

Shoulder 好达

SHOULDER ELECTRONICS LIMITED

CRYSTAL RESONATOR Data Sheet

PRODUCT 产 品: CRYSTAL RESONATOR

MODEL NO 型 号: 49S-SMD

PREPARED 编 制: Fengyu

CHECKED 审 核: York

APPROVED 批 准: Lijiating

DATE 日 期: 2008-01-25

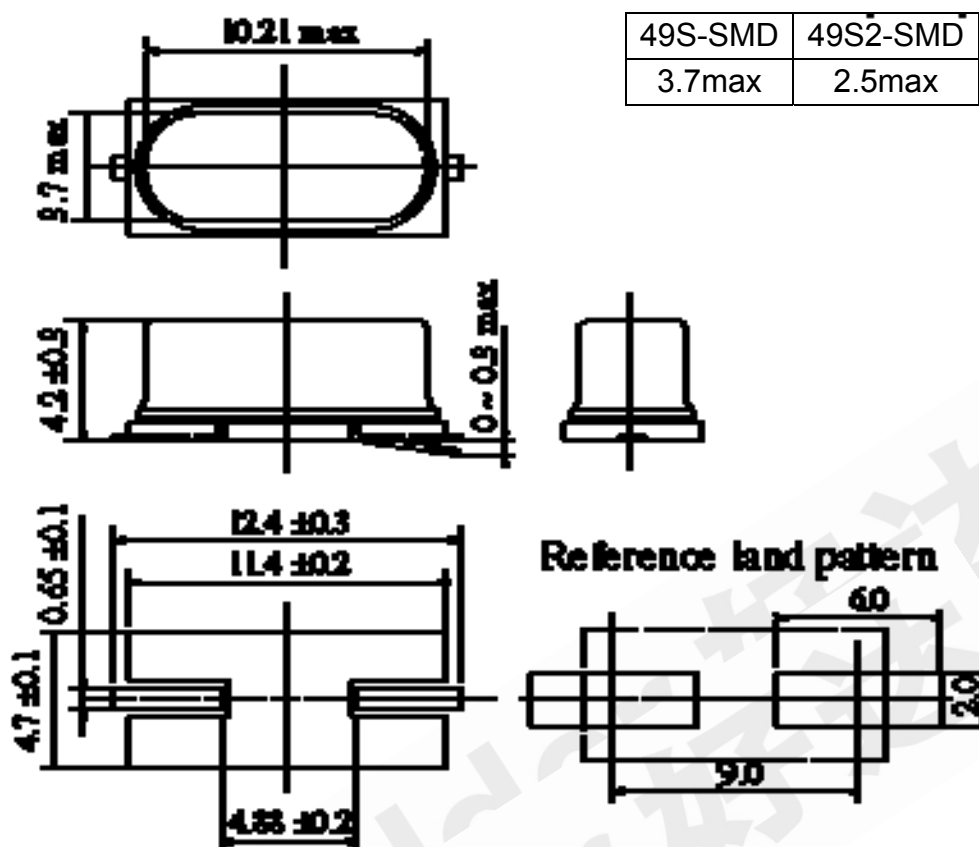
1.SPECIFICATION

FREQUENCY RANGE	3.579545-80.000MHz
LOAD CAPACITANCE	10PF TO SERISE
FREQUENCY TOLERANCE AT 25°C	-/+30PPM MAXIMUM
FREQUENCY STABILITY AT -10 TO +60°C	-/+30PPM MAXIMUM
OPERATING TEMPERATURE RANGE	-10 TO +60°C
STORAGE TEMPERATURE RANGE	-40 TO +85°C
EQUIVALENT SERIES RESISTANCE (ESR)	SEE ESR TABLE
DRIVE LEVEL	1.0 mW MAXIMUM
SHUNT CAPACITANCE	7PF MAXIMUM
AGING	-/+5PPM PER YEAR
INSULATION RESISTANCE	500 MOhm MINIMUM

