



STANDARD SPECIFICATION

产品规格书

客户 Customer: _____

客户料号 Customer P/N NO.: _____

产品描述 Product Description: 49S 18.432MHZ 20PF ±20PPM

TKD 料号 TKD P/N. NO.: CD05M018432RDCAD1

客户批准 Customer Approval :

(请批准后回签一份 PLEASE RETURN A COPY WITH APPROVAL)

TKD SCIENCE AND TECHNOLOGY Co., LTD
泰晶科技股份有限公司
Shen zhen Tai jing Industry Co., Ltd.

深圳市泰晶实业有限公司

| 批准 APPROVED | 审核 CHECK | 制作 DESIGNER |
|----------------|-------------|----------------|
| 叶保平 | 金龙腾 | 苏婷婷 |



| REV. | Description of Revision History | Date | Designer | Checked By |
|------|---------------------------------|-------------------|-------------------|--------------------|
| A | New revision | <u>2020-10-21</u> | <u>Sutingting</u> | <u>Jinlongteng</u> |



CRYSTAL SPECIFICATION

1. Description: Quartz Crystal
2. Nominal Frequency: 18.432000MHz
3. Oscillation Mode: Fundamental
4. Cutting Mode: AT cut
5. Measurement Instrument: S&A 250B(Measured FL)
6. Electrical Characteristics:

[1]Operation Conditions:

| Item | Symbol | MIN. | TYP. | MAX. | Unit | Condition |
|-----------------------------|--------|------|------|------|------|-----------|
| Operating Temperature Range | Topt | -40 | | 85 | °C | |
| Storage Temperature Range | Tstg | -40 | | 85 | °C | |
| Load Capacitance | CL | | 20 | | pF | |
| Drive Level | DL | 0.1 | | 100 | uW | |

[2]Frequency Stability:

| Item | Symbol | MIN. | TYP. | MAX. | Unit | Condition |
|----------------------------|--------|------|------|------|------|---|
| Tolerance | dF/Fo | 20 | | 20 | ppm | Refer to Center Frequency@25±3°C |
| Stability Over Temperature | dF/F25 | -30 | | 30 | ppm | Refer to Operating Temperature @-40~+85°C |
| Aging | dF/F25 | -5 | | 5 | ppm | Per Year |

dF/Fo:Frequency Deviation Refer to Center Frequency

dF/F25:Frequency Deviation Refer to 25°C Frequency

[3]Electrical Performance:

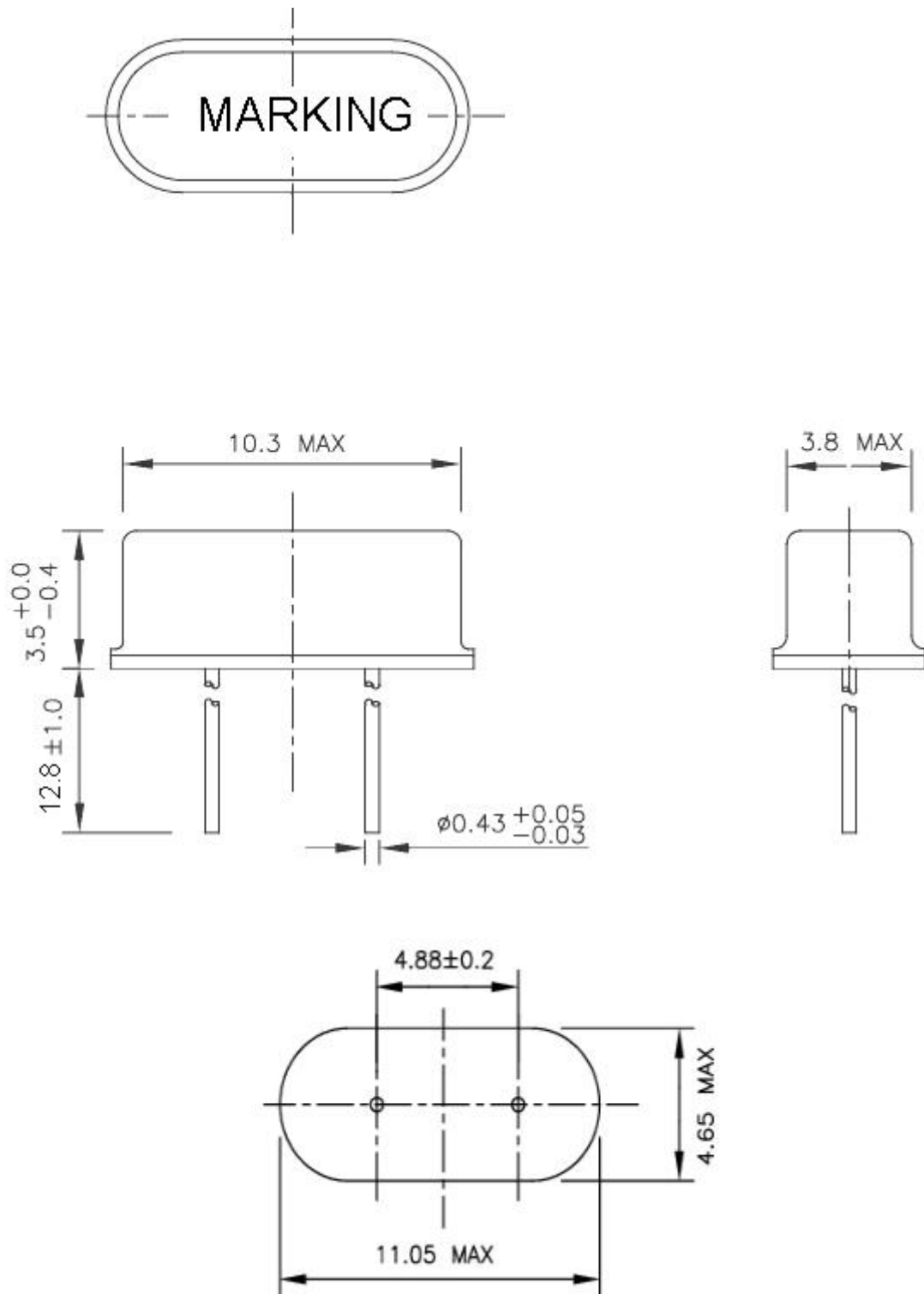
| Item | Symbol | MIN. | TYP. | MAX. | Unit | Condition |
|------------------------------|--------|------|------|------|------|--------------|
| Equivalent Series Resistance | ESR | | | 30 | Ω | @Series |
| Shunt Capacitance | C0 | | | 7 | pF | |
| Insulation Resistance | IR | 500 | | | MΩ | @DC 100 Volt |

