

SPEC NO.: -181119

Specification

TO:

Model Name: Crystal Unit

PART NO: S3225-12.000M-3.5-30-30

CUSTOMER PART NO.:

Approval sheet:

Approved	Yes
	No.
Customer's comments are welcomed here.	
Please return this copy as a certificate of your approval by Email.	
Approved By	Date: _____

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History Record

Date	Part No.	SPEC No.	Description.	Remarks.
2018-11-17			Initial issue	
	ISO9001:2000 ISO14001:2004	Approved by	Check by	Design by
		Nov-17-2018	NOV-17-2018	NOV-17-2018
Reversions	Total Page	<i>Xu gang dong</i>	<i>Liu jun</i>	<i>Wang hon</i>

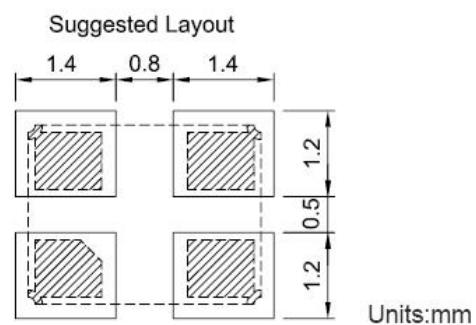
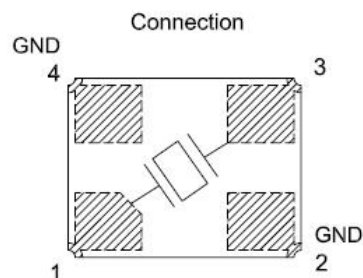
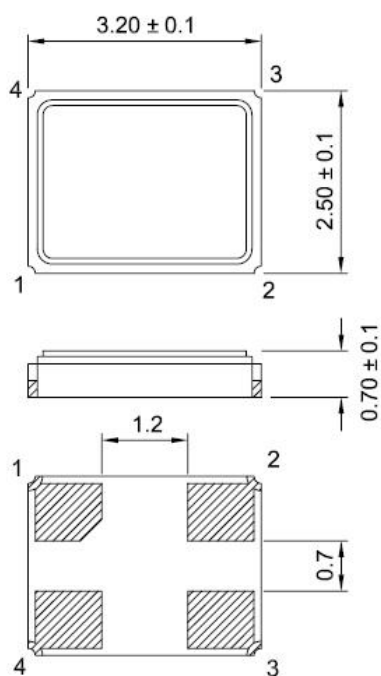
SPECIFICATION OF CRYSTAL UNIT**1. RANGE:**

This specification shall cover the characteristics of crystal unit with
Strong's P/N: S3225-12.000M-3.5-30-30

