



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



Product Name:

Crystals

Product Type:

HC-49S

Nominal Freq:

13.5600MHz

ProvideBrand:

KKST

P/N:

KCR13560H03R

Customer P/N:

Approved By Customer

Signature: _____

Date: _____



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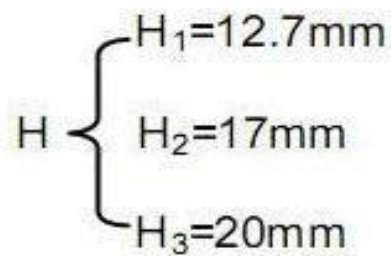
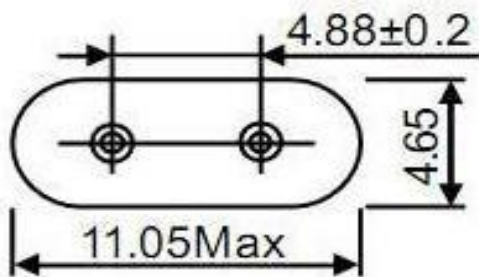
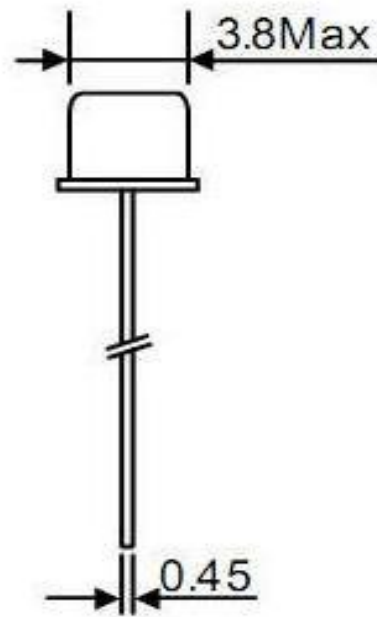
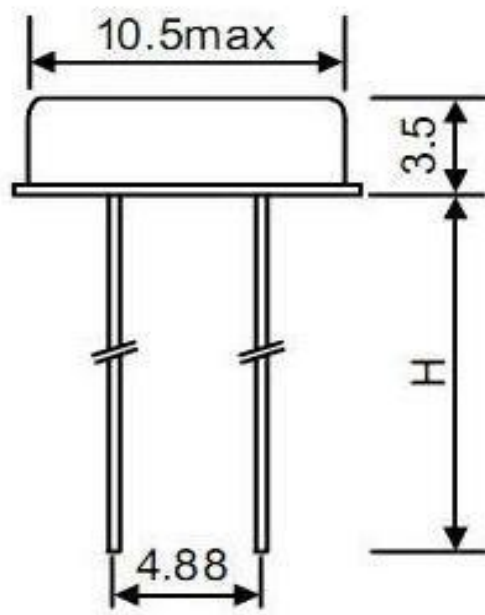
N0.1 Product specification and features

1.1 General characteristics	
Nominal frequency	13.560000MHz
Overtone order	Fundamental
Type	HC-49S
Operating temperature	-20~70 °C
Storage temperature	-40~85 °C
1.2 Electric characteristics	
Adjustment tolerance: (at+25°C)	±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 MΩ Min 100VDC±15VDC
Aging	±3ppm/Year
1.3 Other characteristics	
SPDB	<-3 dB

