福建省长兴电子有限公司
CHANGXING ELECTRONICS CO.,LTD.
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石英晶体谐振器产品确认书
Quartz Crystal Resonator Specification For Approval

产品型号： Model	SMD3215 32.768KHz/9.0PF
客户名称： Customer	
客户编号： Customer's Part No.	
长兴编号： Product No.	8HSC327C0309L
发行日期： Issue Date	

承办：吴丽萍　　审核：杨启付　　批准：吕锡昌

内容：

客户 Conclusion:

□ Conditional Approval　□ Full Approval　□ Reject

会签意见	

APPROVED BY :　　ISSUED DATE :

3.2x1.5x0.75mm SMD kHz Crystals / 8H Series

- Features 特点
  . 2 pads surface mount package.
  . Application for variety of automotive products reference clocks.
  . High reliable environmental performance.
  . 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:

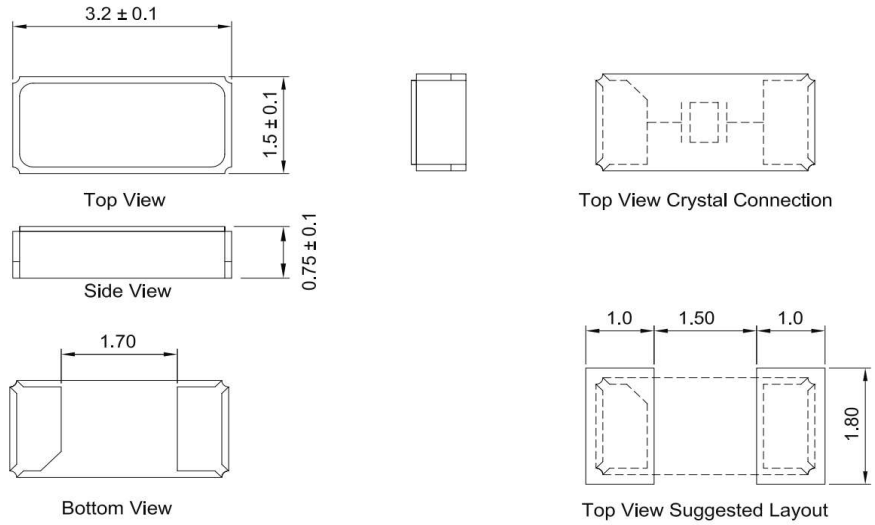
Ambient temperatu: 22±1℃
Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by HP E5100A or equivalent.

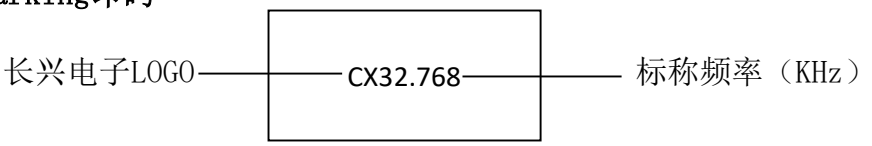
	Parameters	Electrical Spec.	UNITS	Notes
1	Nominal Frequency	32.768000	KHz	-
2	Oscillation Mode	Fund	-	-
3	Load Capacitance	9	pF	-
4	Frequency Tolerance	± 20	ppm	at 25 ℃ ± 2 ℃
5	Turnover Temperature	25 ± 3	℃	转换温度
6	Temperature Coefficient	[-0.03±0.01]ppm/℃		二次温度系数
7	Operating Temperature	-40～+85	℃	-
8	Aging	±3	ppm	1st Year
9	Drive Level	0.1	uW	-
10	Effective Resistance Rr	70 Max.	KΩ	-
11	Shunt Capacitance C0	2 Max.	pF	-
12	Motional Capacitance C1	-	fF	-
13	Pulling Sensitivity TS	-	ppm/pF	-
14	Spurious Response	-	dB	-
15	Insulation Resistance	500 Min.	MΩ	at DC 100V
16	Storage Temperature Range	-55～+125	℃	-
17	RLD2	- Max.	KΩ	-
18	FDLD	- Max.	ppm	
19	DLD2	- Max.	Ω	
20	FDLDH	-	ppm	
21	DLDH2	-	Ω	
22	DLDF	-	Ω	
23	DLD2（低）	-	Ω	-
24	MSL	Level 1	-	IPC/JEDEC J-STD-033C
25	Others	-	-	-

