



APPROVAL SHEET

承 认 书

Product Name	Quartz Crystal 石英晶体谐振器
P/N	K-F-20.000M-20-3030-4085-50
Customer's Name	曙光信息
Customer's P/N	
Lot NO.	
Specification Sheet #	SK-2826
Date	2019-9-12
Generation	朱梦静
Approval	李坡
Customer Confirmation	



南京中电熊猫晶体科技有限公司

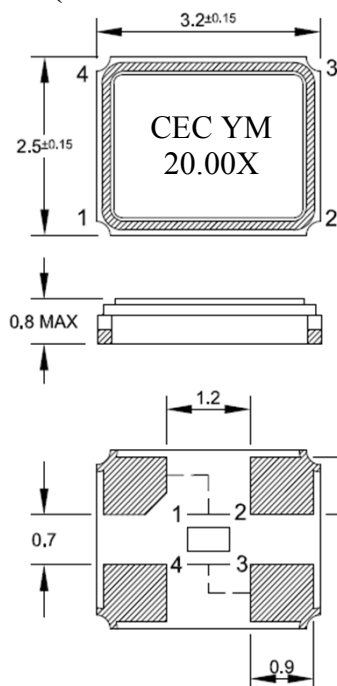
NANJING CHINA ELECTRONICS PANDA CRYSTAL TECHNOLOGY CORPORATION

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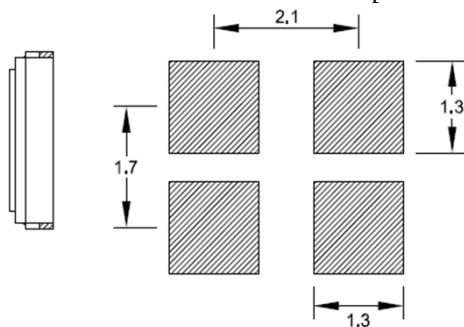
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南京中电熊猫晶体科技有限公司 Nanjing CEC Panda Crystal Tech Corp.	Specification of Quartz Crystal 石英晶体谐振器规格书	NO: SK-2826
	3.2×2.5 SMD	DATE: 2019/9/12

■ 外形及印字(DIMENSION AND MARKING)



Recommended land pattern



#2 and #4 are connected to the cover. (please connect to GND)

Marking Definitions:(印字说明)

CEC:Logo

Y/Year(年的最后一位)the last digit of year

M/Month(月度代码)A,B,C,D,E,F,G,H,J,K,L,M

X/Factory(制造工厂) N:南京工厂,S:深圳工厂,L:廊坊工厂

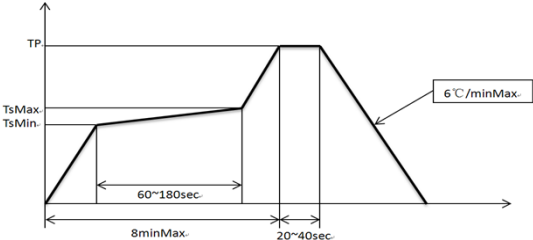
UNIT(单位)mm

■ 电气参数(ELECTRICAL SPECIFICATION)

P/N	料号	K-F-20.000M-20-3030-4085-50
Nominal Frequency	标称频率	20.000000MHz
Mode of Oscillation	振荡模式	Fundamental
Operating Temperature Range	工作温度范围	-40℃ ~ 85℃
Storage Temperature Range	保存温度范围	-55℃ ~ +125℃
Test Set	测试系统	250B PI-Network
Drive Level	激励电平	100 uW Max.
Loading Capacitance	负载电容	20 pF
Frequency Tolerance	调整频差	±30 ppm Max.(AT 25℃)
Equivalent Resistance	等效阻抗	50 ohms Max.
Temperature Drift	温度频差	±30 ppm Max./ -40℃~ +85℃
Shunt Capacitance	静电容	3.0 pF Max.
Motional Capacitance	动电容	/
Aging	老化率	±3 ppm/ year Max.
Insulation Resistance	绝缘阻抗	500 MΩMin / 100V±15V D.C.
Other	其它	Tape & Reel
Note		