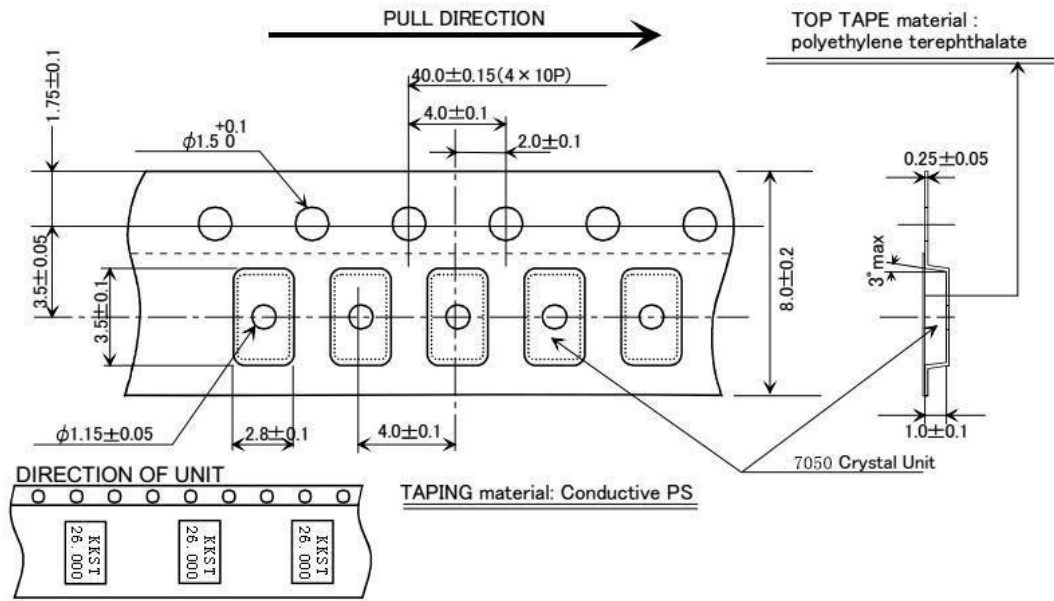
NO.2 Outline dimensions、Appearances

2.1 Product outline dimension(mm)

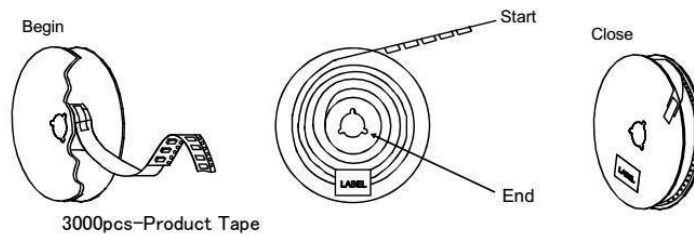
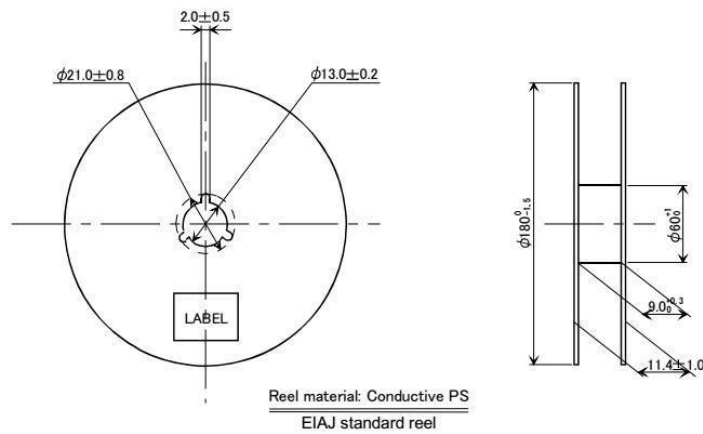
HC-49S



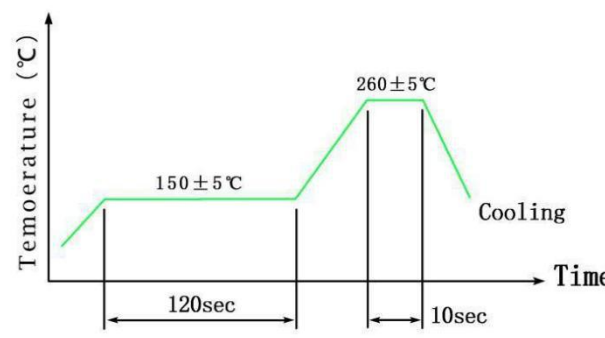
2.2 Carrier Dimensional Drawing (mm)



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 $14700\text{m}/\text{S}^2$ 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	<p>Temperature Cycle $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$, Dewell 30Min, 100 cycles</p>  <p>The graph plots Temperature (°C) on the vertical axis against Time on the horizontal axis. It shows a temperature cycle with two heating phases and one cooling phase. The first heating phase reaches a plateau at $150 \pm 5^{\circ}\text{C}$ and is maintained for 120 seconds. The second heating phase reaches a higher plateau at $260 \pm 5^{\circ}\text{C}$ and is maintained for 10 seconds. The cooling phase is labeled 'Cooling' and shows the temperature decreasing from the second plateau.</p>	(I)