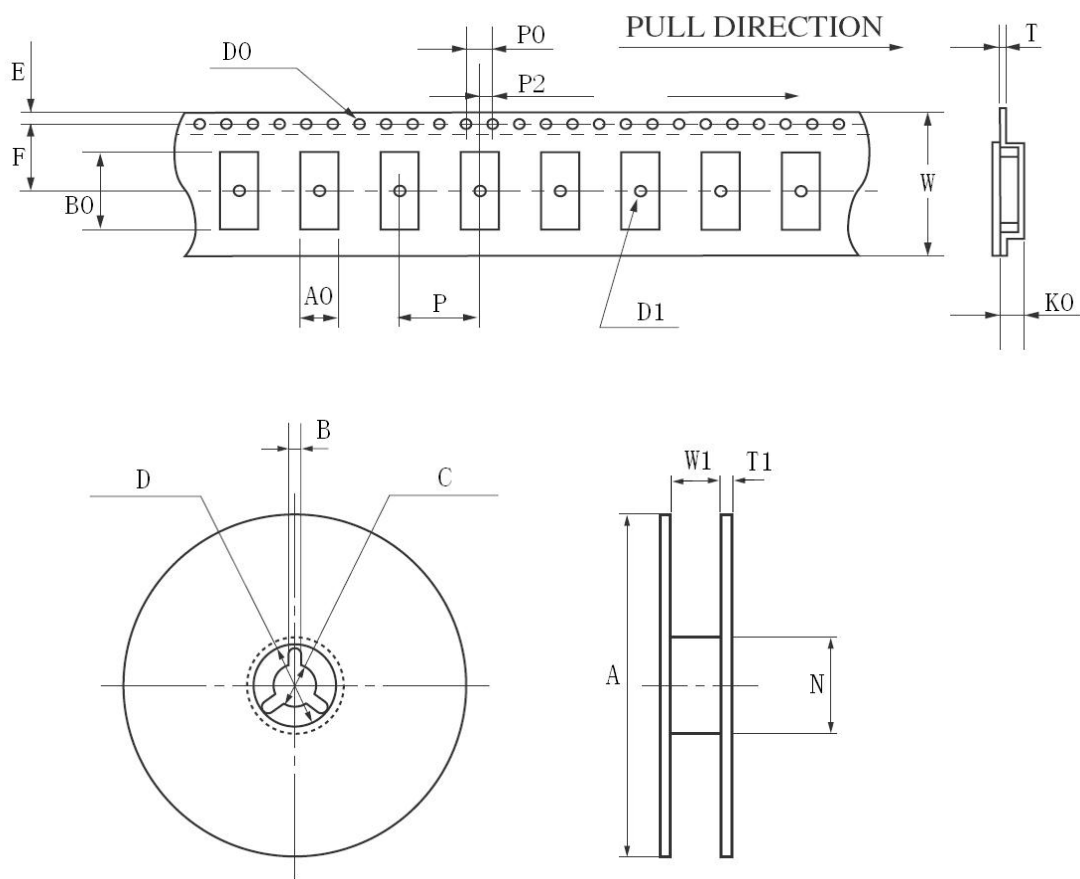
Parameters of the product 产品参数性能

	Parameters 参数	
1	Nominal Frequency 标称频率	12.000MHz
2	Holding 封装形式	S3225
3	Vibration Mode 振动模式	FUND. AT 切,基波
4	Frequency Tolerance @ $25 \pm 3^{\circ}\text{C}$ 调整频差	$\pm 30\text{PPM max,}$
5	Frequency Stability@ 6 工作温度条件下的频率容差	$\pm 30\text{PPM max,}$
6	Operating Temperature Range 工作温度	$-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$
7	Store Temperature Range 存储温度	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
8	Equivalency Resistance 等效电阻	$60\ \Omega\ \text{max}$
9	Load Capacitance 负载电容	3.5PF
10	Drive Level 激励功率	$100\ \mu\text{W max}$
11	Insulation Resistance 绝缘阻抗	$>500\text{M}\ \Omega\ \text{at DC } 100\text{V} \pm 15\text{V}$
12	Load Capacitance 静态电容	7.0PF max
13	Aging 老化	$\pm 5\text{PPM/Year max}$
14	Test Impedance 测试设备	S&A 250B
15	Marking 激光打标	12.000M

Construction 产品结构

1 Outline drawing 外观尺寸
单位:mm

2. Packing Specification



	49S-SMD	S8045	S7050	S6035	S5032	S4025	*S3225
W	24.00±0.30	16.00±0.05	16.00±0.05	12.00±0.05	12.00±0.05	12.00±0.05	12.00±0.05
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	11.5±0.10	7.5±0.10	7.5±0.10	5.5±0.10	5.5±0.10	5.5±0.10	5.5±0.10
T	0.40±0.05	0.35±0.05	0.35±0.05	0.35±0.05	0.35±0.05	0.35±0.05	0.30±0.05
P	12.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10
P0	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P2	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.10
D0	φ1.50±0.10	φ1.50±0.10	φ1.50±0.10	φ1.50±0.10	φ1.50±0.10	φ1.50±0.10	φ1.50±0.10
D1	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.50MIN
A0	4.60±0.10	4.85±0.10	5.40±0.10	3.90±0.10	3.60±0.10	2.80±0.10	2.85±0.10
K0	4.40±0.10	1.90±0.10	1.80±0.10	1.50±0.10	1.10±0.10	0.90±0.10	0.85±0.10
B0	14.20±0.15	8.60±0.15	7.40±0.10	6.40±0.10	5.40±0.10	4.30±0.10	3.55±0.10
A	φ330±1.0	φ178±2.0	φ178±2.0	φ178±2.0	φ178±2.0	φ178±2.0	φ178±2.0
B	2.30±0.20	2.00±0.50	2.00±0.50	2.00±0.50	2.00±0.50	2.00±0.50	2.00±0.50
C	φ13.5±0.20	φ13.2±0.20	φ13.2±0.20	φ13.2±0.20	φ13.2±0.20	φ13.2±0.20	φ13.2±0.20
D	φ21.5±0.20	φ20.0±0.50	φ20.0±0.50	φ20.0±0.50	φ20.0±0.50	φ20.0±0.50	φ20.0±0.50
N	φ100.0±0.5	φ60.5±1.0	φ60.5±1.0	φ60.5±1.0	φ60.5±1.0	φ60.5±1.0	φ60.5±1.0
W1	24.5±0.20	16.5±0.20	16.5±0.20	12.5±0.20	12.5±0.20	12.5±0.20	12.5±0.20
T1	2.30±0.20	1.80±0.20	1.80±0.20	1.80±0.20	1.80±0.20	1.80±0.20	1.80±0.20

ENVIRONMENTAL (可靠性试验)

