



福建省长兴电子公司

CHANGXING ELECTRONICS CO.,LTD.

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石英晶体振荡器产品确认书

Quartz Crystal Resonator Specification For Approval

产品型号:	Seam2520 4PIN 25.000000MHz
Model	_____
客户名称:	_____
Customer	_____
客户编号:	_____
Customer's Part No.	_____
长兴编号:	4D250G0020
Product No.	_____
发行日期:	_____
Issue Date	_____

承办: 林峰 审核: 林东国 批准: 杨启付

- 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 材料成分表

客户 Conclusion:

	Conditional Approval <input type="checkbox"/>	Full Approval <input type="checkbox"/>	Reject <input type="checkbox"/>
会 签 意 见			

APPROVED BY : _____ ISSUED DATE : _____

2.5×2.0×0.55mm SMD Seam Sealing Crystals / 4D Series

■ Features 特点

- . High precision and high frequency stability.
- . Excellent heat resistance and environmental characteristics.
- . Applications in PDA, DSC, DVC, and PC.
- . 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: $22 \pm 5^\circ\text{C}$

Relative humidity : 40%~70%

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

Ambient temperatu: $22 \pm 1^\circ\text{C}$

Relative humidity : 40%~70%

Measure equipment

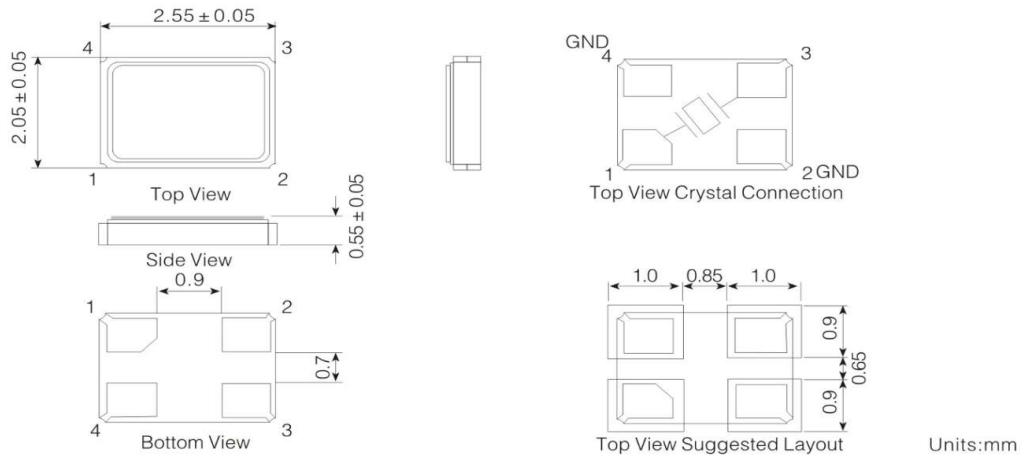
Electrical characteristics measured by HP E5100A or equivalent.

Crystal cutting type

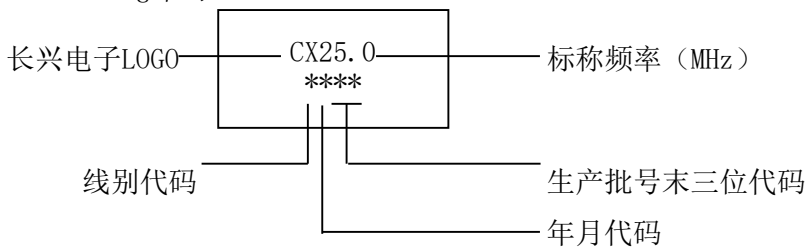
The crystal is using AT CUT (thickness shear mode).

	Parameters	Electrical Spec.	UNITS	Notes
1	Nominal Frequency	25.000000	MHz	-
2	Oscillation Mode	Fund	-	-
3	Load Capacitance	20	pF	-
4	Frequency Tolerance	± 10	ppm	at $25^\circ\text{C} \pm 3^\circ\text{C}$
5	Frequency Tolerance	± 30	ppm	Over Operating Temp. Range
6	Operating Temperature	$-40 \sim +85$	$^\circ\text{C}$	-
7	Aging	± 3	ppm	1st Year
8	Drive Level	100	μW	-
9	Effective Resistance Rr	60 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	$-1000 \sim +5000$ ppm 125 步
14	Insulation Resistance	500 Min.	M Ω	at DC 100V
15	Storage Temperature Range	$-55 \sim +125$	$^\circ\text{C}$	-
16	RLD2	60 Max.	Ω	0.01~30 μW /15 steps 30~100 μW /5 steps 100~30 μW /5 steps 30~0.01 μW /15 steps
17	FDDL	10 Max.	ppm	
18	DLD2	10 Max.	Ω	
19	FDDLH	5 Max.	ppm	
20	DLDH2	5 Max.	Ω	
21	DLDF	-	Ω	
22	DLD2 (低)	-	Ω	0.01~30 μW /15 steps
23	Others	-	-	-

