福建省长兴电子有限公司
CHANGXING ELECTRONICS CO.,LTD.
福建省将乐县东门新村3号
NO.3 Dong Men New Village Jiangle Country, Fujian
电话：86-598-2329554 传真：86-598-2333554

石英晶体谐振器产品确认书
Quartz Crystal Resonator Specification For Approval

产品型号： Model	Seam3225 4PIN 24.576000MHz
客户名称： Customer	
客户编号： Customer's Part No.	
长兴编号： Product No.	8DSC245G0012L
发行日期： Issue Date	

承办：吴丽萍　　审核：林东国　　批准：吕锡昌

内容：

1、Features 特点
2、Electrical Specifications电气参数
3、Dimensions外型尺寸
4、Marking印码
5、Reflow Condition回流焊条件
6、Packing包装（EIA-481-2）
7、Reliability Specifications可靠性规范
8、Material Composition Declaration产品物质成分表

客户 Conclusion:

□ Conditional Approval　□ Full Approval　□ Reject

会签意见	

APPROVED BY : _____ ISSUED DATE : _____

3.2x2.5x0.7mm SMD Seam Sealing Crystals / 8D Series

- Features 特点
  . High precision and high frequency stability.
  . Extremely good for reducing EMI effect.
  . The best choice of Bluetooth, wireless communication set, DSC, PDA, and mobile phone.
  . RoHS Compliant / Pb Free.

- Electrical Specifications电气参数

Standard atmospheric conditions

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

Ambient temperatu: 22±5℃
Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

Ambient temperatu: 22±1℃
Relative humidity : 40%~70%

Measure equipment

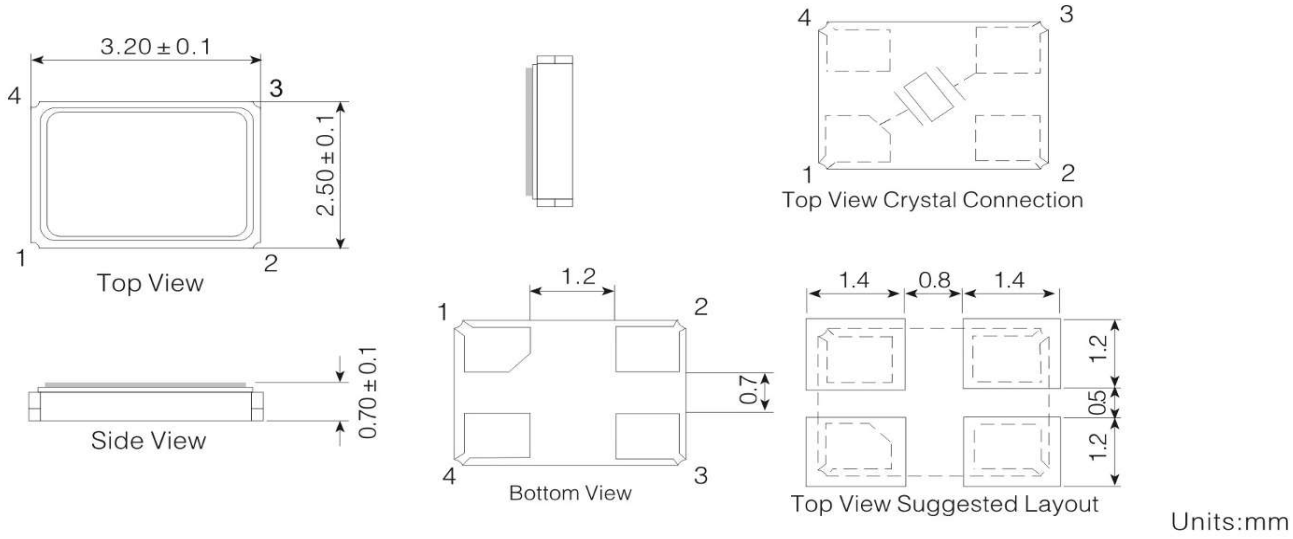
Electrical characteristics measured by HP E5100A or equivalent.