Test Item 项目	Condition of Test 试验条件及要求	Performance Requirements 性能要求
GROSS LEAK TEST 漏率	Helium: force 200kpa, dipping time 70min, blowing 5min, finishing the measure in 30min. 氦质谱, 压力 200kpa, 浸渍时间 70min, 吹风 5min, 30min 内完成测量泄露率 $\leq 5 \times 10^{-9}$ pa. m ³ /s	$\leq 5 \times 10^{-9}$ pa.m ³ /s
Vibration 振动	Endurance condition by a frequency sweep shall be made. the entire frequency range from 10HZ to 55HZ and return to 10HZ, shall be transversed in 1min. Amplitude (total excursion): 1.5mm This motion shall be applied for a period of 2h each of 3 mutually perpendicular axes(a total of 6h) 振动频率: 从 10HZ 到 55HZ, 再回到 10HZ 1 倍频程/min 幅度为 1.5mm 3 个相互垂直的方向各 2 小时	After the test, the parameters of table must be satisfied 满足表中的参数要求
Drop 跌落	From 750mm height 3 times on 30mm hard wooden floor 振荡器从 750 毫米高处跌落到 30 毫米厚的硬质木板上, 重复 3 次	
Shock 冲击	Peak acceleration: 981m/s ² Duration of the pulse :6ms Three successive shocks shall be applied in both direction of 3 mutually perpendicular axes(a total of 18 shocks) 加速度: 981m/s ² 时间 : 6ms 作用在 3 个相互垂直的方向	
Damp heat, constant 恒定湿热	The unit shall be stored at a temperature of 40℃ ± 2℃ with relative humidity of 90% to 95% for 56d, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. 在温度: 40℃ ± 2℃、湿度: 90% to 95% 条件下存放 56 天, 然后在标准大气压下放置 1 小时后测试	
Cold 低温存储	The unit shall be stored at a temperature of -55 ± 3℃ for 2h , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. 在 -55℃ ± 3℃ 下存放 2 小时, 然后在标准大气压下放置 1 小时后测试	
Dry heat 高温存储	The unit shall be stored at a temperature of 105 ± 3℃ for 16h , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. 在 105℃ ± 3℃ 下存放 16 小时, 然后在标准大气压下放置 1 小时后测试	
Aging 老化	The unit shall be stored at a temperature of 85 ± 2℃ for 30d , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. 在 85 ± 2℃ 下放置 30 天, 然后在标准大气压下放置 1 小时后测试	

ENVIRONMENTAL (可靠性试验)

Test Item 项目	Condition of Test 试验条件	Performance Requirements 性能要求															
Temperature Cycling 温度循环	The unit shall be subjected to 10 successive change of temperature cycles, each as shown in table below, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made. 在下表给定温度和时间参数的条件下循环 10 次，标准大气压下放置 1 小时后测试 <table><tr><th></th><th>Temperature 温度</th><th>Duration 放置时间</th></tr><tr><td>1</td><td>-40℃ ± 3℃</td><td>30min (30 分钟)</td></tr><tr><td>2</td><td>standard atmospheric conditions 标准大气压</td><td>Within 30S 30 秒内</td></tr><tr><td>3</td><td>85℃ ± 3℃</td><td>30min (30 分钟)</td></tr><tr><td>4</td><td>standard atmospheric conditions 标准大气压</td><td>Within 30S 30 秒内</td></tr></table>		Temperature 温度	Duration 放置时间	1	-40℃ ± 3℃	30min (30 分钟)	2	standard atmospheric conditions 标准大气压	Within 30S 30 秒内	3	85℃ ± 3℃	30min (30 分钟)	4	standard atmospheric conditions 标准大气压	Within 30S 30 秒内	After the test, the parameters of table must be satisfied 满足表中的参数要求
	Temperature 温度	Duration 放置时间															
1	-40℃ ± 3℃	30min (30 分钟)															
2	standard atmospheric conditions 标准大气压	Within 30S 30 秒内															
3	85℃ ± 3℃	30min (30 分钟)															
4	standard atmospheric conditions 标准大气压	Within 30S 30 秒内															
Resistance to soldering heat 耐焊接热	Reflow soldering cure see the chart.使用回流焊方法见上图 Soldering iron method: Bit temperature : 350℃ ± 10℃ 温度: 350℃ ± 10℃ Application time of soldering iron : 5S MAX 时间: 5S MAX	The change of the unit frequency is within ±5ppm 频率的变化 ≤ ± 5ppm															

Notice (说明):

Standard atmospheric conditions:

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows:

如无其他规定,测试时的标准大气压的范围如下:

Ambient temperature	:	25°C ±10°C
Relative humidity	:	30% to 80%
Air pressure	:	860hPa to 1060hPa

If there is no doubt about the result, the measurements and tests shall be made within the follows limits:

如果对测试结果有疑问,请在下面的条件下测试:

Ambient temperature	:	25°C ±2°C
Relative humidity	:	55% to 65%
Air pressure	:	860hPa to 1060hPa