



SPEC NO.: CU-002SDIP

## Specification

TO:STE508

Model Name: Crystal Unit

**PART NO: S2012-32.768-12.5-20-150-E**

CUSTOMER PART NO.:

### APPROVAL SHEET

Approved?	Yes
	No.
Customer's comments are welcomed here.	
Pls return this copy as a certificate of your approval by Fax:+86-755-84528986	
Approved By	Date: _____

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# History Record

Date	Part No.	SPEC No.	Discription.	Remarks.
2012-2-1			Initial Issue	
	ISO9001:2000 ISO14001:2004	Approved by	Check by	Design by
		May-15-2007	May-10-2005	Jan-16-1999
Reversions	Total Page	Xu gang dong	Liu jun	Wang hon
CU-027SDIP				

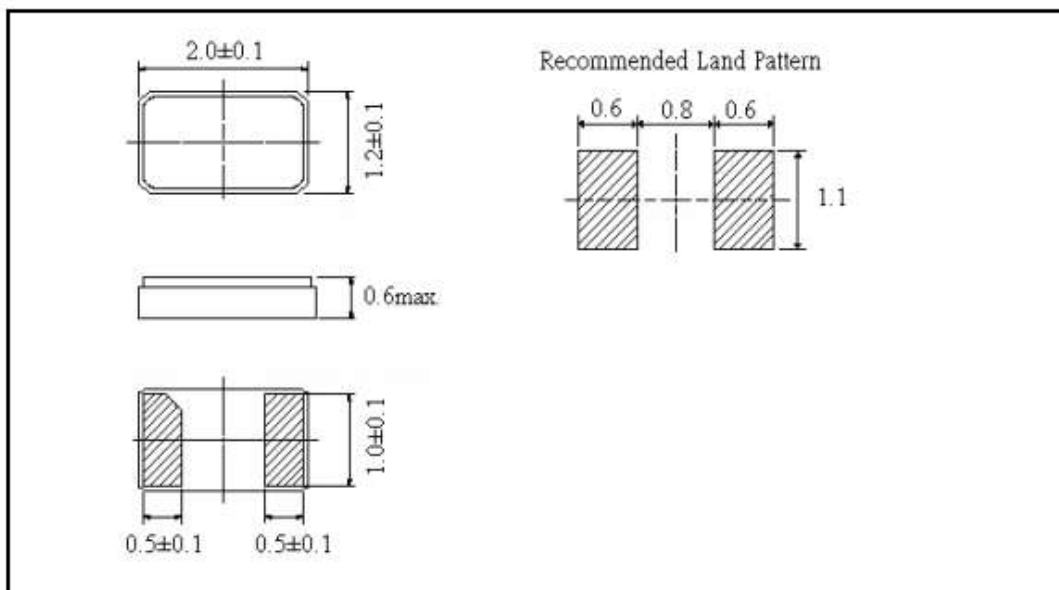
**SPECIFICATION**

1. This specification can cover the specification of crystal unit with Part No.: S2012-32.768-12.5-20-150-E

**2. ELECTRICAL SPECIFICATION**

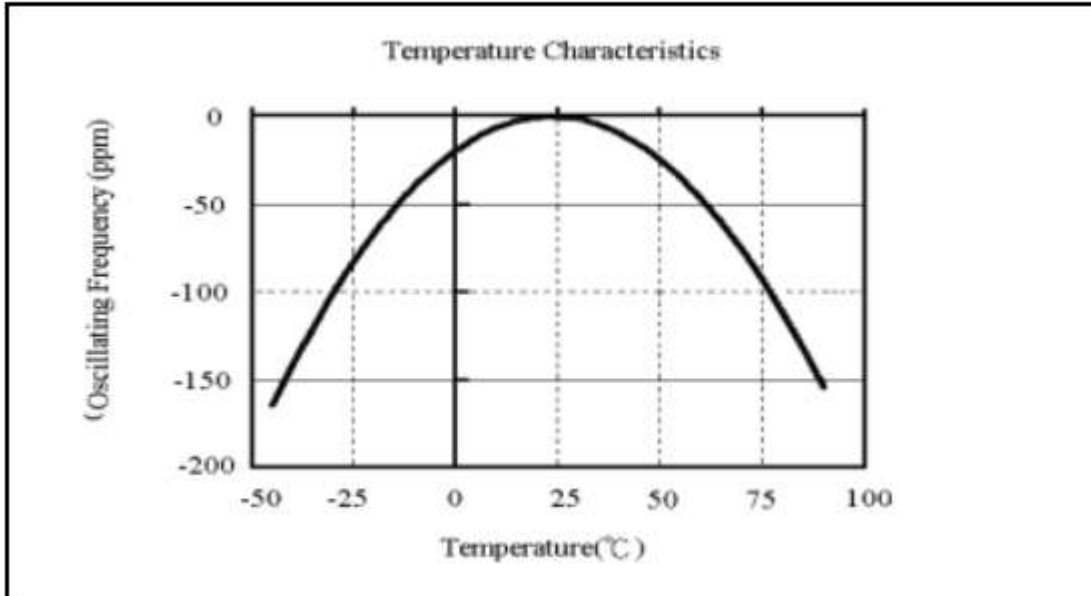
Nominal frequency	32.768 KHz
Frequency tolerance	$\pm 20\text{ppm}$ at $25 \pm 2 \text{ }^\circ\text{C}$
Temperature characteristics	
-Turnover temperature	$25 \pm 5 \text{ }^\circ\text{C}$
-Temperature Coefficient	$-0.045 \times 10^{-6} / \text{ }^\circ\text{C}^2$ Max
Operating temperature	-40 to 85 degrees
Equivalent series resistance	90k ohms Max.
Load capacitance	12.5pF
Shunt capacitance	2.0pF Max.
Drive level	0.5uW Max
Storage temperature	-40 to 85 degrees
Aging(First year)	$\pm 3\text{ppm}$ Max.
Marking	Standard

