



深圳市科源信科技有限公司
Shenzhen KeYuanXin Technology CO.,LTD

产 品 规 格 书

SPECIFICATION FOR APPROVAL

深圳市福田区振华路 118 号华丽装饰一栋西座 306A
306A Block West Building 1, Huali Decoration
NO.118 Zhenhua Road Futian District Shenzhen
电话 TEL: 4008-735-535 传真 FAX: 0755-23616323



KEYUANXIN TECHNOLOGY GO.,LTD

Product Name: Crystal

Product Type: HC-49SMD

Nominal Freq: 12.0000MHz

ProvideBrand: KKST

P/N: KDT12000H03R

Customer P/N:

Approved By Customer

Signature:

Date:



CONTENT

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NO.2 Product outline dimension

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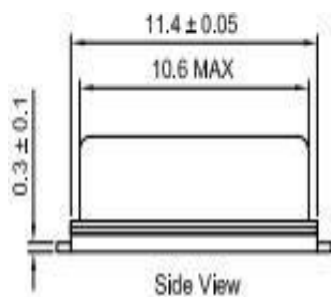


N0.1 Product specification and features

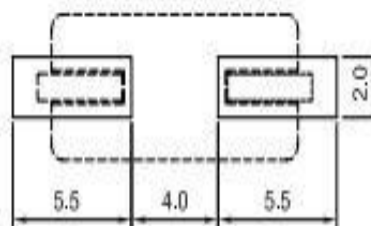
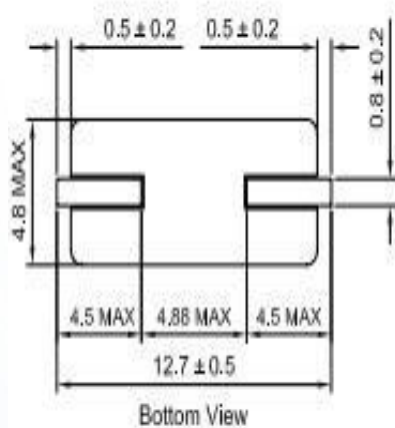
1.1 General characteristics		
Nominal frequency	12.000000MHz	
Overtone order	Fundamental	
Type	HC-49SMD	
Operating temperature	-20~70 °C	
Storage temperature	-40~85 °C	
1.2 Electric characteristics		
Adjustment tolerance: (at+25℃)	±20 ppm	
Tolerance over the temperature:	±20 ppm	
Load capacitance	20.0 pF	
Drive level	10.0 μW	
Shunt capacitance	7.0pF Max	
Equivalent resistance	100.0 Ω Max	
Insulation resistance	500 M Ω Min	100VDC±15VDC
Aging	±3ppm/Year	
1.3 Other characteristics		
SPDB	<-3 dB	