2. ESR TABLE (Ohm)

Overtone	Frequency Range (MHz)	Equivalent Series Resistance (Ω)
Fundamental	3.5 ~ 4.0	150 max
	4.0 ~ 8.0	120 max
	8.0 ~ 12.0	60 max
	12.0 ~ 27.0	40 max
3rd overtone	26.0 ~ 35.0	140 max
	35.0 ~ 50.0	100 max

3. DIMENSIONS



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 solderability test

Conditions: Dipping in solder(+230℃±5℃)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°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

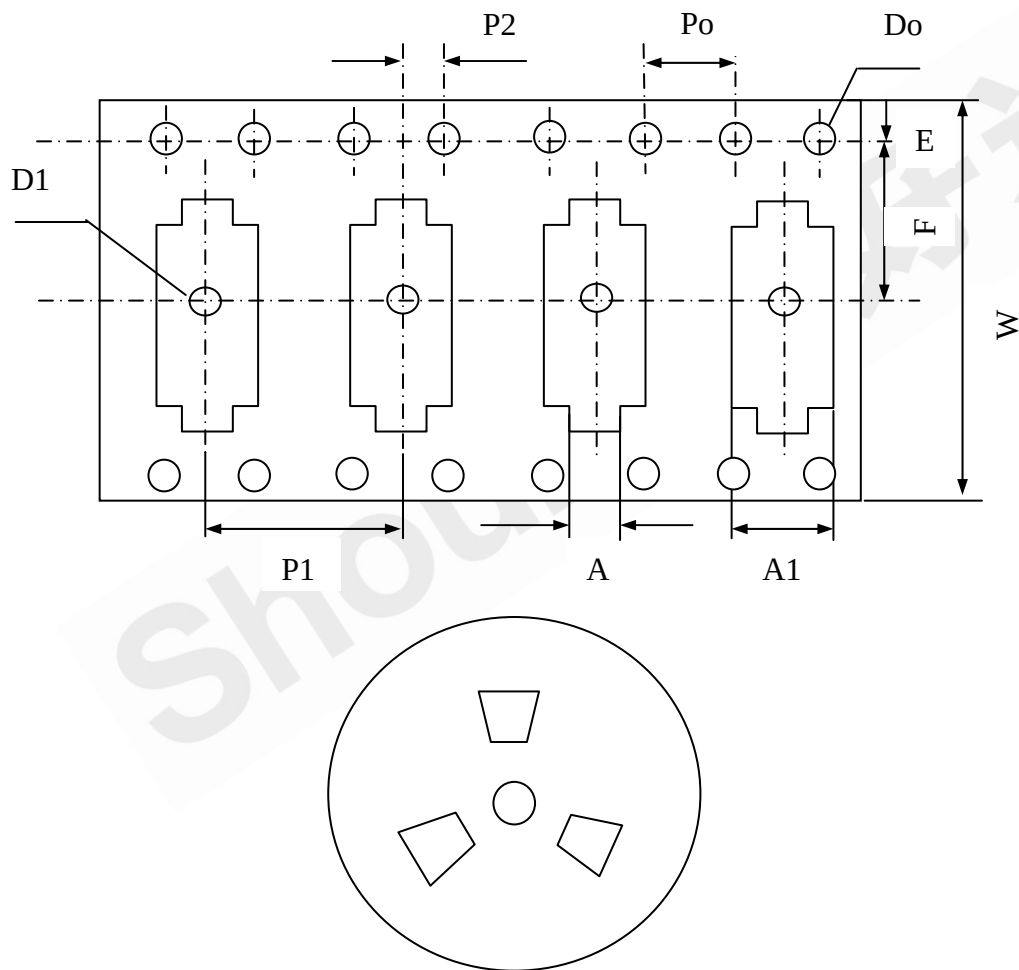
Conditions: Temperature $+40^{\circ}\text{C}\pm 2^{\circ}\text{C}$
Relative humidity 90 - 95%
Length of test 96 hours

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

6. PACKAGE

1000PCS / BOX (345X335X36)

10000PCS / CARTON (360X360X410)



Symbol	A	P1	P2	Po	Do	F	W
Dimensions	5.0	8.0 or 12.0	2.0	4.0	1.6	11.5	24.0
Symbol	E	D1					
Dimensions	1.8	2.2					