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■ 可靠性测试条件(RELIABILITY TEST)			
序号 NO	项目 ITEM	条件 CONDITIONS	合格标准 BASIS OF VERDICT
1	高温贮存 HIGH TEMPERATURE STORAGE	工作温度: Temperature: 85℃ 不带电, 试验结束后24±2小时测试 时间 Times: 1000 hours The test was conducted 24 ±2 hours at the end of the test(no charge)	$\Delta FL = \pm 10 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
2	恒定湿热 CONSTANT HUMIDITY	温度: 85℃±2℃; 湿度85%; 时间: 1000小时 试验结束后24±2小时进行测试 Temperature: 85℃±2℃; Humidity: 85%; Time: 1000 hours The test was conducted 24 ±2 hours at the end of the test	$\Delta FL = \pm 10 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
3	低温贮存 LOW-TEMPERATURE STORAGE	温度 Temperature: -40℃ 时间 Time: 1000 hours 试验结束后24±2小时进行测试 The test was conducted 24 ±2 hours at the end of the test	$\Delta FL = \pm 10 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
4	温度循环 TEMPERATURE CYCLING	-55℃±2℃ (5 min) $\xleftrightarrow{5 \text{ min}}$ 125℃±2℃ (5 min); 循环1000次 -55℃±2℃ (5 min) $\xleftrightarrow{5 \text{ min}}$ 125℃±2℃ (5 min); For 1000 cycles 最大转换时间 Maximum conversion time: 5 min 高低温保存时间 High/Low temperature holding time: 30 min	$\Delta FL = \pm 10 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
5	跌落 DROP	1m高处自由跌落到硬木板上, 3次 Height: 1m; 3 times	$\Delta FL = \pm 5 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
6	机械冲击 MECHANICAL SHOCK	峰值 Peak: 100g's 持续时间 Duration: 6ms 波形 Waveform: 半正弦波 Half-sine 变化速度 Velocity Change: 12.3 ft / sec 振动方向 Direction: +X, -X, +Y, -Y, +Z, -Z 每个方向各3次 3 times/direction 最后进行电性能测试 Conduct electrical performance tests	$\Delta FL = \pm 5 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{ 或 } 5 \Omega \text{ MAX (两者取大值)}$ $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)

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序号 NO	项目 ITEM	条件 CONDITIONS	合格标准 BASIS OF VERDICT
7	振动 VIBRATION	频率 Frequency: 10~2000Hz: 加速度幅度 Acceleration: 5g/s 振动方向 Direction: X, Y, Z 振动时间 Duration: 每个方向20分钟 20min/direction. 循环次数 Times: 12次	$\Delta FL = \pm 5 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{或} 5 \Omega \text{ MAX}$ （两者取大值） $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
8	耐焊接热 WELDING HEAT RESISTANT	 <p>TP: 260℃ Max TsMax: 200℃ TsMin: 150℃ CYCLE TIME周期: 2次</p>	$\Delta FL = \pm 5 \text{ ppm MAX}$ $\Delta R_s = \text{平均阻抗} * 20\% \text{或} 5 \Omega \text{ MAX}$ （两者取大值） $\Delta FL \leq \pm 10 \text{ ppm}$ $\Delta R_s \leq 5 \Omega \text{ or } \pm 20\%$ (Whichever is Larger)
9	可焊性 SOLDER	试验前预处理: 155℃ 高温贮存4小时 温度: 260℃ ± 5℃ 的锡槽中浸渍 Pretreatment before test: 155℃ high-temperature store 4 hours Temperature: 260℃ ± 5℃, immersion	浸锡率 ≥ 95% Solder Coverage ≥ 95%
10	引出端强度 TERMINAL STRENGTH	1.8kg的切向推力（60秒）以及1.8kg的垂直拉力（60秒） 1.8kg, of the tangential thrust (60 s) 1.8kg of the perpendicular tension (60 s)	电极不断裂 No Rupture Observed