NO.2 Outline dimensions、Appearances

2.1 Product outline dimension(mm)



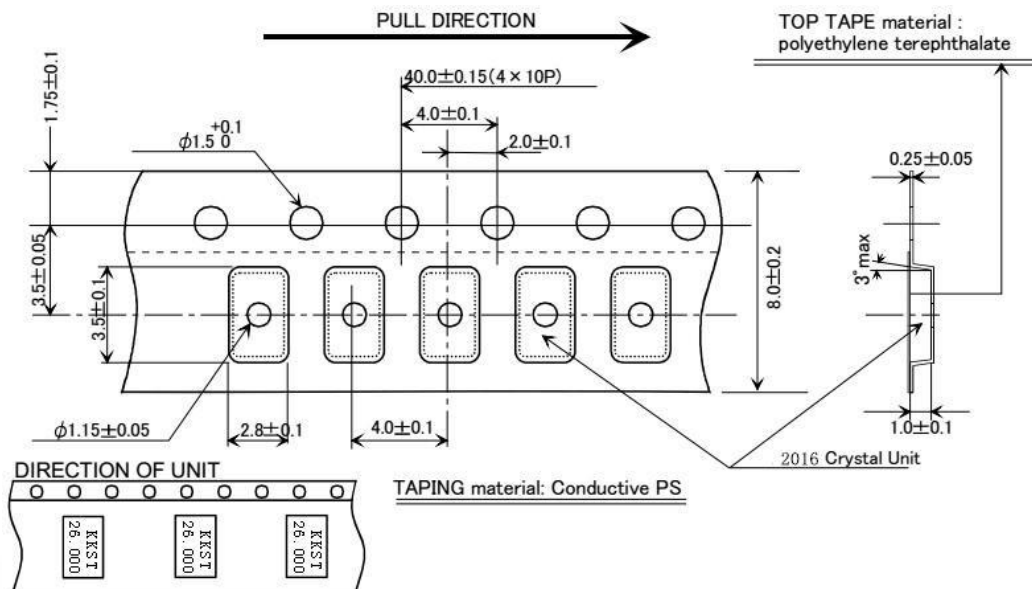
TYPE	H (SMD HIGH)	h (BODY HIGH)
S3	3.8 ± 0.3	3.3 ± 0.3
S2	3.0 ± 0.3	2.3 ± 0.3



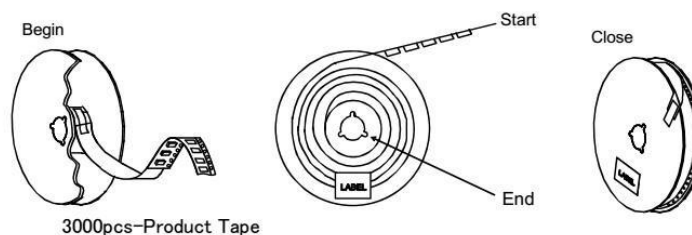
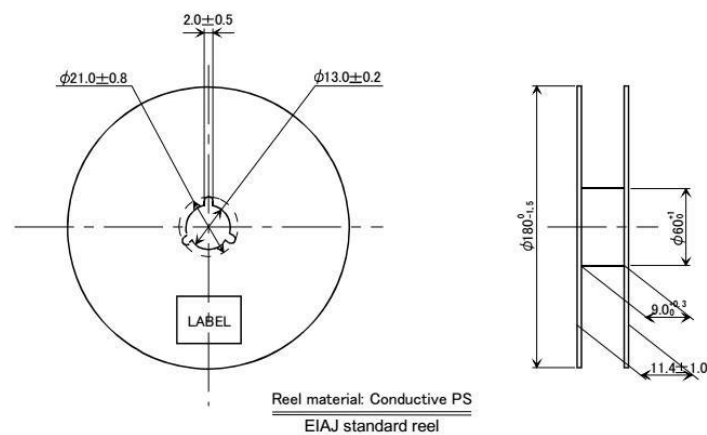
Top View Suggested Layout

Units: mm

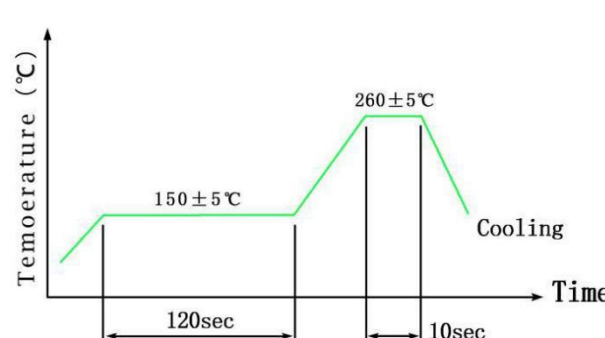
2.2 Carrier Dimensional Drawing (mm)



