



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

石英晶体振荡器产品确认书

Quartz Crystal Oscillator Specification For Approval

产品型号:	2.5×2.0 OSC 156.250000MHz
Model	
客户名称:	
Customer	
客户编号:	
Customer's Part No.	
长兴编号:	4KSC156GM033L
Product No.	
发行日期:	
Issue Date	

承办: 吴丽萍

审核: 杨启付

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、Test Diagram 测试电路
- 5、Marking 印码
- 6、Reflow Condition 回流焊条件
- 7、Packing 包装 (EIA-481-2)
- 8、Reliability Specifications 可靠性规范

客户 Conclusion:

☐ Conditional Approval ☐ Full Approval ☐ Reject

会 签 意 见	
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APPROVED BY :

ISSUED DATE :

2.5x2.0x0.9mm SMD Crystal Oscillators LVDS Output/4K Series

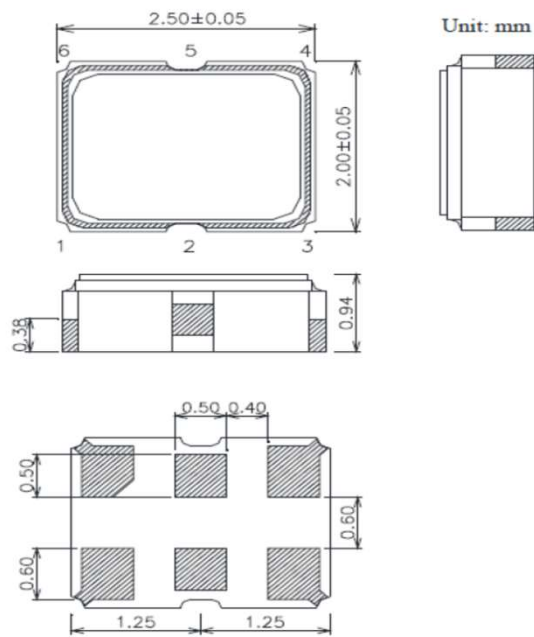
■ Features 特点

- . Fundamental or 3rd Overtone solution.
- . 3.3V and 2.5V operation operation available.
- . LVDS output, output frequencies 25 MHz to 200 MHz.
- . Excellent low phase noise and jitter.
- . Tri-state function available.
- . Applications : Fibre Channel, Gigabit Ethernet, Serial ATA, Serial Attached SCSI, PCI-Express, SDH/SONET.
- . RoHS compliant / Pb Free.

■ Electrical Specifications 电气参数

	Parameters	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
1	Normal Frequency Range	—		—	156.250	—	MHz
2	Vibration Mode	—	3rd	—	—	—	—
3	Frequency Tolerance	$\Delta f/f_n$	@25±3°C	-10	—	+10	ppm
4	Frequency Stability	F/T	Over Operating Temp. Range	-30	—	+30	ppm
5	Operating Temperature	TA		-40	—	+85	°C
6	Storage Temperature	TSTG		-55	—	+125	°C
7	Operating Supply Voltage	Vcc	±5%		2.5~3.3		V
8	Start up time	Tosc	To 90% of Final Amplitude	—	—	10	mS
9	Supply Current	Icc		—	—	80	mA
Enable Feature				YES			
10	"H" Input Voltage	VIH		Vcc*0.7	—	—	V
11	"L" Input Voltage	VIL		—	—	Vcc*0.3	V
12	E/D(#1 引脚 E/D)	Logic 1 Or Floating input,Outputs enable; Logic 0 ,Outputs disable					
13	First Year Aging	—	@25°C	-3		+3	ppm
Output				LVDS			
14	"H" Output Voltage	VOH	RL=50 ohms to (Vcc-2V)	Vcc-1.025	—	Vcc-0.88	V
15	"L" Output Voltage	VOL		Vcc-1.810	—	Vcc-1.62	V
16	Duty Cycle	Duty	@Vcc-1.3V	45	50	55	%
17	Rise and Fall Time	Tr/Tf	@20%-80%	—	—	0.5	nS
18	Phase Noise		10Hz	—	—		dBc
			100Hz	—	—		dBc
			1KHz	—	—		dBc
			10KHz	—	—		dBc
			100KHz	—	—		dBc
			1M	—	—		dBc
19	Jitter	RMS	12kHz to 20MH	—	—	0.4	ps
MSL: Level 1 (IPC/JEDEC J-STD-033C)							

