

SPEC NO.: CRS-015M

Specification

TO:500

Model Name: Crystal Unit

PART NO: SM146-32.768K-12.5-20-E

CUSTOMER PART NO.:

SAMPLES APPROVAL SHEET

		Yes		
Approved		No.		
Customer's comments are welcomed here.				
Please return this copy as a	a certificate of your approval by email.			
Approved By	Date:			

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History Record

Date	Part No.	SPEC No.	Description.	Remarks.
		Annuaried by	Check by	Dogian by
RoHS Compliant Lead free Lead-free soldering	ISO9001:2000 ISO14001:2004	Approved by	Спеск ру	Design by
		May-15-2009	May-10-2009	Jan-16-2009
Reversions	Total Page	- Xu gang dong	Liu jun	Wang hon
CRS-015M				



1. Scope: This specification can cover the specification of crystal unit with Part No.: SM146-32.768K-12.5-20-E

2. ELECTRICAL SPECIFICATION

ITEM	SPECIFICATION
Package Type	SM146
Center frequency	32.768KHz
Load capacitance	12.5 PF
Frequency Tolerance (25°C±2°C)	±20PPM
E.S.R	40KΩ max
Drive Level	1.0μW
Operating Temperature Range	-40°C~+85°C
Storage Temperature	-55℃~+105℃
Aging	±5PPM/YEAR
Insultation Resistance	>500MΩ

3.MECHANICAL RELIABILITY

1) Terminal Strength

* Lead pulling test

Conditions: Load 908. gram

Direction To the downward

Duration of applied force 5 seconds

Results: There should be no distortion in appearance.

* Lead bending test

Conditions: Load 452.6 gram

Bending angle 90° to normal position
Rate of bending 3 seconds in each cycle

Number of bending 3

Results: There should be no distortion in appearance.

2) Lead solder ability test

Conditions: Dipping in solder($\pm 230^{\circ}\text{C} \pm 5^{\circ}\text{C}$) for 5 seconds

Results: More than 95% of surface being tested should be

coated uniformly with solder.

3) Vibration test

Conditions: Frequency 10 - 55Hz

Amplitude 0.76mm Sweep 1.0 minute Duration 2 hours

Results: Frequency and wave form of tested products must

Remain within specifications.

4) Drop test

Conditions: Method of drop Natural drop

Dropping floor Hard wood board



Height 35cm Number of drops 3 times

Results: Frequency and wave form of tested products must

remain within specifications.

4.ENVIRONMENTAL RELIABILITY

1) Temperature test

* Temperature cycling test

Conditions: Steps of cycle 1) At -55°C,30 minutes

2) At $+25^{\circ}$ C, 10 - 15 minutes 3) At $+85^{\circ}$ C, 30 minutes 4) At $+25^{\circ}$ C, 10 - 15 minutes

Number of cycles 3 times

Results: Frequency and wave form of tested products must

remain within specifications.

* Low Temperature test

Conditions: Temperature $-20^{\circ}\text{C} \pm 2^{\circ}\text{C}$

Length of test 96 hours

Results: There should be no stain on surface of products.

Frequency and wave form of tested products must

remain within specifications.

2) Aging test

Conditions: Temperature $+85^{\circ}\text{C}\pm20^{\circ}\text{C}$

Length of test 96 hours

Results: Deviation of frequency must be less than $\pm 3ppm$

3) Salt spray test

Conditions: Temperature $+35^{\circ}\text{C}\pm2^{\circ}\text{C}$

Length of test 48 hours

NaCI % 5%

Results: There should be no stain on surface of products.

4) Humidity test

Conditions: Temperature $+40^{\circ}\text{C}\pm2^{\circ}\text{C}$

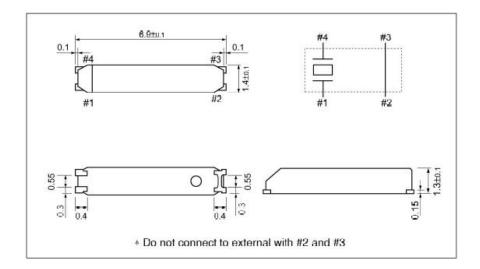
Relative humidity 90 - 95% Length of test 96 hours

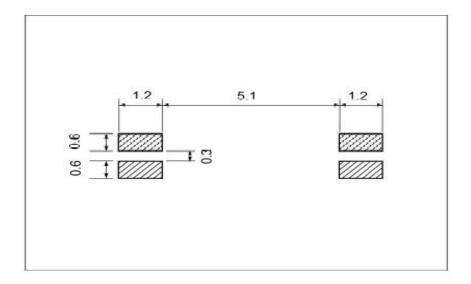
Results: a. Insulation resistance must be 500 M Ω /100 Vac. minimum

b. Resistance and wave form must remain within specifications.



5. DIMENSION (Unit: mm)







6. Reflow solder

