

(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-49SMD

标称频率:  
Nominal Freq: 12.000000MHz

产品编号:  
Part Coding 5M0-1200A2020-01

规格书编号:  
Specification P/N: XTY0292-5013

客户料号:  
Customer P/N: C389692

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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批准  
Accepted

审核  
Checked

编制  
Issued

陈梅东

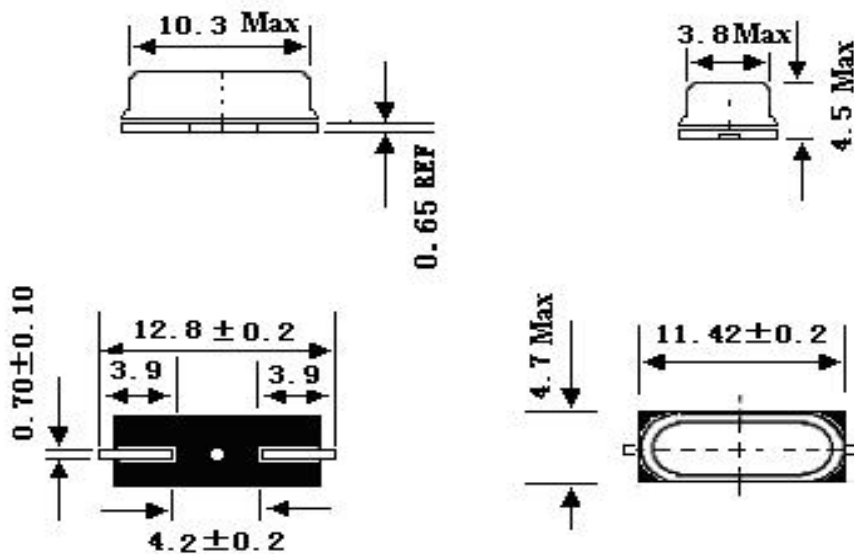


深圳市新天源电子有限公司 Shenzhen Xintianyuan Electronics Co., Ltd.	石英晶体谐振器规格书 Specification of Quartz Crystal	NO: XTY0292-5013
HC-49SMD		Date: 2019/06/12
一、石英晶体规格参数 Quartz Crystal Specification Parameters		
1、产品型号 Holder Type	HC-49SMD	
2、标称频率 Nominal Frequency	12.000000MHz	
3、振动模式： Mode of Oscillation	Fundamental	
4、调整频差 Frequency Tolerance at 25°C ± 2°C	± 20ppm at 25°C ± 2°C	
5、等效电阻 Equivalent Resistance (ESR)	≤ 40 Ω	
6、负载电容 Load Capacitance (CL)	20pF	
7、温度频差 Temperature Characteristics	± 20ppm	
8、工作温度范围 Operating Temperature range	-20 ~ +70°C	
9、储存温度范围 Storage Temperature range	-40 ~ +85°C	
10、激励功率 Drive Level	100uW	
11、静态电容 Shunt Capacitance (C0)	< 4.0pF	
12、绝缘电阻 Insulation Resistance	≥ 500MΩ (DC100V ± 15V)	
13、测试仪器 Measure Instrument	KH1240	
14、年老化率 Aging Rate a Year	≤ ± 3ppm/年	

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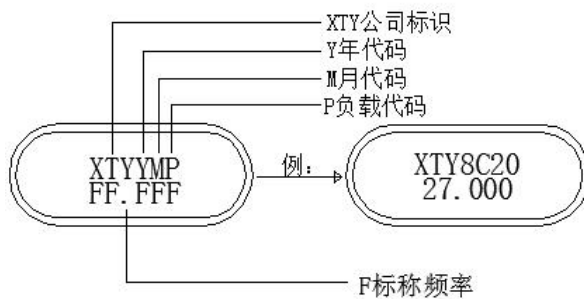
二、石英晶体尺寸、结构

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.FFFM为频率Frequency: 27.000M

例8C20: 8为2018年, C为3月, 20为20pF;

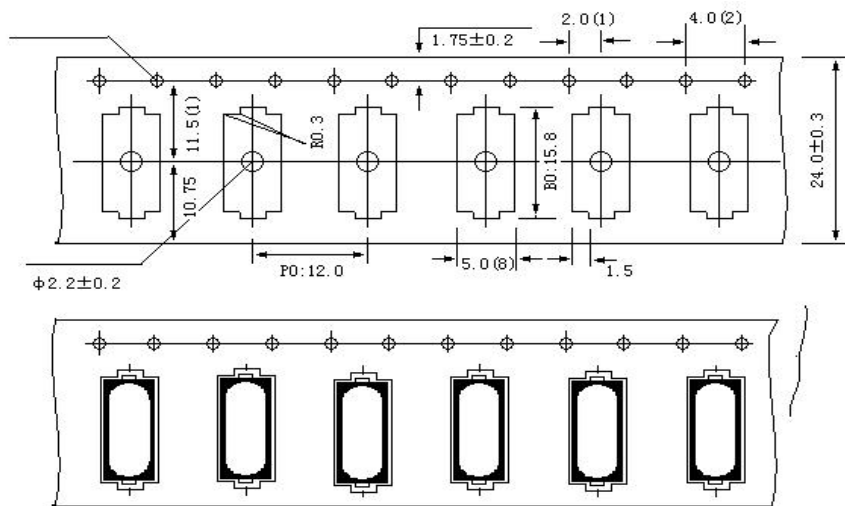
年、月、负载代码:

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

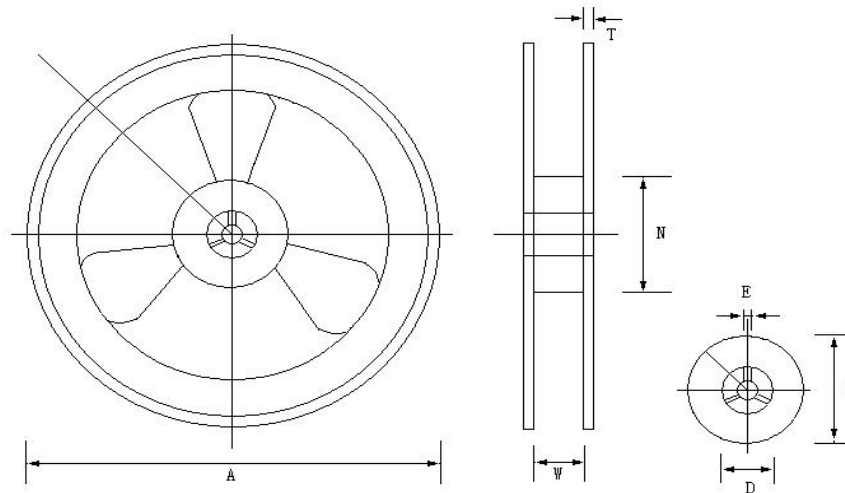
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四、包装要求  
Packaging

1. 编带  
Tape



2. 轮  
Reel

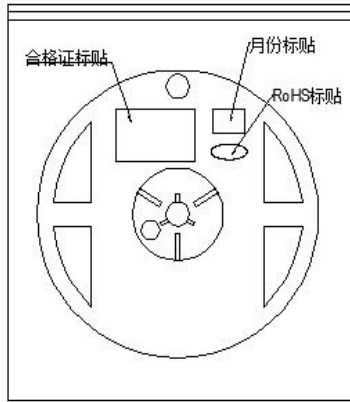


Symbol	A	W	N	C	D	E	T
Dimensions	330	24	99	20.2	13.5	2.5	2.3
Tolerances	$\pm 2.0$	+1/0	$\pm 1.0$	$\pm 1.0$	$\pm 0.5$	$\pm 0.5$	$\pm 0.5$

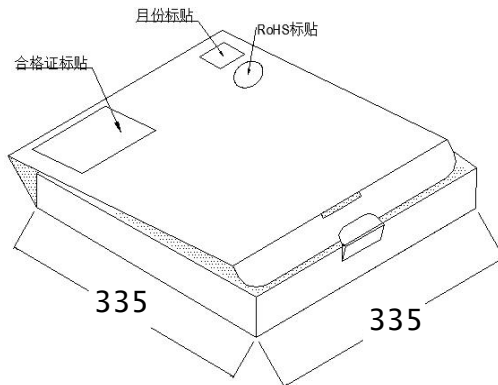
深圳市新天源电子有限公司 Shenzhen Xintianyuan Electronics Co., Ltd.	石英晶体谐振器规格书 Specification of Quartz Crystal	NO: XTY0292-5013
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3. 包装  
Package

1000只/1卷  
1000pcs/Reel

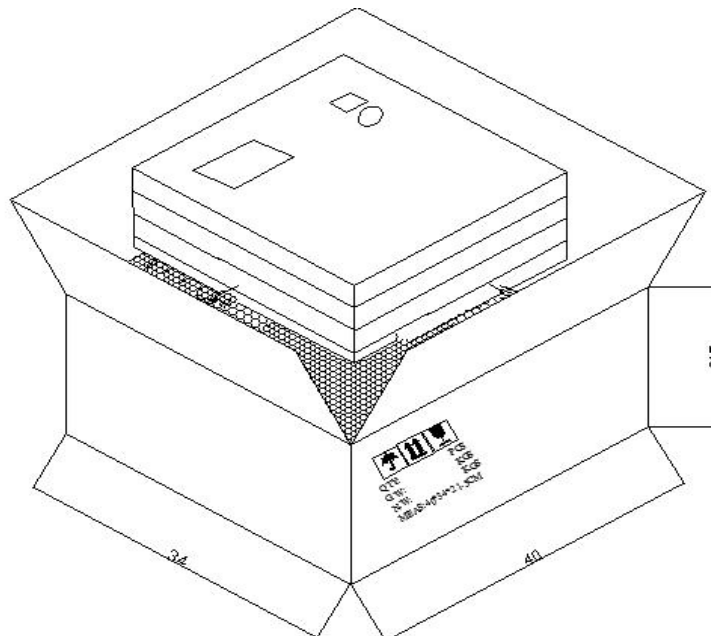


1轮=1盒  
1Reel=1Box  
Unit: mm



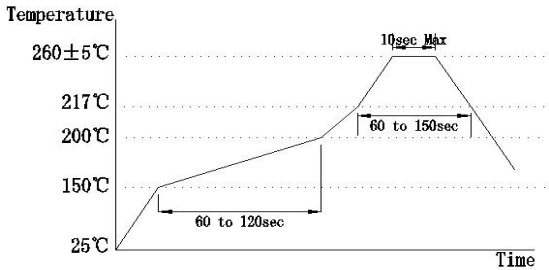
合格证	
频率:	型号:
负载:	电阻:
频差:	数量:
日期:	供应商:
批号:	编号:
订单号:	料号:

包装箱  
Shipping Carton  
40\*34\*21.5 (5 Box)  
Unit: 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)