

APPROVAL SHEET

CompoTEK

Item : S2012R Crystal

Spec. no : S2012R-32,768k-12,5-20/E

Freq : 32.768 KHz

Customer Approved	Checked By	Issued By
		

CompoTEK GmbH

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RoHS Compliant



005

SPECIFICATION OF CRYSTAL UNITS

Customer : CompoTEK

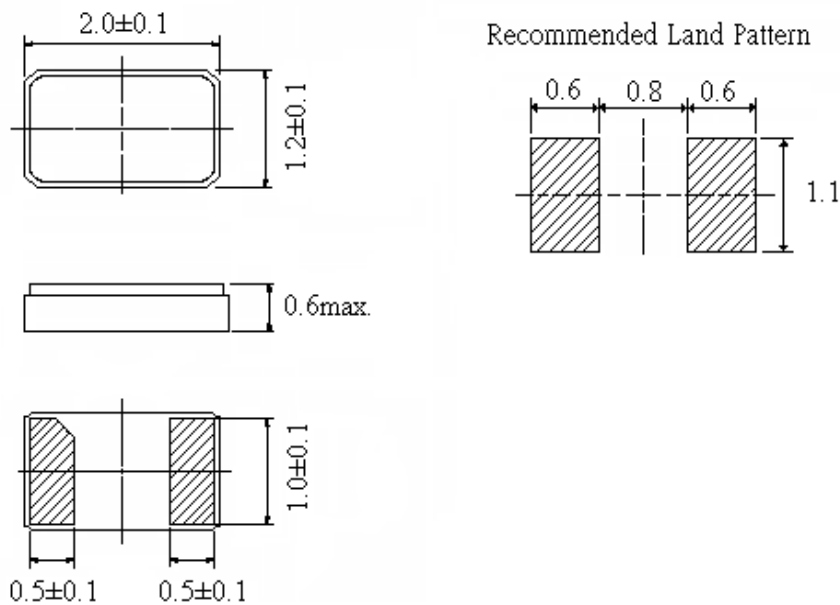
SPEC NO : S2012R-32,768k-12,5-20/E

(Lead Free Parts)