**3. DIMENSION (Unit: mm)**



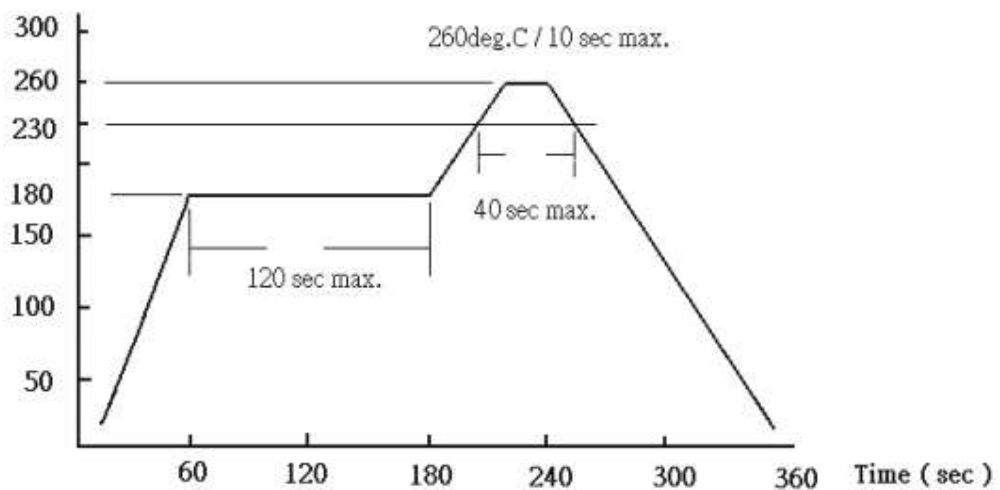
4.

Frequency VS Temperature



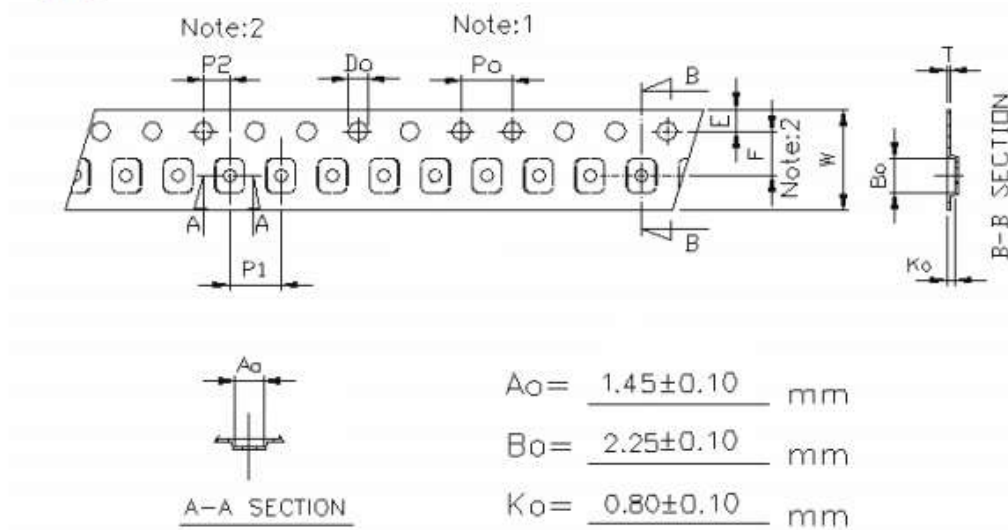
5.Reflow solder

Temp. ( deg.C )