Crystal cutting type

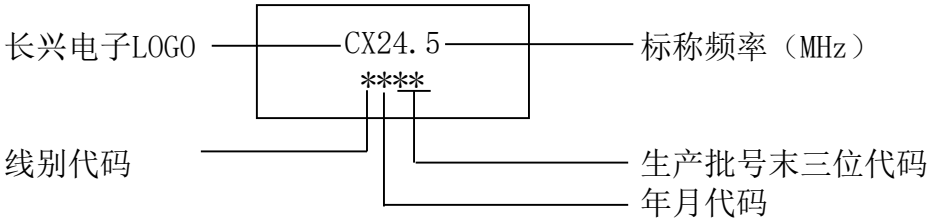
The crystal is using AT CUT (thickness shear mode).

	Parameters	Electrical Spec.	UNITS	Notes
1	Nominal Frequency	24.576000	MHz	-
2	Oscillation Mode	Fund	-	-
3	Load Capacitance	12	pF	-
4	Frequency Tolerance	±10	ppm	at 25 ℃ ± 3 ℃
5	Frequency Stability	±30	ppm	Over Operating Temp. Range
6	Operating Temperature	-40～+85	℃	-
7	Aging	±3	ppm	1st Year
8	Drive Level	100	uW	-
9	Effective Resistance Rr	40 Max.	Ω	-
10	Shunt Capacitance C0	5 Max.	pF	-
11	Motional Capacitance C1	-	fF	-
12	Pulling Sensitivity TS	-	ppm/pF	-
13	Spurious Response	-3.0	dB	-1000～+5000 ppm 125 步
14	Insulation Resistance	500 Min.	MΩ	at DC 100V
15	Storage Temperature Range	-55～+125	℃	-
16	RLD2	40 Max.	Ω	0.01～100μW/Step 30
17	FDLD	10 Max.	ppm	
18	DLD2	10 Max.	Ω	
19	FDLDH	-	ppm	
20	DLDH2	-	Ω	
21	DLDF	-	Ω	
22	DLD2（低）	-	Ω	-
23	MSL	Level 1	-	IPC/JEDEC J-STD-033C
24	Others	-	-	-