Date : 13-Dec-10

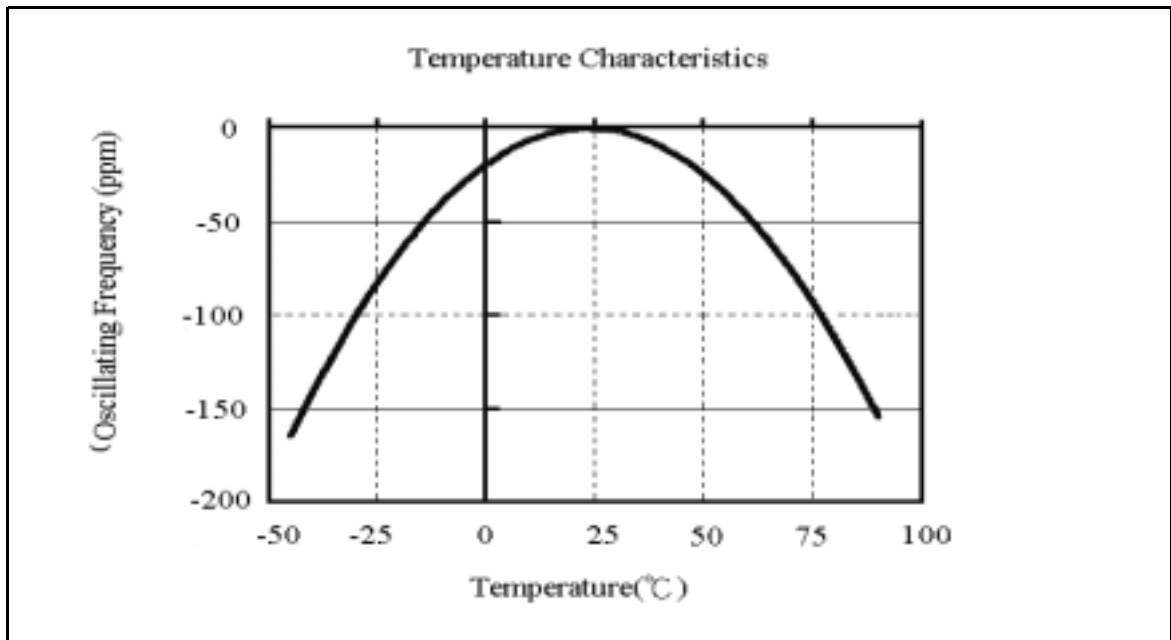
SPECIFICATION OF CRYSTAL UNITS

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



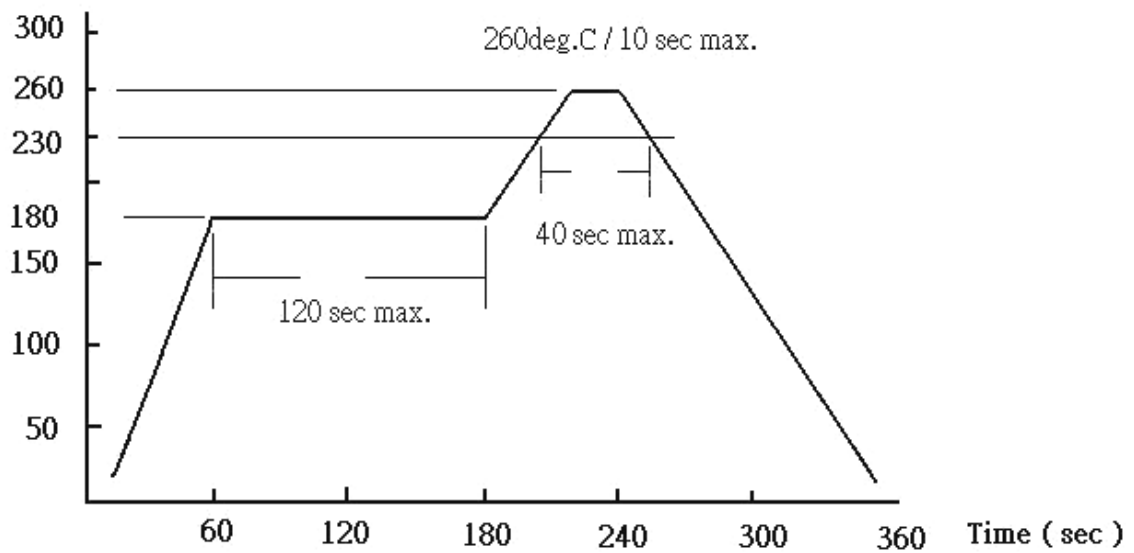
SPECIFICATION OF CRYSTAL UNITS

13 Frequency VS Temperature



14 Soldering Reflow

Temp. (deg.C)



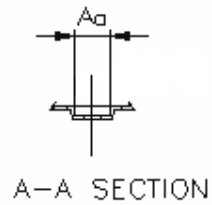
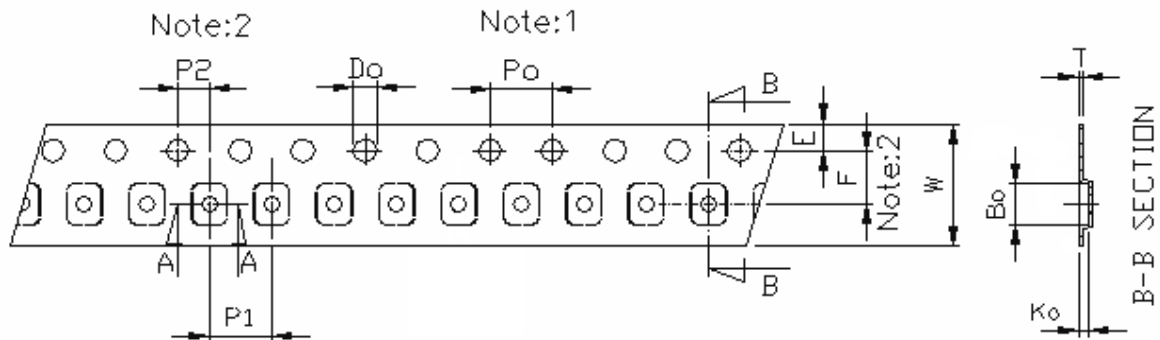
SPECIFICATION OF CRYSTAL UNITS

Reliability Test (applicable to 49(50) type .U type and Tuning Fork X'tal)