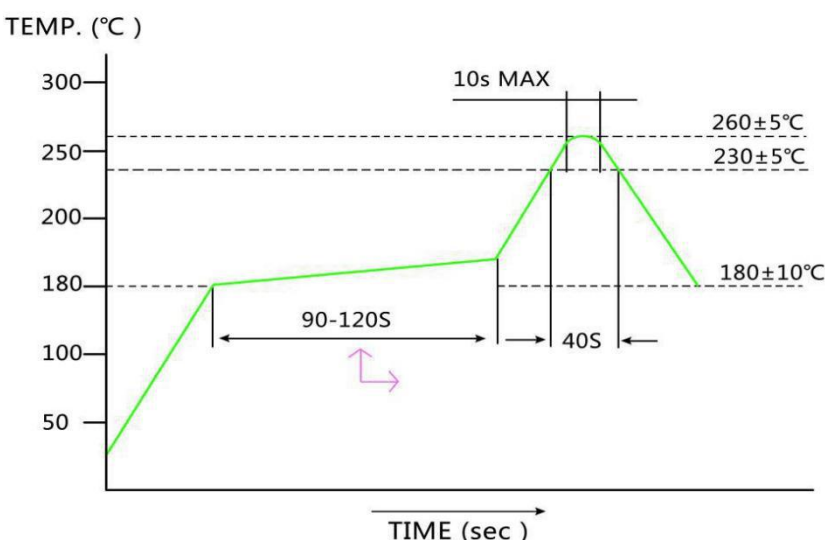
2.3 Reel Dimensional Drawing (mm)



NO.3 Product reliability

Item	Condition	Result
A1	Cold resistance Stored at $-40\pm 2^{\circ}\text{C}$ for 1000 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing	(I)
A2	Heat resistance Stored at $85\pm 2^{\circ}\text{C}$ for 1000 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing	(I)
A3	Salt Mist Test Spray the $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$ salt water (salt density 5%) to crystal for 48 ± 2 hrs,then clean by water	(I)
A4	Humidity Resistance Result Steady temperature: $60\pm 2^{\circ}\text{C}$;humidity: 90 ~ 95 % RH; time:500h	(I)
A5	Mechanical Shock 14700m/S^2 0.5sec 5times in each of 6 direction	(I)
A6	Aging Stored at $85\pm 3^{\circ}\text{C}$ for 720 ± 12 Hrs then $25\pm 2^{\circ}\text{C}$ 1~2 Hrs before testing Stored at $25\pm 2^{\circ}\text{C}$ for 1 ± 0.03 year	(I)
A7	Leakage Fine leak: Helium leak test *JIS C 6701 10.6	(V)
A8	Temperature Cycle $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$, Dewell 30Min, 100 cycles  The graph shows Temperature (°C) on the y-axis and Time on the x-axis. The cycle consists of three segments: a heating ramp to $150\pm 5^{\circ}\text{C}$, a dwell at $150\pm 5^{\circ}\text{C}$ for 120sec, and a heating ramp to $260\pm 5^{\circ}\text{C}$ followed by a dwell at $260\pm 5^{\circ}\text{C}$ for 10sec. The final segment is labeled 'Cooling'.	(I)

3.1 Mechanism characteristics

B.1	Drop Test Device are dropped from a height of 100 cm onto 20mm thickness stainless plate executing 3 times of random drops	(I)
B.2	Resistance of Vibration Frequency: 10~55Hz, amplitude(total excursion): 1.5mm±15%,3 direction (X,Y,Z) each 2 hr	(I)
B.3	Resistance to soldering heat (Hand soldering method) Temperature: 370~400℃; Time: 3~4sec; Frequency: 2 times; Soldering iron: 60W/Min	(I)
B.4	Solderability 240±2℃, 3±0.5sec	(II)
B.5	Reflow) Resistance to soldering heat (Reflow) 260±5℃; 10S; 2Times Reflow  The graph shows a temperature profile for reflow soldering. The y-axis is labeled 'TEMP. (°C)' with values from 50 to 300. The x-axis is labeled 'TIME (sec)'. - The temperature starts at 50°C and rises to 180°C. - It then rises to 230°C, where it remains for 90-120 seconds. - Next, it rises to a peak of 260°C, which is maintained for a maximum of 10 seconds. - Finally, it cools down to 180°C, a process that takes 40 seconds. - Horizontal dashed lines indicate temperature thresholds: 260±5°C, 230±5°C, and 180±10°C. - A pink arrow points to the 90-120S dwell time at 230°C.	(I)



