

(RoHS)

## 产品规格书

## SPECIFICATION FOR APPROVAL

客户名称:

Customer Name:

产品名称:

Product Name:

石英晶体谐振器

产品型号:

Product Type:

HC-49S

标称频率:

Nominal Freq:

16.000000MHz

产品编号:

Part Coding

5S0-1600A1020-01

规格书编号:

Specification P/N:

XTY0292-5021

客户料号:

Customer P/N:

C389707

日期:

Date:

2019-06-12

客户承认

Approved By Customer:

签章

Signature:

日期

Date:



深圳市新天源电子有限公司

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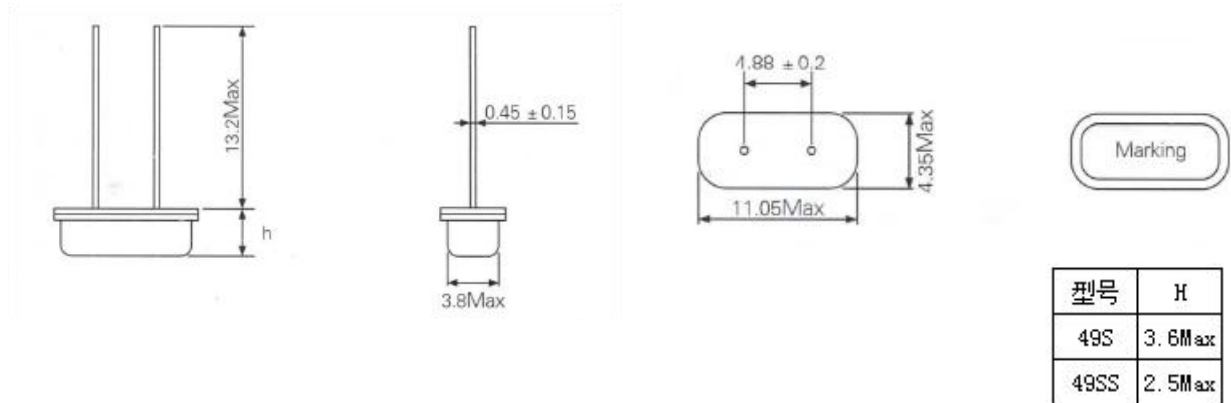
E-mail: [xyt@chinaxy.cn](mailto:xyt@chinaxy.cn) 网址: [//www.chinaxy.cn](http://www.chinaxy.cn)批准  
Accepted审核  
Checked编制  
Issued 陈梅东



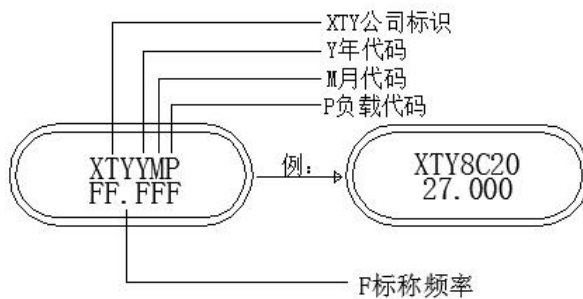
<p>深圳市新天源电子有限公司</p> <p>Shenzhen Xintianyuan Electronics Co., Ltd.</p>	<p>石英晶体谐振器规格书</p> <p>Specification of Quartz Crystal</p>	<p>NO: XTY0292-5021</p>
	<p>HC-49S</p>	<p>Date: 2019/06/12</p>
<p>一、石英晶体规格参数</p> <p>Quartz Crystal Specification Parameters</p>		
<p>1、产品型号</p> <p>Holder Type</p>	<p>HC-49S</p>	
<p>2、标称频率</p> <p>Nominal Frequency</p>	<p>16.000000MHz</p>	
<p>3、振动模式：</p> <p>Mode of Oscillation</p>	<p>Fundamental</p>	
<p>4、调整频差</p> <p>Frequency Tolerance at 25°C ± 2°C</p>	<p>± 20ppm at 25°C ± 2°C</p>	
<p>5、等效电阻</p> <p>Equivalent Resistance (ESR)</p>	<p>≤ 30 Ω</p>	
<p>6、负载电容</p> <p>Load Capacitance (CL)</p>	<p>10pF</p>	
<p>7、温度频差</p> <p>Temperature Characteristics</p>	<p>± 20ppm</p>	
<p>8、工作温度范围</p> <p>Operating Temperature range</p>	<p>-20~+70°C</p>	
<p>9、储存温度范围</p> <p>Storage Temperature range</p>	<p>-40~+85°C</p>	
<p>10、激励功率</p> <p>Drive Level</p>	<p>100uW</p>	
<p>11、静态电容</p> <p>Shunt Capacitance (C0)</p>	<p>&lt; 4.0pF</p>	
<p>12、绝缘电阻</p> <p>Insulation Resistance</p>	<p>≥ 500M Ω (DC100V ± 15V)</p>	
<p>13、测试仪器</p> <p>Measure Instrument</p>	<p>KH1240</p>	
<p>14、年老化率</p> <p>Aging Rate a Year</p>	<p>≤ ± 3ppm/年</p>	