3.1 Mechanism characteristics

<p>B.1</p>	<p>Drop Test Device are dropped from a height of 100 cm onto 20mm thickness stainless plate executing 3 times of random drops</p>	<p>(I)</p>
<p>B.2</p>	<p>Resistance of Vibration Frequency: 10~55Hz, amplitude(total excursion): 1.5mm±15%,3 direction (X,Y,Z) each 2 hr</p>	<p>(I)</p>
<p>B.3</p>	<p>Resistance to soldering heat (Hand soldering method) Temperature: 370~400°C; Time: 3~4sec; Frequency: 2 times; Soldering iron: 60W/Min</p>	<p>(I)</p>
<p>B.4</p>	<p>Solderability 240±2°C, 3±0.5sec</p>	<p>(II)</p>
<p>B.5</p>	<p>Reflow) Resistance to soldering heat (Reflow) 260± 5°C; 10S; 2Times</p> <p style="text-align: center;">Reflow</p> <p>The graph shows a temperature profile for reflow soldering. The y-axis is labeled 'TEMP. (°C)' and ranges from 50 to 300. The x-axis is labeled 'TIME (sec)'. The profile starts at 50°C, rises to 180°C, and remains there for 90-120 seconds. It then rises to a peak of 260±5°C, which is maintained for a maximum of 10 seconds. After the peak, the temperature falls to 180±10°C, which is maintained for 40 seconds before cooling further.</p>	<p>(I)</p>



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)	$1 * 10^{-9} \text{Pa.m}^3/\text{s}$ Max

NO.4 Package specification

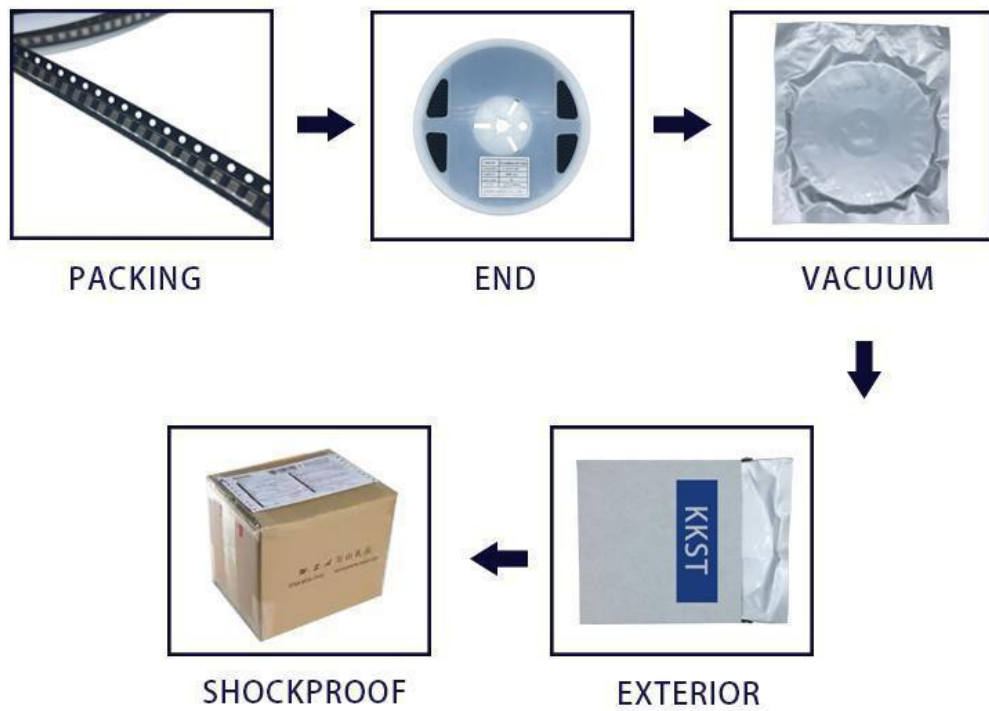
4.1 Marking



4.2 Label

KEYUANXIN TECHNOLOGY GO.,LTD		
Item	Crystal	QTY: 200PCS
P/N	KCR13560H03R	
FREQUENCY	13.560MHz	DATE: 2018-03-9

4.3 Package specification





KEYUANXIN TECHNOLOGY GO.,LTD

浏览网址：www.szkyx.cn