



TAI-SAW TECHNOLOGY CO., LTD.

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Product Specifications Approval Sheet

Product Description: Crystal Unit Cylinder Dip 8.0x3.0 12MHz

TST Part No.: TZ1832A

Customer Part No.: _____

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: _____ Ginger Huang *Ginger Huang*

Approved by: _____ Kelly Huang *Kelly Huang*

Date: _____ 02/20/2012

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.: 2.0

Rev.	Rev. Page	Rev. Account	Date	Ref. No.	Reviser
1	N/A	Initial release	05/19/11'	N/A	Ginger Huang
2	P4	Change Marking	02/20/12'	1.0	Ginger Huang



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Cylinder DIP Type 12MHz Crystal Unit

MODEL NO.: TZ1832A

REV. NO.: 2.0

Features:

- Good Frequency Perturbation and Stability over temperature

RoHS Compliant

Lead-free soldering

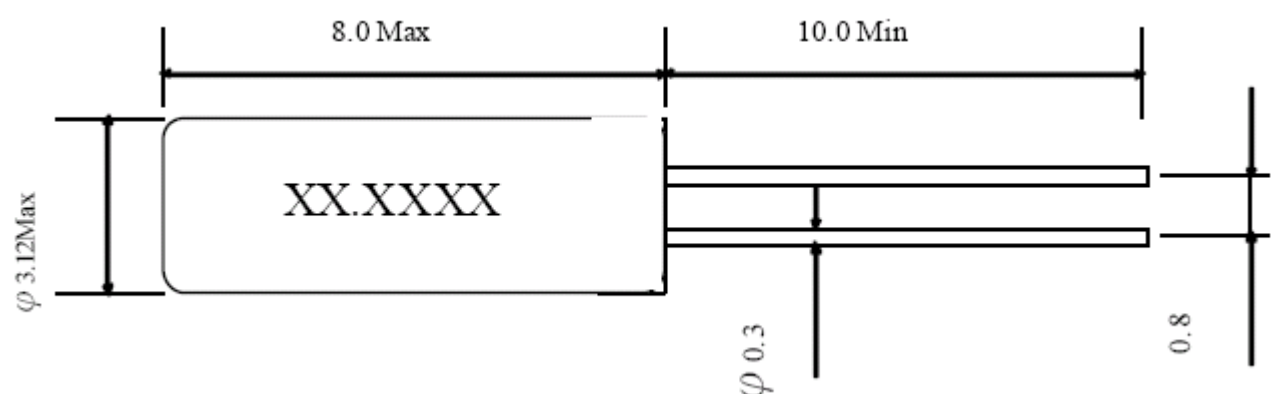
Description and Applications:

Cylinder dip type crystal unit for use in wireless telecommunications devices

Electrical Specifications:

TZ1832A	Specification
Nominal Frequency	12.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C~+85°C
Operating Temperature Range	-20°C~+70°C
Frequency Stability over Operating Temperature Range	+/-100 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+/-100 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	100 Ω max.
Nominal Drive Level	100 μ W
Shunt Capacitance (Co)	7.0 pF MAX
Load Capacitance (CL)	20.0 pF
Aging	+/-5.0 ppm/year
Insulation Resistance	500 M Ω min./DC 100V
Marking	Laser marking

Mechanical Dimensions (mm):



Marking:

Line 1: Frequency (12.000)

12.000

Reliability Specifications

Environmental Characteristics

No.	Item	Standard	Condition
1	Shock resistance	$\Delta f/f : \pm 10 \text{ PPM}$	Natural drop from 75 cm height onto the wooden board 3 times
2	Vibration resistance	$\Delta f/f : \pm 10 \text{ PPM}$	10 ~ 500 Hz, 1.5 mm p-p or 10G 10→500→10Hz 15 min./cycle, log. sweep 2 hours ×3 directions
3	High temperature storage	$\Delta f/f : \pm 10 \text{ PPM}$	80°C × 1000 hours
4	Low temperature storage	$\Delta f/f : \pm 10 \text{ PPM}$	-55°C × 1000 hours
5	Temperature cycle	$\Delta f/f : \pm 10 \text{ PPM}$	-40°C ↔ +85°C 30 minutes at each temp. 10 cycle
6	Humidity storage	$\Delta f/f : \pm 20 \text{ PPM}$	85°C ×85%RH ×1000H
7	Soldering heat resistance	$\Delta f/f : \pm 5 \text{ PPM}$	230± 10°C ×10 seconds in solder bath (Dip only leads)
8	Lead strength (pulling)	$\Delta f/f : \pm 5 \text{ PPM}$	Pulling a lead with 1 KG weight for 30 seconds.
9	Solder ability	Leads must be 90% covered with fresh solder	230± 10°C ×3 seconds in solder bath (Dip only leads)
10	Solvent Resistance	No abnormal appearance (dull or unreadable marking) is allowed	EIAJ ED-4701 C-121 and MIL-STD -202F No.215

Note

1. Above tests should be made independently.
2. Measuring the frequency should be done after keeping test samples at room temperature for 24 hours.
3. Shift value of CI should be less than 20% of initial value or less than the value as stated below.

Frequency	Vib. Mode	$\Delta \text{ CI}$
4.0MHz $\leq f < 5.5 \text{ MHz}$	Fundamental	50Ω
5.5MHz $\leq f < 12.0 \text{ MHz}$		10Ω
12.0MHz $\leq f < 28.7 \text{ MHz}$		5Ω
26.0MHz $\leq f < 64.0 \text{ MHz}$	3 rd Overtone	10Ω