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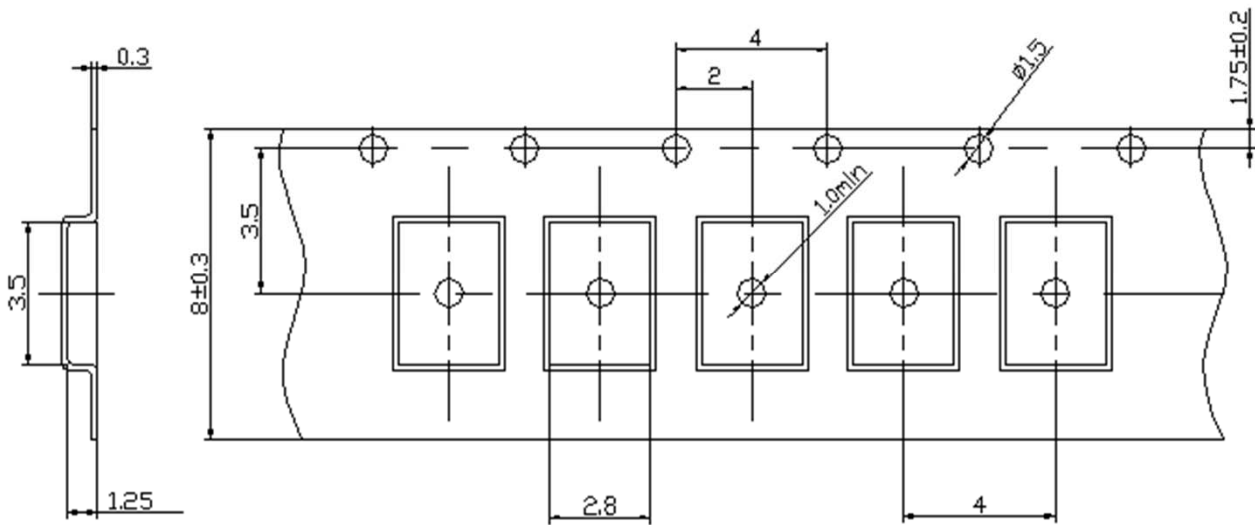
Specification of Quartz Crystal
石英晶体谐振器规格书