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	HC-49S	Date: 2019/06/12

## 二、石英晶体尺寸、结构 Quartz Crystal Dimensions And Structure



## 三、石英晶体印字 Quartz Crystal Marking



### 印字: Marking

XTY: 新天源

Y为年 (year): 8:2018; 9:2019...

M为月 (Month): A:1; B:2...

P为负载 CL:20: 20pF

FF.FFF为频率Frequency: 27.000

例8C20: 8为2018年, C为3月, 20为20pF;

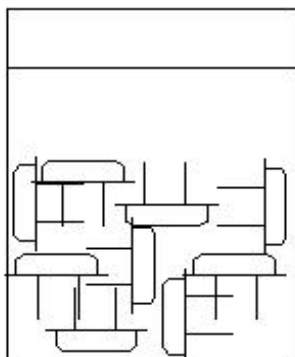
年、月、负载代码:

年	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
代码	5	6	7	8	9	0	1	2	3	4	5	6
月	1	2	3	4	5	6	7	8	9	10	11	12
代码	A	B	C	D	E	F	G	H	I	J	K	L
负载	9pF	10pF	11pF	12pF	13pF	14pF	15pF	16pF	17pF	18pF	19pF	SERIES
代码	9	10	11	12	13	14	15	16	17	18	19	S

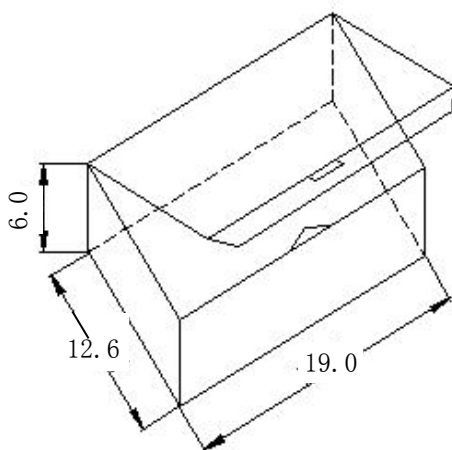
深圳市新天源电子有限公司 Shenzhen Xintianyuan Electronics Co.,Ltd.	石英晶体谐振器规格书 Specification of Quartz Crystal	NO: XTY0292-5021
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四、包装  
Package