- Dimensions外型尺寸



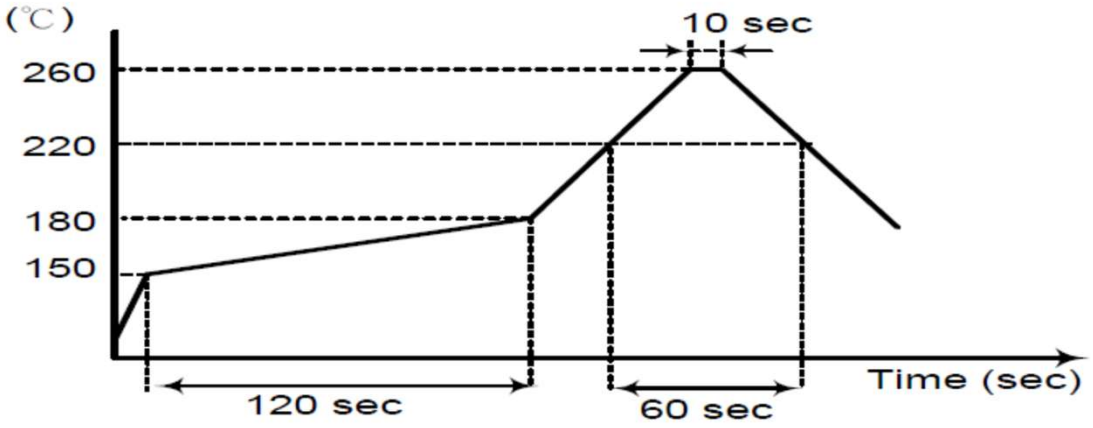
- Marking印码



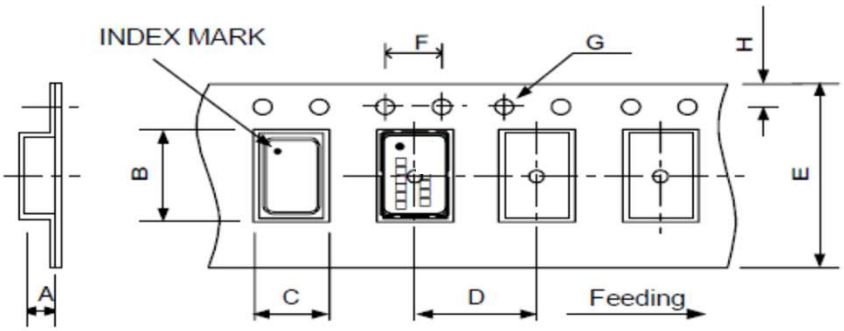
年月代码（四年一个周期）：

年份 \ 月份		一月	二月	三月	四月	五月	六月	七月	八月	九月	十月	十一月	十二月
2023	2027	a	b	c	d	e	f	g	h	j	k	l	m
2024	2028	n	p	q	r	s	t	u	v	w	x	y	z
2025	2029	A	B	C	D	E	F	G	H	J	K	L	M
2026	2030	N	P	Q	R	S	T	U	V	W	X	Y	Z

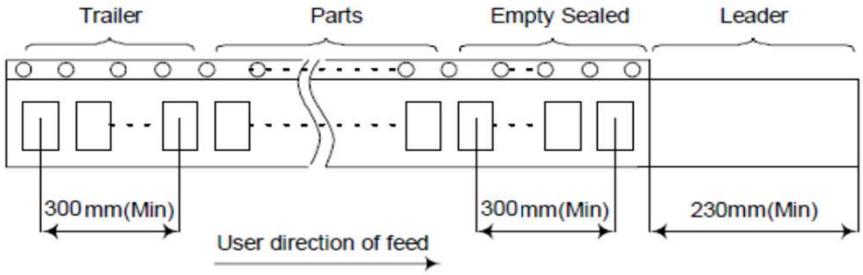
- Reflow Condition回流焊条件

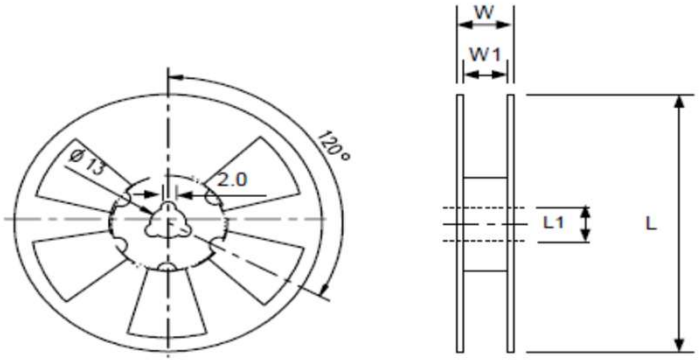


■ Packing包装（EIA-481-2）



DIMENSIONS	A	B	C	D	E	F	G	H
UNIT : mm	1.40±0.1	3.40±0.1	2.70±0.1	4.00±0.1	8.0±0.2	4.00±0.1	1.55±0.05	1.75±0.1





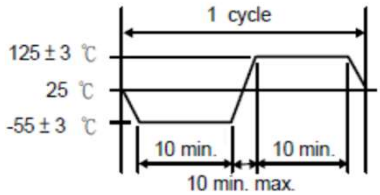
DIMENSIONS	L	L1	W	W1	Standard Reel Quantity
UNIT : mm	178±1.0	13±0.5	11.5±0.2	8.0+1.0	3,000 pcs per reel(WHITE)