Item	Result NO.	Specification Requirements
1	(I)	Frequency variation $< \pm 10 \text{ppm}$ Resistance variation $< 5 \Omega$ or 15% of RR spec., select the bigger value
2	(II)	The covering rate of Tin-plating is more than 95%
3	(III)	There is no bubbles after the Crystal is dipped in the water Insulation Resistance: $500 \text{ M}\Omega$ Min $100 \text{VDC} / \pm 15 \text{VDC}$
4	(IV)	The Crystal is no crackle under the observation of 10 times Magnifier.
5	(V)	$1 \times 10^{-9} \text{Pa} \cdot \text{m}^3/\text{s}$ Max



NO.4 Package specification

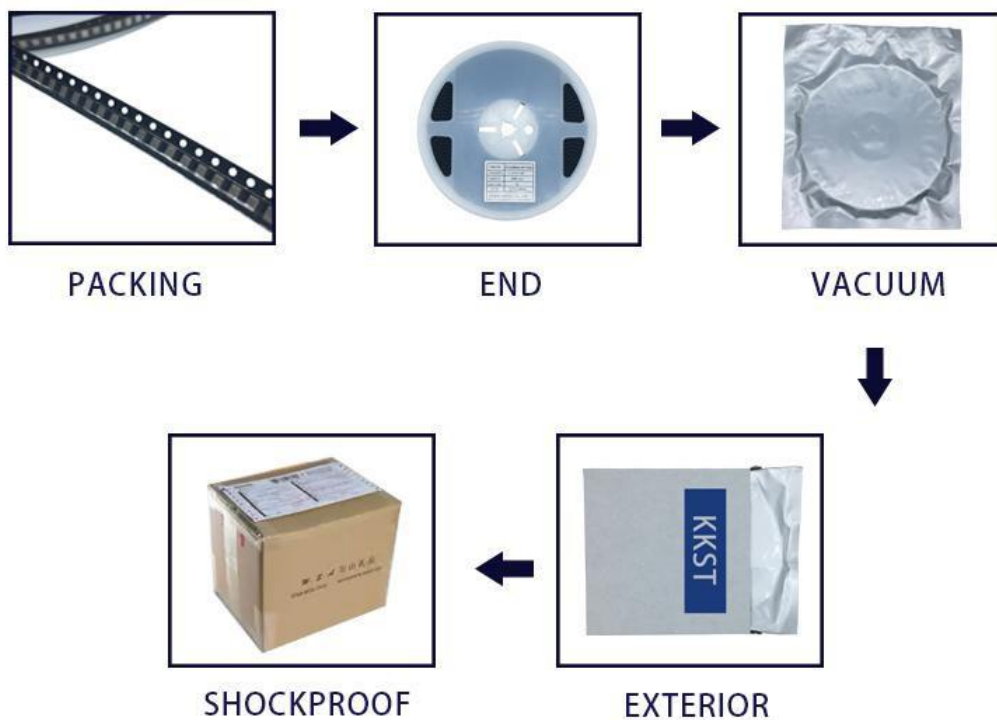
4.1 Marking



4.2 Label

KKST KEYUANXIN TECHNOLOGY GO.,LTD		
Item	Crystal	QTY: 1000PCS
P/N	KDT12000H03R	
FREQUENCY	12.000MHz	DATE: 2018-03-9

4.3 Package specification





KEYUANXIN TECHNOLOGY GO.,LTD

浏览网址: www.szkyx.cn