7. Marking:Laser

TKD:Company Logo
18.432:Nominal Frequency

TKD18.432

8. Outline drawing (unit: mm)

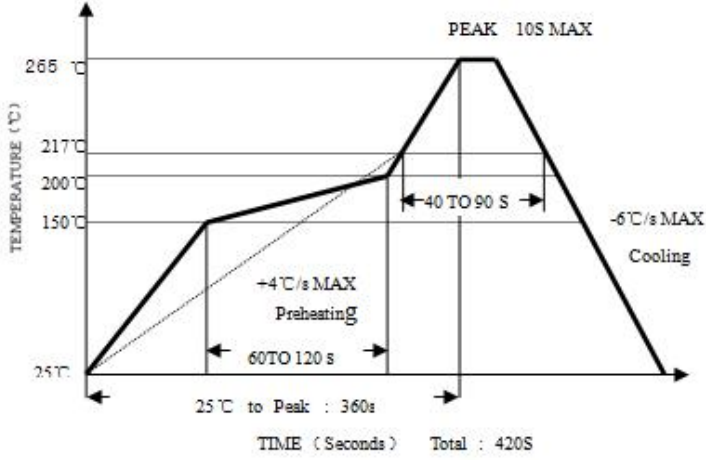




9. Reliability Specification

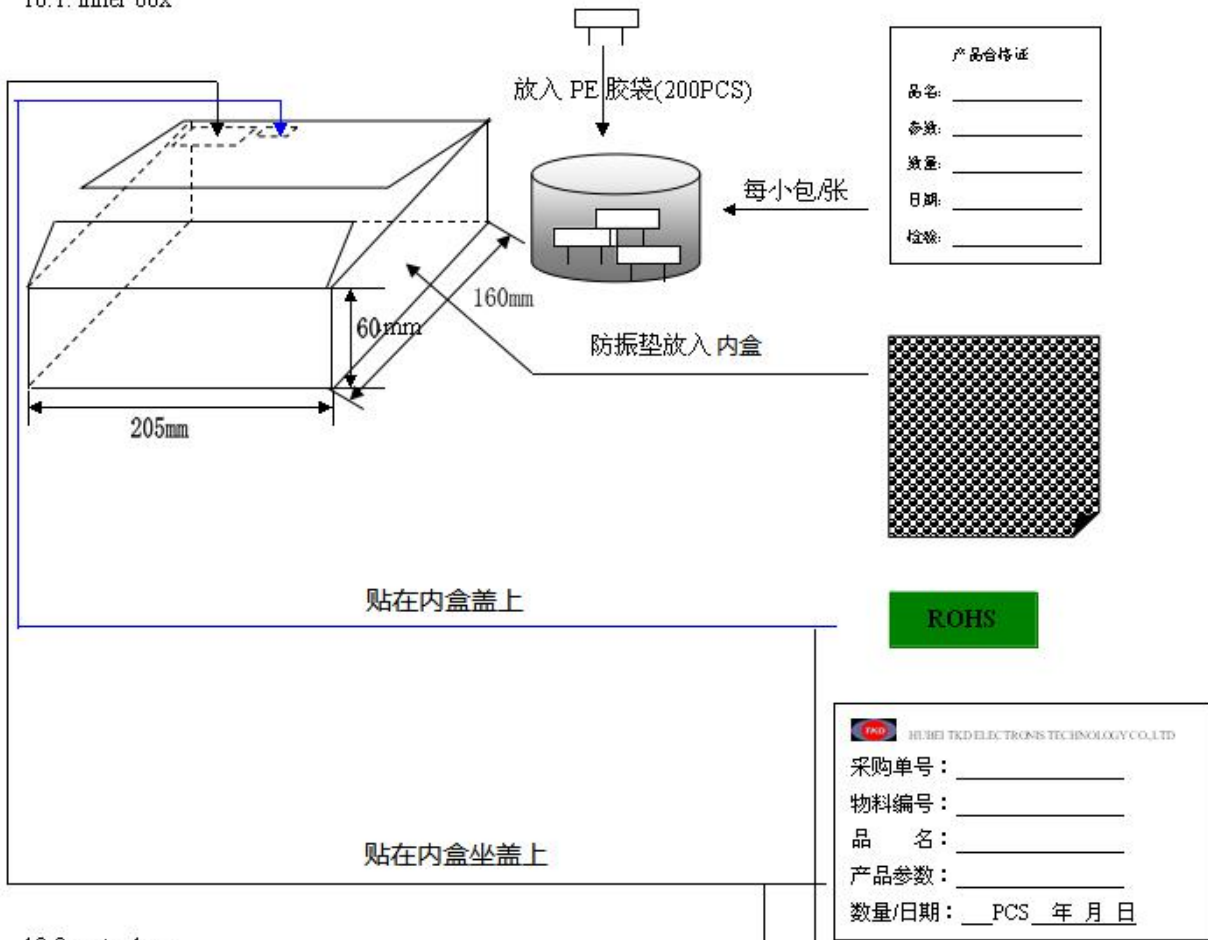
| Test Item | Condition of test | Performance Requirements | | | | | | | | | | | | | | | |
|------------------------------|--|--|-------------|----------|---|-----------|-------|---|---------------------------------|------------|---|-----------|-------|---|---------------------------------|------------|--------------------------------|
| Tensile Strength Termination | The unit's lead wire should withstand a tensile force applied to the termination in the direction of its draw-out axis of up to 1000g maintained as is for 10±2s | There should be no abnormalities detected on the unit | | | | | | | | | | | | | | | |
| Solder ability | The lead is immersed in a 235±5°C solder bath within 2±0.5 seconds. | A new uniform coating of solder shall cover minimum 95% of the surface being immersed. | | | | | | | | | | | | | | | |
| Vibration | Endurance condition by a frequency sweep shall be made. The entire frequency range from 10HZ to 50HZ and return to 10HZ, shall be transverse in 1min. Amplitude (total excursion): 1.5mm this motion shall be applied for a period of 2h each of 3 mutually perpendicular axes (a total of 6h) | (1). Frequency Change: ±5ppm (2). Resistance: ±15% | | | | | | | | | | | | | | | |
| Drop | Form 70cm height 3 times on 3cm hard wooden floor | (1). Frequency Change: ±5ppm (2). Resistance: ±15% | | | | | | | | | | | | | | | |