Test Items	Test Condition	Specification	
		Dip	SMD
1. Gross Leak Test	FC-40 125 /30sec	No continuous bubble	
2. Fine Leak Test	Bombing of He 4kg/cm ² for 2 hours	Less than 5*10 ⁻⁸ 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)	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.
4. Vibration Test	Freq. range: 10~55Hz Peak to peak amplitude:1.5mm 3 direction(X,Y,Z) , each 60min.	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.
5. Resistance to Soldering Test	a. IR Reflow furnace with the condition 2 times. Peak temp.260±3 , 10±1 sec.	NA	F ±10PPM , C.I within spec. For SMD type only.
	b. Dip terminals in a 245±5 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°	F ±5PPM , C.I within spec. For DIP type only.	NA
7. Shearing Test	Weight : 5N, Test duration : 10±1 sec	NA	F ±10PPM , C.I within spec. For SMD type only.
8. Low Temp. Exposure Test	-40±3 , 240±12 hrs	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.
9. Aging Test	85±3 , 240±12hrs	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.
10. High Temp. & Humidity Test	+85 ±5 & 85%±5% R.H. , 240±12 hrs	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.
11. Temperature Cycling Test	-25±3 /15±3min ~ +85±3 /15±3min 15cycles	F ± 10PPM , C.I within spec.	F ±10PPM , C.I within spec.

SPECIFICATION OF TAPE & REEL

Taping



$$A_o = \frac{1.45 \pm 0.10}{\quad} \text{ mm}$$

$$B_o = \frac{2.25 \pm 0.10}{\quad} \text{ mm}$$

$$K_o = \frac{0.80 \pm 0.10}{\quad} \text{ mm}$$

Unit: mm

Symbol	Spec.
K1	—
Po	4.0 ± 0.10
P1	4.0 ± 0.10
P2	2.0 ± 0.05
Do	1.50 ^{+0.1} ₀
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

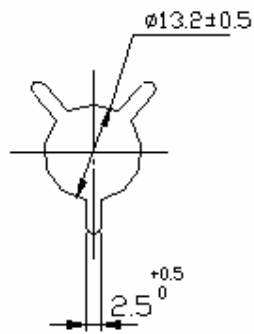
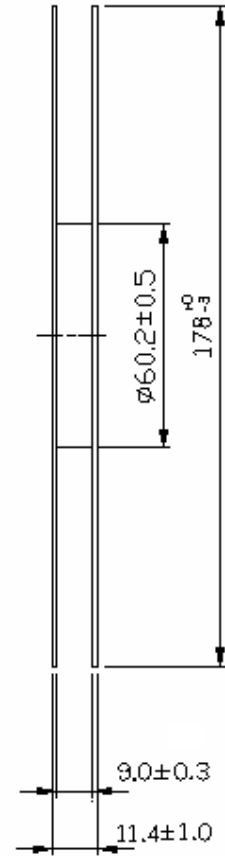
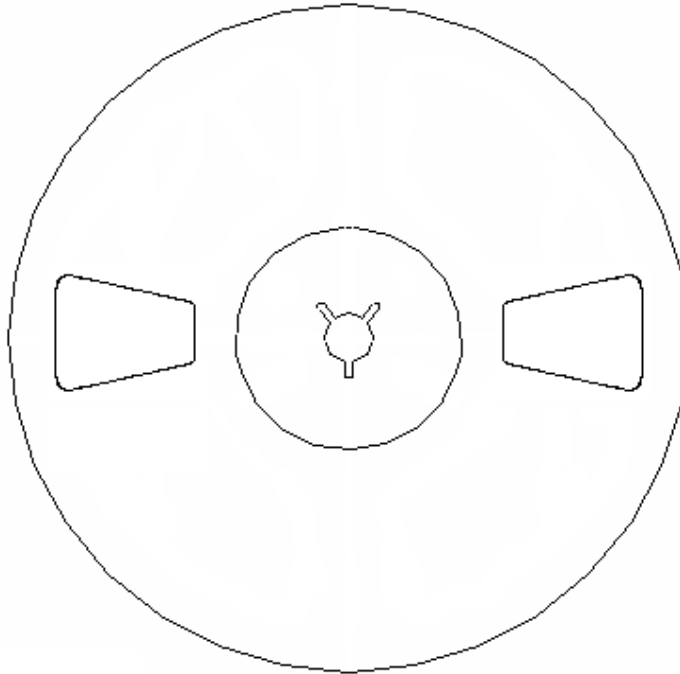
Notice:

- 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 plane 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.

	Date	Name	Unit : mm	
Drawn	15.Aug.2008	Leo	Title Tape & Reel Dimension	Drawing No. C009-010208-X-1001
Checked	15.Aug.2008	Iris		
Approved	15.Aug.2008	Wan		

SPECIFICATION OF TAPE & REEL

Reel



Unit:mm

Q'ty:3000pcs/reel

	Date	Name	Unit : mm	
Drawn	15.Aug.2008	Leo	Title Tape & Reel Dimension	Drawing No. C009-0709-X-1001
Checked	15.Aug.2008	Iris		
Approved	15.Aug.2008	Wan		