■ Dimensions外型尺寸



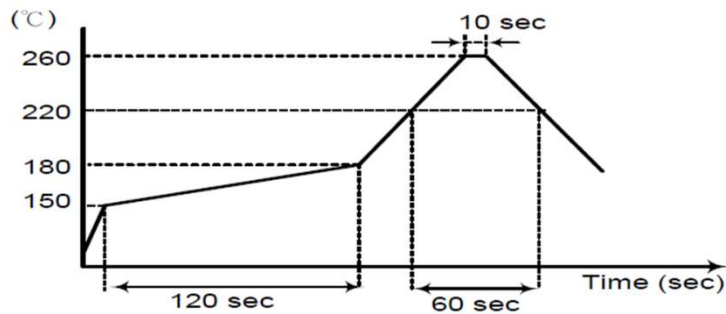
■ Marking印码



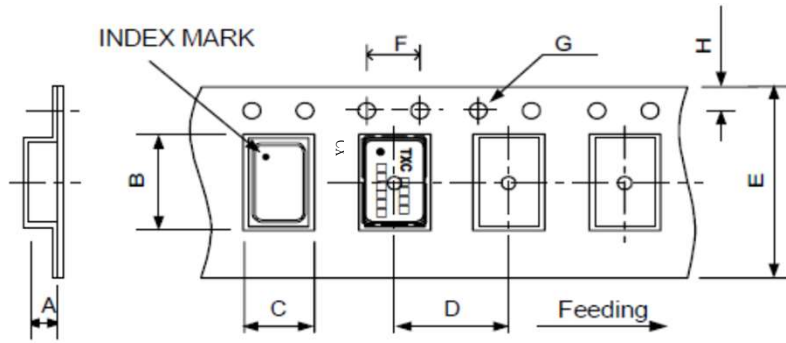
年月代码（四年一个周期）：

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
2015	2019	a	b	c	d	e	f	g	h	j	k	l	m
2016	2020	n	p	q	r	s	t	u	v	w	x	y	z
2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z

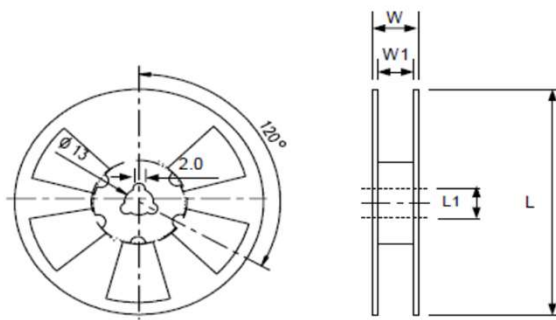
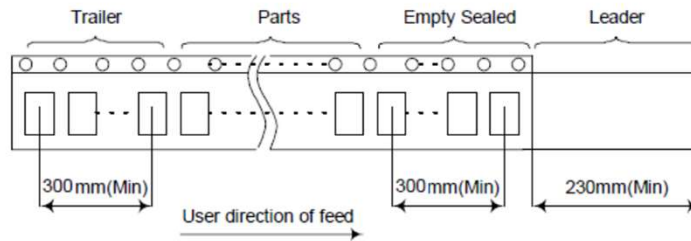
■ Reflow Condition回流焊条件



■ Packing包装 (EIA-481-2)



DIMENSIONS	A	B	C	D	E	F	G	H
UNIT : mm	0.80 ± 0.1	2.70 ± 0.1	2.25 ± 0.1	4.00 ± 0.1	8.0 ± 0.2	4.00 ± 0.1	1.55 ± 0.05	1.75 ± 0.1



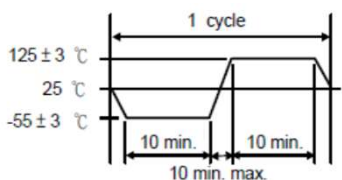
DIMENSIONS	L	L1	W	W1	Standard Reel Quantity
UNIT : mm	178 ± 1.0	13 ± 0.5	11.5 ± 0.2	8.0 ± 1.0	3,000 pcs per reel (WHITE)

■ 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 $\pm X, \pm Y, \pm Z$ 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 / cm ²	MIL-STD-883E
1.6	Fine Leak	Helium Bombing 4.5 Kgf / cm ² for 2 hr	
1.7	Solderability	Temperature 260 °C \pm 5°C Immersing depth 0.5 mm minimum Immersion time 5 \pm 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 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 \pm 5 °C Test time 10 \pm 1 sec.	MIL-STD-202F
2.2	High Temp.	+ 125 °C \pm 3 °C for 500 \pm 12 hours	MIL-STD-883E
2.3	Low Temp.	- 40 °C \pm 3 °C for 500 \pm 12 hours	
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
2.5	High Temp &	85°C \pm 3°C , RH 85% , 500Hrs	JIS C5023
2.6	Pressure	125°C \pm 3°C , RH100% , 2 bar , 240Hrs	JIS C6701

Material Composition Declaration

材 料 成 份 表

1.PRODUCTION NAME : Seam 2520

2.PRODUCTION WEIGHT(mg) : 10.982

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 Material 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	6.39	58.17%	Al ₂ O ₃ Aluminum oxide	1344-28-1	90.00%
					SiO ₂ Siliconoxide	4808-60-7	6.00%
					Cr ₂ O ₃	1308-38-9	2.00%
					MO Magnesium oxide	7439-98-7	2.00%
		KV环	0.35	3.17%	Fe Iron	7439-89-6	51.00%
					Ni Nickel	7440-02-0	29.00%
					Co	7440-48-4	18.00%
		焊料	0.28	2.56%	Ag silver	7440-22-4	71.00%
					Cu	7440-50-8	29.00%
		金属化 (Metal)	0.28	2.56%	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)	2.30	20.94%	Fe	7439-89-6	49.00%
					Ni	7440-02-0	35.00%
					Co	7440-48-4	16.00%
		Ni (镀层)	Ni	7440-02-0	100.00%		
3	黏合剂 Adhesive	金属 Metal	0.12	1.09%	Ag Silver	7440-22-4	74.00%
		聚合物 Polymer			-	-	10.20%
					SiO ₂	14808-60-7	10.00%
					-	64742-47-8	5.00%
					CH ₃ OH	67-56-1	0.80%
4	Blank	晶片 Quartz	1.20	10.96%	SiO ₂ Silicon oxide	14808-60-7	100.00%
5	Electrode	电极 Electrode	0.34	3.07%	Cr Chromium	7440-47-3	5.56%
					Ag silver	7440-22-4	94.44%