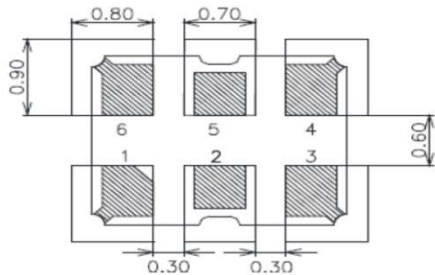
■ Dimensions外型尺寸



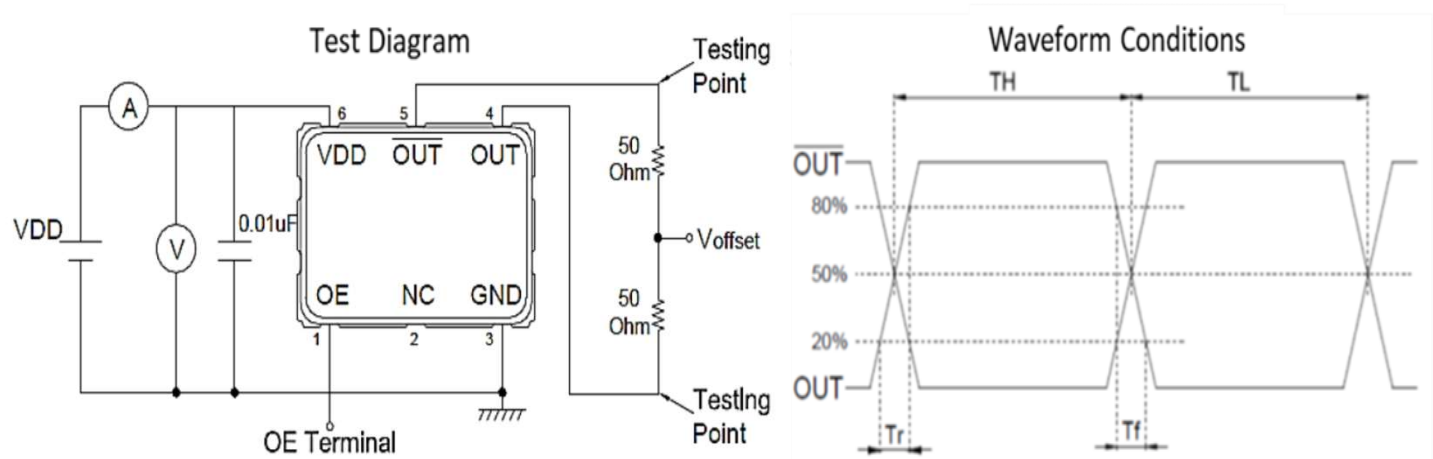
Pin Function:

- 1. OE
- 2. NC
- 3. GND
- 4. OUT
- 5. $\overline{\text{OUT}}$
- 6. VDD

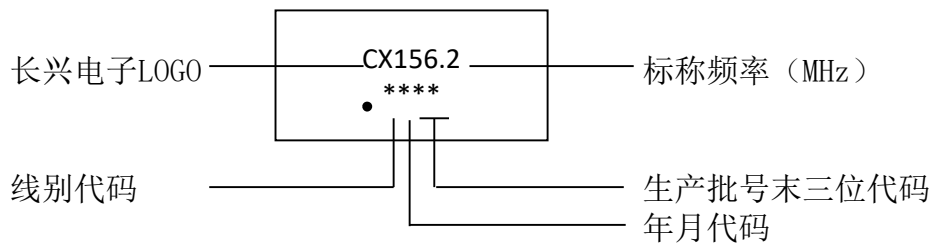
Land Pattern:



■ Test Diagram测试电路



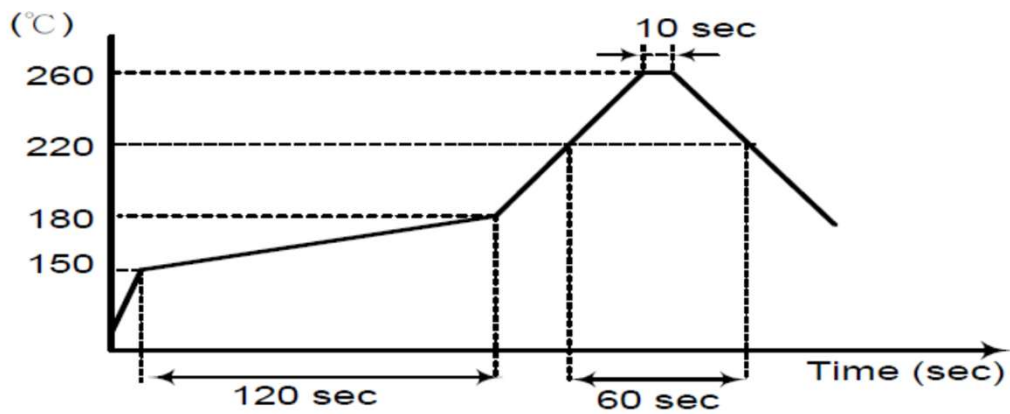
■ Marking印码



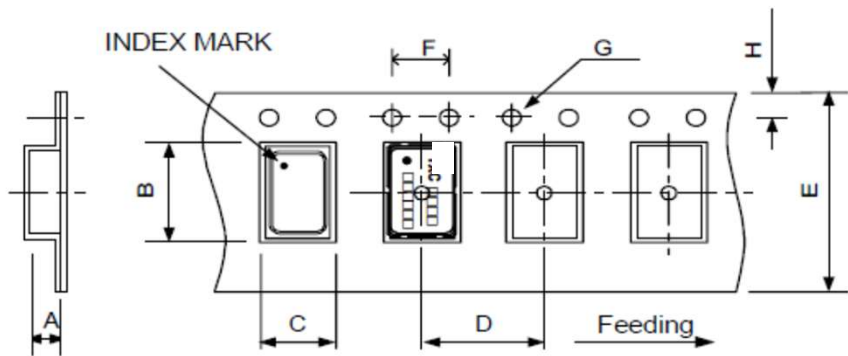
年月代码（四年一个周期）：

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

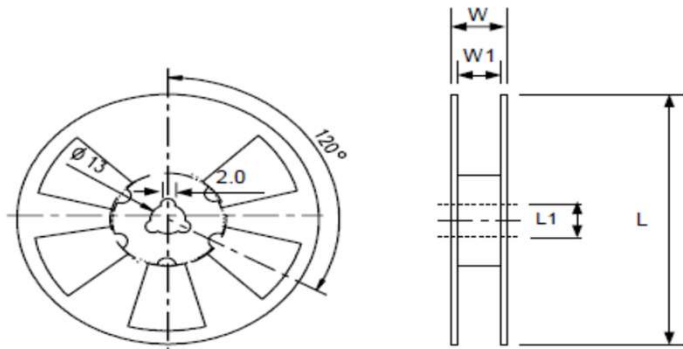
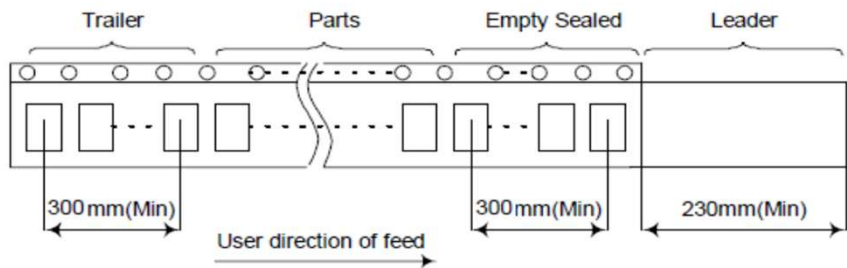
■ Reflow Condition回流焊条件



■ Packing包装 (EIA-481-2)



DIMENSIONS	A	B	C	D	E	F	G	H
UNIT : mm	1.00±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)

Item	Condition	Reference	Specifications												
Solderability	Solder bath temperature:260℃ , dwell time:5 seconds, Solder: 100% tin	IEC68-2-20:1979	A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.												
Resistance to soldering heat	Solder temperature 260+/-3℃,Immersion time:10 S Solder bath composition:100% tin	IEC68-2-58:1989	$\Delta F \leq \pm 5 \text{ppm}$												
Vibration	The entire frequency range: 10Hz to 55Hz ,Amplitude:1.5mm This motion shall be applied for a period of 2 h in each of 3 mutually perpendicular axes(a total of 6h)	IEC 68-2-21:1992	$\Delta F \leq \pm 5 \text{ppm}$												
Drop test	Drop from 75cm height on 3cm hard wooden board for 6 times	IEC68-2-32:1990	$\Delta F \leq \pm 5 \text{ppm}$												
Cold Storage	The quartz crystal unit shall be stored at a temperature of -40+/-3℃ for 1000 h.then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.	IEC68-2-6:1982	$\Delta F \leq \pm 5 \text{ppm}$												
High temperature high humidity storage (steady state)	The quartz crystal unit shall be stored at a temperature of 40+/-2℃ with relative humidity of 95% for 1000h, then it shall be subjected to standard atmospheric conditions for 2h after which measurement shall be made.	IEC60068-2-1:1990	$\Delta F \leq \pm 5 \text{ppm}$												
Thermal shock	The quartz crystal unit shall be subjected to 50 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. <table border="1"><tr><td></td><td>Temperature</td><td>Duration</td></tr><tr><td>1</td><td>-40+/-3℃</td><td>15minutes</td></tr><tr><td>2.</td><td>100+/-2℃</td><td>15minutes</td></tr><tr><td>3.</td><td>Transition time</td><td>Within 10 seconds</td></tr></table>		Temperature	Duration	1	-40+/-3℃	15minutes	2.	100+/-2℃	15minutes	3.	Transition time	Within 10 seconds	IEC68-2-14:1986	$\Delta F \leq \pm 5 \text{ppm}$
	Temperature	Duration													
1	-40+/-3℃	15minutes													
2.	100+/-2℃	15minutes													
3.	Transition time	Within 10 seconds													
Sealing	Helium leakage detector shall used to measure the leakage rate of gas through any faulty seal. Pressure:500Kpa, duration:120 minutes.	IEC68-2-3:1984	Leakage rates $\leq 1 \times 10^{-9} \text{ Pa} \cdot \text{m}^3/\text{S}$												
High temperature Life test	The quartz crystal unit shall be stored at a temperature of 85+/-3℃ for 720h ,then it shall be subjected to standard atmospheric condition for 1h after which measurement shall be made.	IEC60068-2-2:1974	$\Delta F \leq \pm 5 \text{ppm}$												