- Dimensions外型尺寸

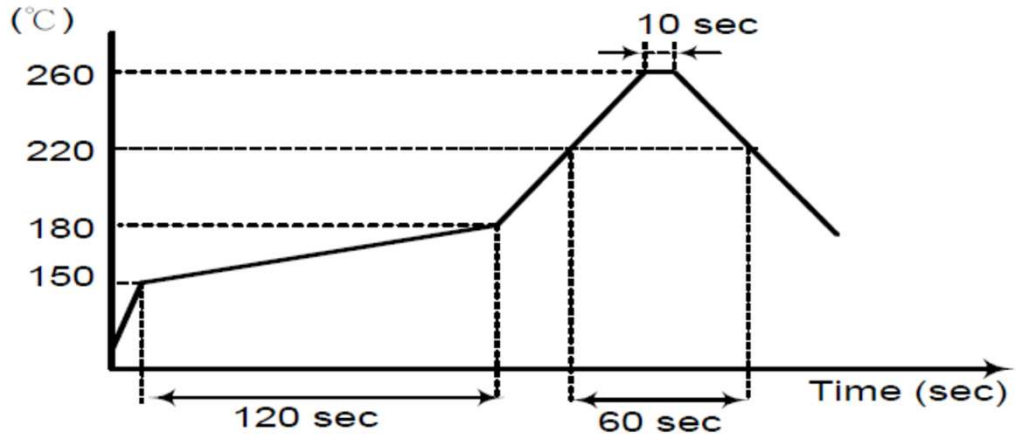


Units: mm

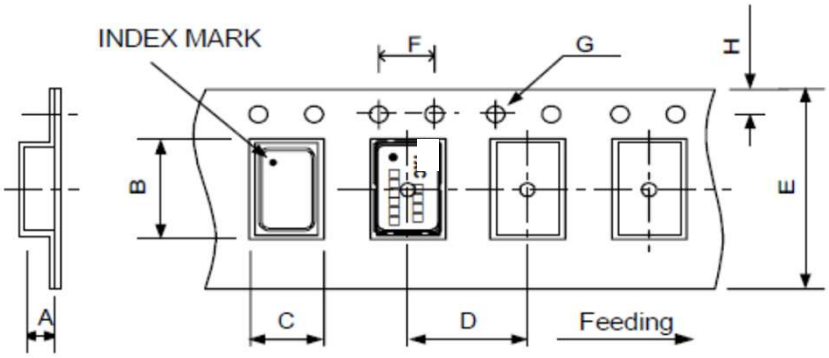
- Marking印码



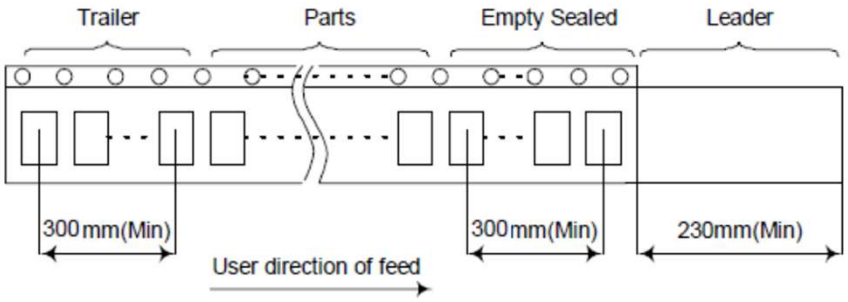
- Reflow Condition回流焊条件

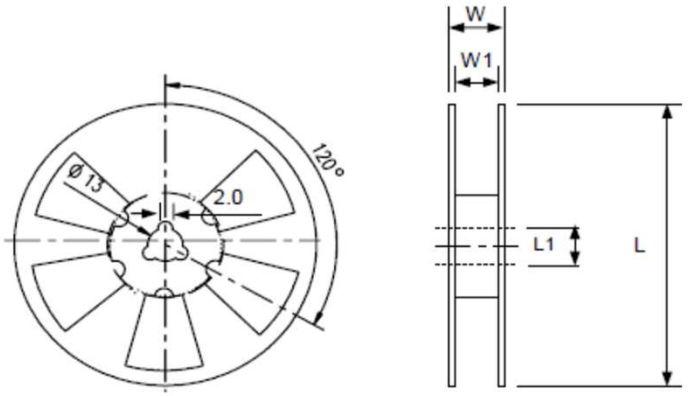


■ Packing包装（EIA-481-2）



DIMENSIONS	A	B	C	D	E	F	G	H
UNIT : mm	1.05±0.1	3.45±0.1	1.75±0.1	4.00±0.1	8.0±0.2	4.00±0.1	1.55±0.05	1.75±0.1





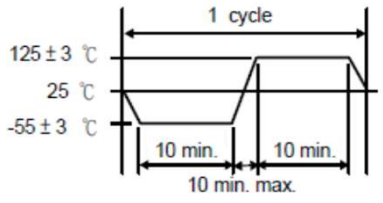
DIMENSIONS	L	L1	W	W1	Standard Reel Quantity
UNIT : mm	178±1.0	13±0.5	11.5±0.2	8.0+1.0	3,000 pcs per reel(WHITE)

■ 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 3215 kHz

2.PRODUCTION WEIGHT(mg)： 11.600

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	4.507	38.85%	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	1.831	15.78%	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）	2.817	24.28%	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）	2.210	19.05%	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	0.082	0.71%	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	0.147	1.27%	SiO2 Silicon oxide	14808-60-7	100.00%
5	Electrode	电极 Electrode	0.006	0.05%	Au Gold	7440-57-5	63.93%
					Cr Chromium	7440-47-3	2.92%
					Ag silver	7440-22-4	33.15%