**6.TAPING AND REEL SPECIFICATION**

**Taping**



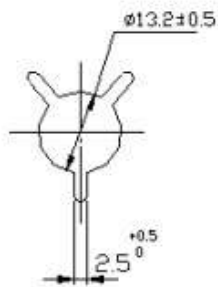
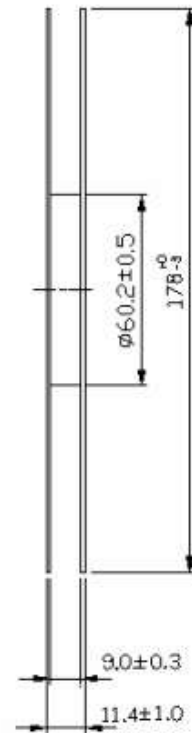
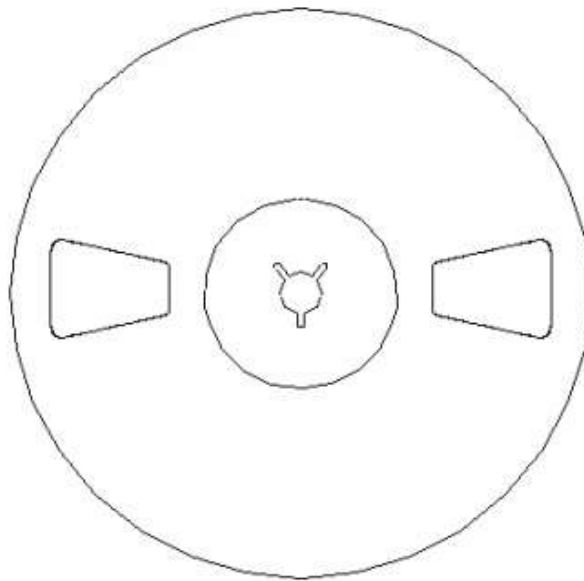
Unit: mm

Symbol	Spec.
K1	—
Po	4.0± 0.10
P1	4.0± 0.10
P2	2.0± 0.05
Do	1.50 <sup>+0.1</sup> <sub>0</sub>
E	1.75± 0.10
F	3.50± 0.05
10Po	40.0± 0.20
W	8.0± 0.20
T	0.25± 0.05

**Notice:**

- 1.10 Sprocket hole pitch cumulative tolerance is ±0.12mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

**Reel**



**Q'ty:3000pcs/reel**

**Unit:mm**

## 7.RELIABILITY TEST

Test Items	Test Condition	Specification	
		Dip	SMD
1. Gross Leak Test	FC-40 125°C/30sec	No continuous bubble	
2. Fine Leak Test	Bombing of He 4kg/cm <sup>2</sup> for 2 hours	Less than 5*10 <sup>-8</sup> atm.c.c./sec, Helium	
3. Drop Test	a. ~19.999MHz(Fund.) →100 cm height b. 20~29.999MHz(Fund.) 50 cm height c. 30~ MHz(Fund.) 20 cm height on hard wooden surface / 3 times (thickness more than 30 mm)	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.
4. Vibration Test	Freq. range: 10~55Hz Peak to peak amplitude:1.5mm 3 direction(X,Y,Z) * each 60min.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.
5. Resistance to Soldering Test	a. IR Reflow furnace with the condition 2 times. Peak temp.260±3°C * 10±1 sec.	NA	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec. For SMD type only.
	b. Dip terminals in a 245±5°C solder station(pool) Dipping depth 0.5mm(Min) Dipping time 5±0.5 sec.	At least 90% by 30X magnification of each dipped area shall be covered by fresh solder. For DIP type only.	NA
6. Bending Test	Bending cycle : 1 cycle 0° -> 45° -> 0° -> 45° -> 0°	$\Delta F \leq \pm 5\text{PPM}$ , C.I within spec. For DIP type only.	NA
7. Shearing Test	Weight : 5N, Test duration: 10±1 sec	NA	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec. For SMD type only.
8. Low Temp. Exposure Test	-40±3°C, 240±12 hrs	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.
9. Aging Test	85±3°C, 240±12hrs	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.
10. High Temp. & Humidity Test	+85°C±5°C & 85%±5% R.H., 240±12 hrs	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.
11. Temperature Cycling Test	-25±3°C/15±3min ~ +85±3°C/15±3min 15cycles	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.	$\Delta F \leq \pm 10\text{PPM}$ , C.I within spec.

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