200只/1包  
200pcs/Bag



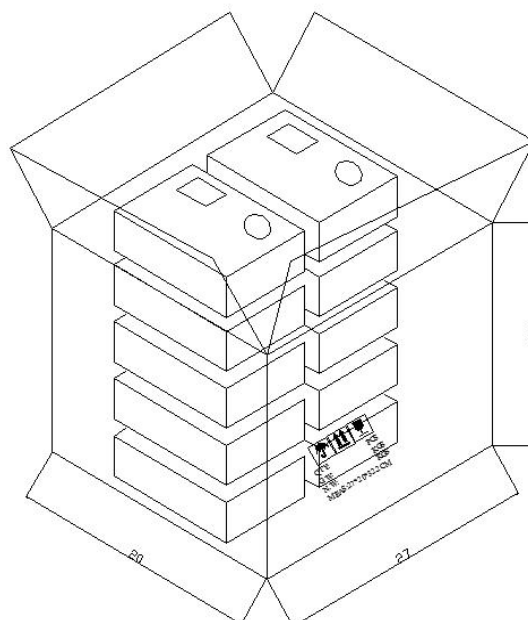
10包=1盒  
10Bag=1Box  
Units: cm



合格证	
频率:	型号:
负载:	电阻:
频差:	数量:
日期:	供应商:
批号:	编号:
订单号:	料号:

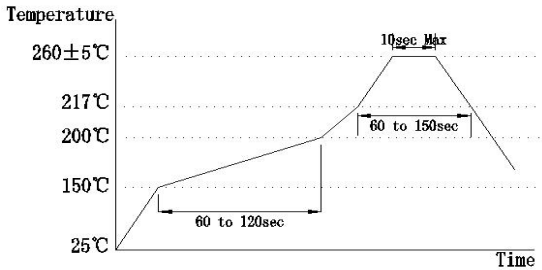
包装箱  
Shipping Carton

27\*20\*32.2 (10 Box)  
27\*20\*20 (6 Box)  
Units: cm



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**五、石英晶体可靠性  
Reliability Test**

NO.	测试项目 Test Item	可靠性条件 Testing Condition	判定标准 Determinant Criteria
1.	跌落 Dropping Test	从75cm高度跌落到30mm厚硬木板上, 跌落三次 Drop the resonators from 75cm height to 30mm thick hardwood board, 3times.	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
2.	振动 Vibration	频率 Frequency:10~60Hz; 幅度 Amplitude:0.75mm; 周期 Cycle time:10-55-10Hz: 1min; 振动方向 Direction:X, Y, Z; 振动时间 Duration: 每个方向2小时 2 h/direction.	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
3.	高温 Heat Resistance	温度Temperature: $125^\circ\text{C} \pm 10^\circ\text{C}$ 时间Time: $720 \pm 24$ Hours	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
4.	低温 Cold Resistance	温度Temperature: $-40^\circ\text{C} \pm 10^\circ\text{C}$ 时间Time: $720 \pm 24$ Hours	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
5.	回流焊 (2次) Reflow (2times)	 <p>回流焊Reflow <math>260^\circ\text{C} \pm 5^\circ\text{C} \leq 10\text{s}</math></p>	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
6.	耐焊接热 Resistance To Soldering Heat	焊接温度Soldering Heat: $320^\circ\text{C} \pm 10^\circ\text{C}$ 测试时间Test Time: $3.5\text{s} \pm 0.5\text{s}$ ;	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)
7.	气密性 Leakage	用氦质谱仪进行检测, 试验气体: He; 真空度: $1 \times 10^{-3}\text{Pa}$ ; Helium mass-mass-spectrometer detector, and vacuum and reach $1 \times 10^{-3}\text{Pa}$ ;	$\leq 1 \times 10^{-8}\text{atm} \cdot \text{cc/S}$
8.	高温高湿 Constant Temperature and Humidity	在温度 $60^\circ\text{C} \pm 5^\circ\text{C}$ , 湿度90%~99%, 储存720小时, 取出2小时后测试; Stored at $60^\circ\text{C} \pm 5^\circ\text{C}$ , Humidity 90%~99% For a period of minimum 720hours. Then $25^\circ\text{C} \pm 3^\circ\text{C}$ and 2 hours before testing	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger) Appearance OK
9.	温度冲击 Temperature Shock	低温Low $-40^\circ\text{C} \pm 2^\circ\text{C}$ (120min) $\leftrightarrow$ 高温High $85^\circ\text{C} \pm 2^\circ\text{C}$ (120min); 循环10次; For 10 cycles	$\Delta FL \leq \pm 5\text{ppm}$ $\Delta RS \leq \pm 10\%$ or $5\Omega$ (whichever is larger)