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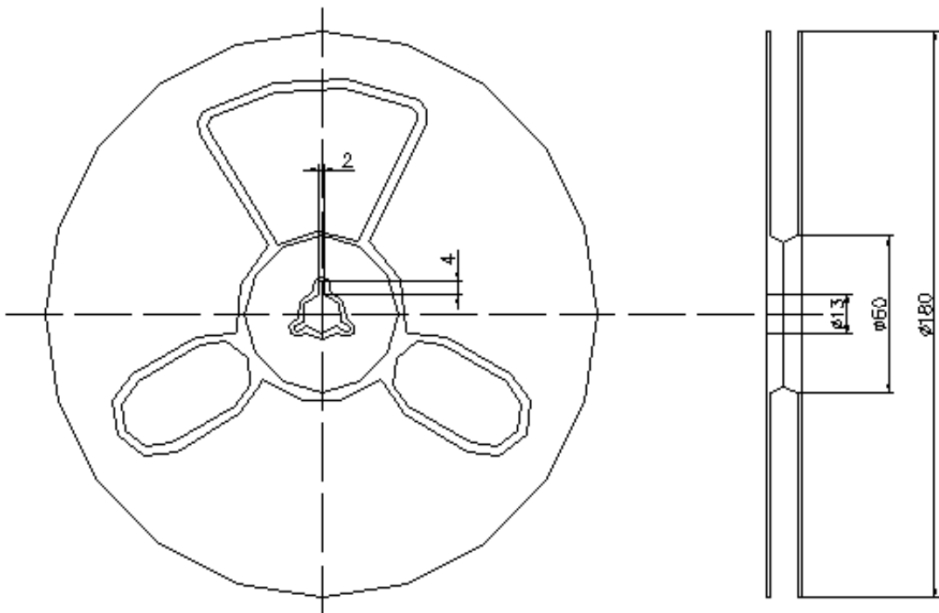
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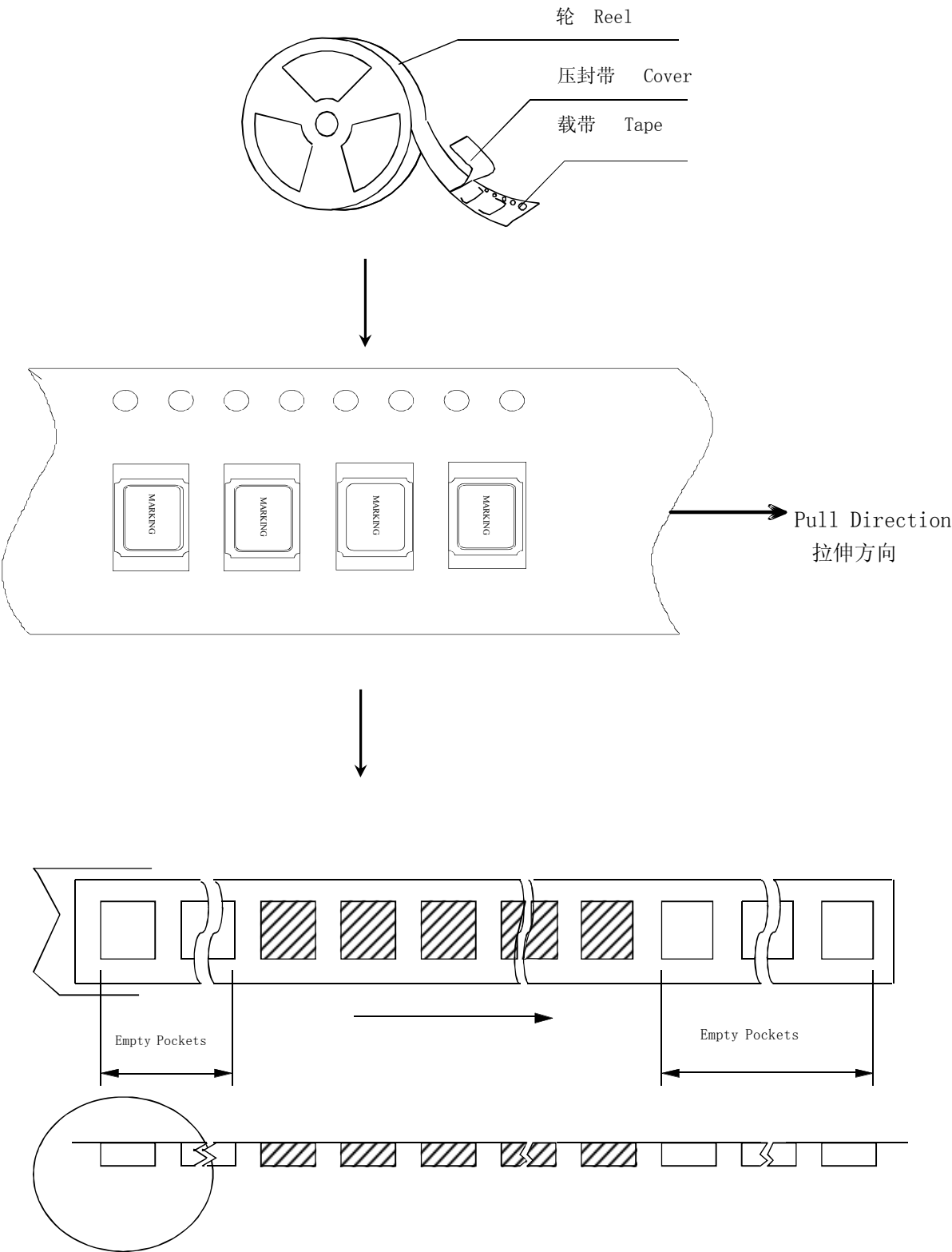
■ 编带 (TAPE)