■ Reliability Specifications（可靠性规范）

1.Mechanical Endurance（机械耐久性）

No.	Test Item	Test Methods	REF.DOC
1.1	Drop Test	150 cm height,3 times on concrete floor .	JIS C6701
1.2	Shock Test	150g/150cm Height, 3 times in the direction of ±X,±Y,±Z on concrete floor	IEC-68-02-27
1.3	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5m sec. duration time	MIL-STD-202F
1.4	Vibration	Frequency range 10 ～2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minute Perpendicular axes each test time 4 hours (Total test time 12 hours)	MIL-STD-883E
1.5	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2Kg / cm2	MIL-STD-883E
1.6	Fine Leak	Helium Bombing 4.5 Kgf / cm2 for 2 hr	
1.7	Solderability	Temperature 260 ℃ ± 5℃ Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-883E

2.Environmental Endurance（环境耐久性）

No.	Test Item	Test Methods	REF.DOC
2.1	Resistance To Soldering Heat	Pre-heat temperature 125 ℃ Pre-heat time 60 ～ 120 sec. Test temperature 260 ± 5 ℃ Test time 10 ± 1 sec.	MIL-STD-202F
2.2	High Temp. Storage	+ 125 ℃ ± 3 ℃ for 500 ± 12 hours	MIL-STD-883E
2.3	Low Temp. Storage	- 40 ℃ ± 3 ℃ for 500 ± 12 hours	
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
2.5	High Temp&Humidity	85℃ ± 3℃ , RH 85% , 500Hrs	JIS C5023
2.6	Pressure Cooker Storage	125℃ ± 3℃ , RH100% , 2 bar , 240Hrs	JIS C6701

Material Composition Declaration
材 料 成 份 表

1.PRODUCTION NAME： Seam 3225

2.PRODUCTION WEIGHT(mg)： 17.322

编号 No.	构成部件 Name of Part	部件材质名 Material Name	材质质量 Material Mass(mg)	材质质量百分比 Mat er i al mass（%）	构成之元素名称 Constituent name	CAS编号 CAS No.	元素百分比 Material Analysis(%)
1	基座 Base	陶瓷 Ceramics	6.40	36.95%	Al2O3 Aluminum oxide	1344-28-1	92.40%
					SiO2 Siliconoxide	7631-86-9	4.31%
					Cr2o3	1308-38-9	1.50%
					MgO Magnesium oxide	1309-48-4	0.69%
					CaO Calcium oxide	1305-78-8	1.10%
		KV环	2.60	15.01%	Fe Iron	7439-89-6	40.70%
					Ni Nickel	7440-02-0	21.80%
					Co	7440-48-4	12.80%
		焊料			Ag silver	7440-22-4	21.00%
					Cu	7440-50-8	3.70%
		金属化（Metal）	4.00	23.09%	W Tungsten	7440-33-7	100.00%
		镀层 Metallizing			Au Gold	7440-57-5	100.00%
					Ni Nickel	7440-02-0	100.00%
2	外壳 Cover	4J29（基材）	3.62	20.91%	Fe	7439-89-6	53.45%
					Ni	7440-02-0	29.25%
					Co	7440-48-4	17.30%
		Ni（镀层）			Ni	7440-02-0	100.00%
3	黏合剂 Adhesive	金属 Metal	0.20	1.15%	Ag Silver	7440-22-4	75.00%
		聚合物 Polymer			C11H24 Undecane	1120-21-4	5.00%
					C12H26 Dodecane	112-40-3	5.00%
					Silicone resin	–	15.00%
4	Blank	晶片 Quartz	0.45	2.60%	SiO2 Silicon oxide	14808-60-7	100.00%
5	Electrode	电极 Electrode	0.05	0.29%	Cr Chromium	7440-47-3	5.56%
					Ag silver	7440-22-4	94.44%