



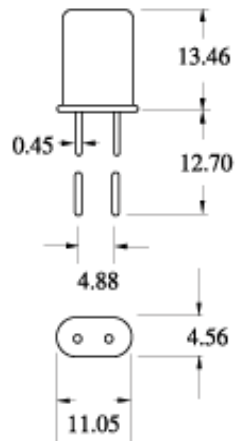
### 1. SCOPE

This specification shall cover the characteristics of crystal unit with HC-49/U 3.579545—27.00MHz

### 2. ELECTRICAL SPECIFICATION

ITEM	SPECIFICATION
HOLDER TYPE	HC-49/U
NOMINAL FREQUENCY	3.579545—27.00MHz
LOAD CAPACITANCE	10PF to series
OSCILLATION MODE	Fundamental
FREQUENCY TOLERANCE AT 25°C ±2°C	± 30PPM
EQUIVALENT SERIES RESISTANCE	Based on frequency
DRIVE LEVEL	0.5 MW
OPERATING TEMPERATURE RANGE	-20°C ~+70°C
FREQUENCY STABILITY	± 30PPM
SHUNT CAPACITANCE	<7PF
AGING	± 5PPM/YEAR
INSULATION RESISTANCE	>500M Ω at DC 100V

### 3. DIMENSION





#### 4. 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 solder ability 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.



## 5. ENVIRONMENTAL SPECIFICATION

### 1) Temperature test

#### \* Temperature cycling test

Conditions:	Steps of cycle	1) At $-55^{\circ}\text{C}$ , 30 minutes 2) At $+25^{\circ}\text{C}$ , 10 - 15 minutes 3) At $+85^{\circ}\text{C}$ , 30 minutes 4) At $+25^{\circ}\text{C}$ , 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	$+85^{\circ}\text{C} \pm 20^{\circ}\text{C}$
	Length of test	96 hours

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

### 3) Salt spray test

Conditions:	Temperature	$+35^{\circ}\text{C} \pm 2^{\circ}\text{C}$
	Length of test	48 hours
	NaCl %	5%

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

### 4) Humidity test

Conditions:	Temperature	$+40^{\circ}\text{C} \pm 2^{\circ}\text{C}$
	Relative humidity	90 - 95%
	Length of test	96 hours

Results: a. Insulation resistance must be  $500\text{ M}\Omega/100\text{ Vac}$ . minimum  
b. Resistance and wave form must remain within specifications.