

# Specification

TO:STE508

Model Name: Crystal Unit

**PART NO: 49S49S2-3.000-150.000M**

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 email.	
Approved By	Date: _____

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**STRONG ELECTRONICS&TECHNOLOGY LIMITED**

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# History Record

Date	Part No.	SPEC No.	Description.	Remarks.
RoHS Compliant Lead free Lead-free soldering	ISO9001:2000 ISO14001:2004	<b>Approved by</b>	<b>Check by</b>	<b>Design by</b>
		May-15-2007	May-10-2005	Jan-16-1999
<b>Reversions</b>	<b>Total Page</b>	Xu gang dong	Liu jun	Wang hong
CU-002SDIP				

## SPECIFICATION OF CRYSTAL UNIT

### 1. RANGE:

This specification shall cover the characteristics of crystal unit with Strong's P/N: 49S-49S2-3.000M-150.0000M

### 2. ELECTRICAL SPECIFICATION

ITEM	SPECIFICATION
PACKAGE TYPE	49S/49S2
NOMINAL FREQUENCY	3.000MHz-150.000MHz
LOAD CAPACITANCE	20PF, or Specify
OSCILLATION MODE	Fundamental, or 3rd
FREQUENCY TOLERANCE AT 25°C ± 5°C	± 10PPM, or specify
EQUIVALENT SERIES RESISTANCE	Table 1
DRIVE LEVEL	1.0MW
OPERATING TEMPERATURE RANGE	-20°C~+70°C, or -40°C~+85°C
STORAGE TEMPERATURE	-55°C~+105°C
FREQUENCY STABILITY	± 10PPM, or Specify
SHUNT CAPACITANCE	<7PF
AGING	± 3PPM/YEAR
INSULATION RESISTANCE	>500MΩ at DC 100V ± 15V

### 3. MECHANICAL SPECIFICATION

#### 1) Terminal Strength

##### \* Lead pulling test

Conditions:	Load	907.2 gram
	Direction	To the downward
	Duration of applied force	5 seconds
Results:	There should be no distortion in appearance.	

##### \* Lead bending test

Conditions:	Load	453.6 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 solderability test

Conditions:	Dipping in solder(+230°C ± 5°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	0.762mm
	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	30cm
	Number of drops	3 times
Results:	Frequency and wave form of tested products must remain within specifications.	

## 4. ENVIRONMENTAL SPECIFICATION

## 1) Temperature test

## \* Temperature cycling test

Conditions:	Steps of cycle	1) At -55°C,30 minutes
		2) At +25°C,10 - 15 minutes
		3) At +85°C,30 minutes
		4) At +25°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°C ± 2°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°C ± 20°C
	Length of test	96 hours
Results:	Deviation of frequency must be less than ± 3ppm	

## 3) Salt spray test

Conditions:	Temperature	+35°C ± 2°C
	Length of test	48 hours
	NaCl %	5%

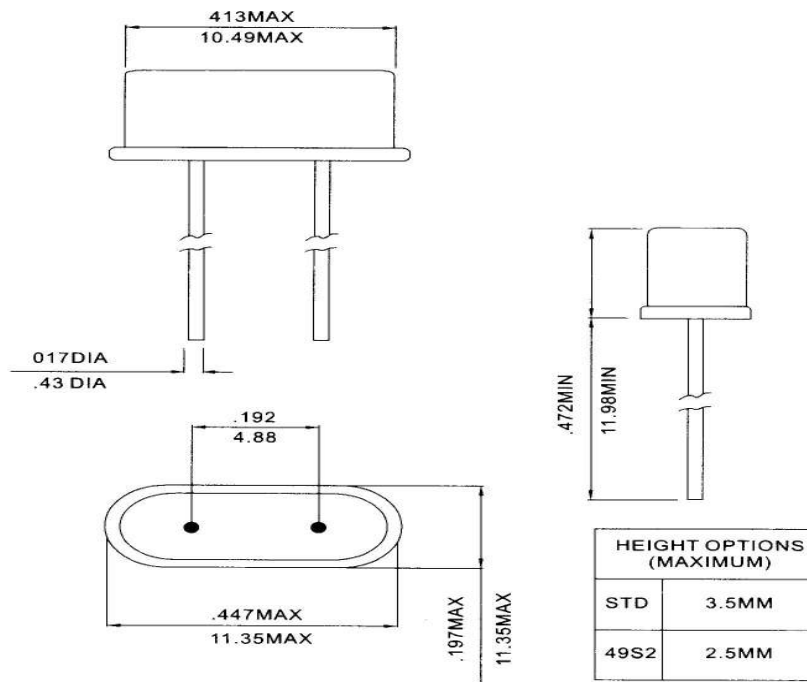
Results: There should be no stain on surface of products.

4) Humidity test

Conditions: Temperature +40°C ± 2°C  
 Relative humidity 90 - 95%  
 Length of test 96 hours

Results: a. Insulation resistance must be 500 MΩ /100 Vac. minimum  
 b. Resistance and wave form must remain within specifications.

5. Dimension (49S)



Frequency	3.0~3.9MHz	4.0~4.9MHz	5.0~5.9MHz	6.0~7.9MHz	8.0~9.9MHz	10.0~14.9MHz	15.0~54.0MHz	36.0~150.0MHz
Mode	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental	3rd
ESR	150 ohmsMax.	130 ohmsMax	120 ohmsMax	100 ohmsMax	80 ohmsMax	60 ohms Max.	40 ohms Max.	70 ohms Max.