unit: mm)

Reference Footpoint



Tape Dimensions (mm):

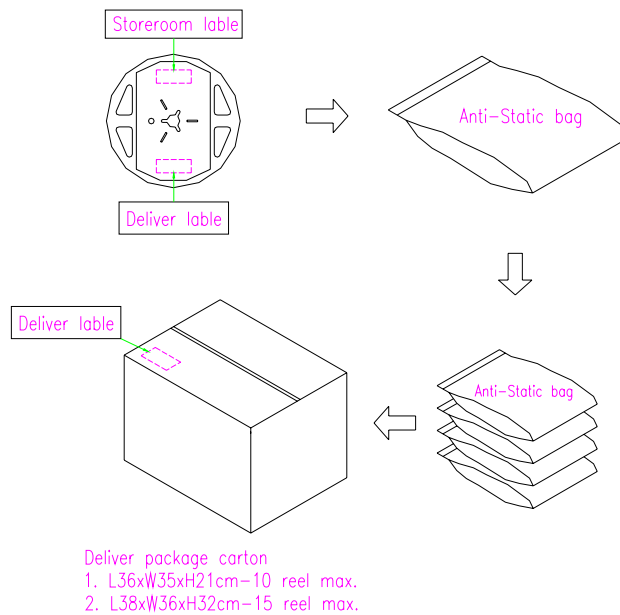


[NOTE]:

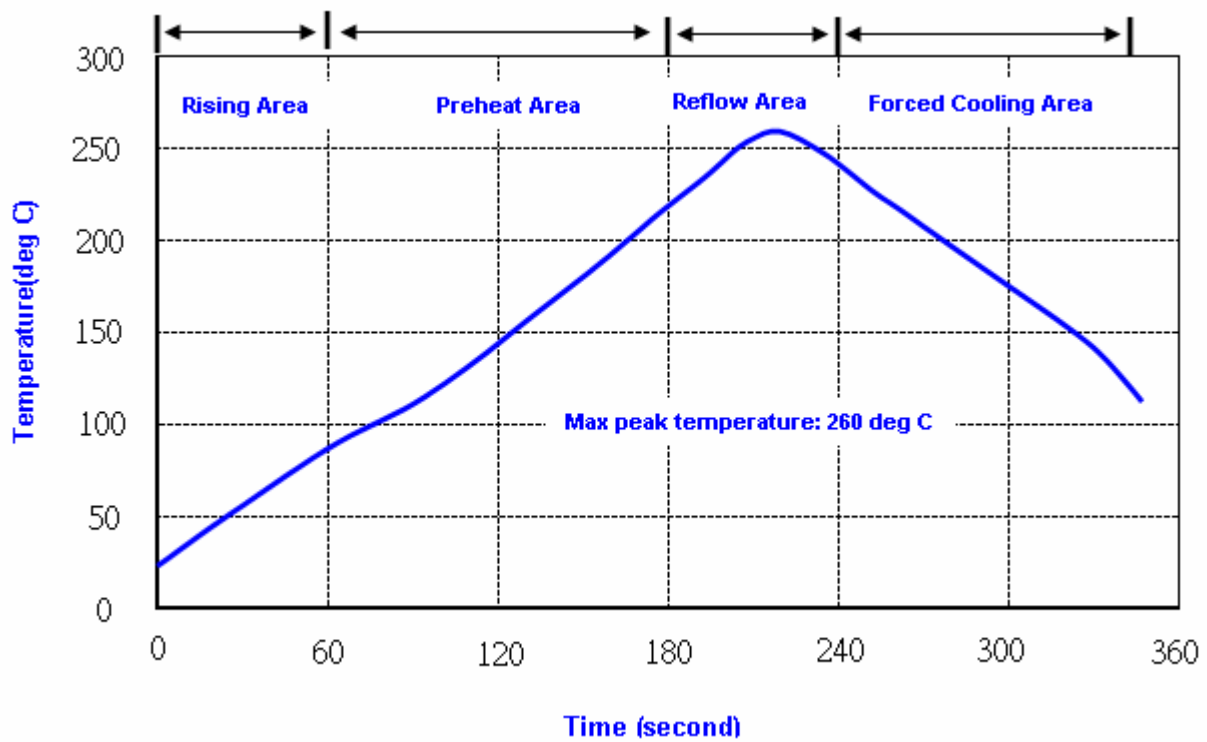
1. Unless otherwise specified tolerance on dimension +/-0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance +/-0.2 mm.

Packing Quantity/Packing:

3K 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 °C (30min) ↔ 125 °C (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