■ 轮 (REEL)



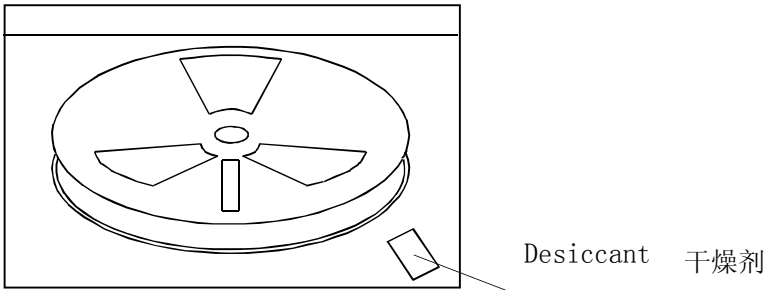
■编带方式(TAPING METHOD)



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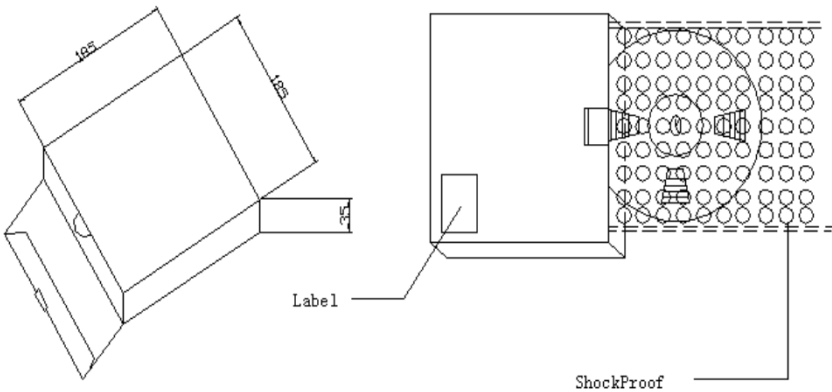
■ 包装 (PACKAGE)

1. 自封袋 (Bag)
- 3000 只=1 轮
 3000 pcs=1 Reel



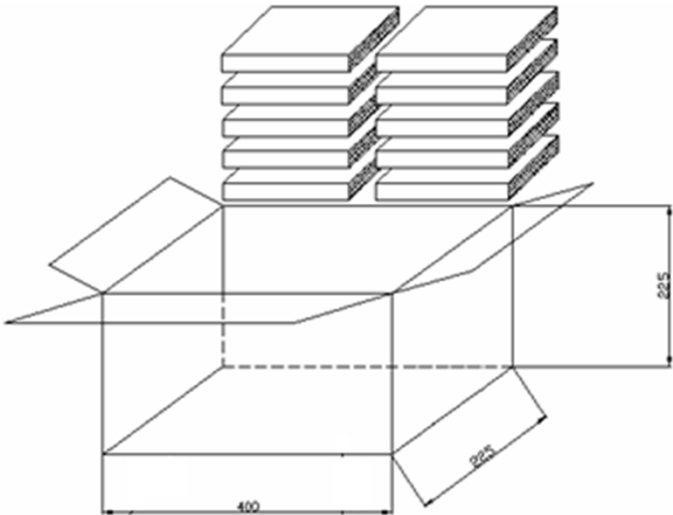
2. 内包装 (Inside Package)

- 1 轮=1 盒
- 1 Reel=1 Box



3. 外包装 (Outside Package)

- 10 盒=1 箱
- 10 Box=1 Carton



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<p>■保存条件(Storage Condotion)</p> <p>1. 保存温度: 25℃±15℃ Storage Temperature:25℃±15℃</p> <p>2. 湿度: 10%-60% humidity:10%-60%</p>		