

SPECIFICATION OF CRYSTAL UNIT

1. Range:

This specification shall conform with the characteristics of crystal unit with P/N: UM-5-20.945-18-10-10-D

2. ELECTRICAL SPECIFICATION

ITEM	SPECIFICATION
HOLDER TYPE	UM-5 2 pin
NOMINAL FREQUENCY	20.945MHz
LOAD CAPACITANCE	18 pF
OSCILLATION MODE	Fundamental
FREQUENCY TOLERANCE AT 25°C ± 2°C	± 10PPM
EQUIVALENT SERIES RESISTANCE	25 Ω max.
DRIVE LEVEL	0.1mW
OPERATING TEMPERATURE RANGE	-40°C~+85°C
STORAGE TEMPERATURE	-55°C~+125°C
FREQUENCY STABILITY AT OPERATING RANGE	± 10PPM
SHUNT CAPACITANCE	<7.0PF
AGING	± 5PPM/YEAR
INSULATION RESISTANCE	>500M Ω

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 $+40^{\circ}\text{C} \pm 2^{\circ}\text{C}$
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.

5. Dimension