| Damp heat | The unit shall be stored at a temperature of 40±2°C with relative humidity of 90% to 95% for 48h, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made. | (1). Frequency Change: ±5ppm (2). Resistance: ±15% | | | | | | | | | | | | | | | |
| Dry heat | The unit shall be stored at a temperature of 100°C±5°C for 24h, then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made. | (1). Frequency Change: ±5ppm (2). Resistance: ±15% | | | | | | | | | | | | | | | |
| Cold | The unit shall be stored at a temperature of -40°C±5°C for 48h, then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made. | (1). Frequency Change: ±5ppm (2). Resistance: ±15% | | | | | | | | | | | | | | | |
| Aging | The unit shall be stored at a temperature of 85°C±5°C for 7d then it shall be subjected to standard atmospheric conditions for 1~2h after which measurement shall be made. | Refer to verdict specification | | | | | | | | | | | | | | | |
| Temperature cycling | The unit shall be subjected to 5 successive change of temperature cycles, each as show in table below, then it shall be subjected to standard atmospheric conditions for 1 ~ 2h after which measurement shall be made <table border="1" data-bbox="400 1668 1062 1962"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40°C±3°C</td> <td>30min</td> </tr> <tr> <td>2</td> <td>Standard atmospheric conditions</td> <td>Within 30s</td> </tr> <tr> <td>3</td> <td>100°C±3°C</td> <td>30min</td> </tr> <tr> <td>4</td> <td>Standard atmospheric conditions</td> <td>Within 30s</td> </tr> </tbody> </table> | | Temperature | Duration | 1 | -40°C±3°C | 30min | 2 | Standard atmospheric conditions | Within 30s | 3 | 100°C±3°C | 30min | 4 | Standard atmospheric conditions | Within 30s | Refer to verdict specification |
| | Temperature | Duration | | | | | | | | | | | | | | | |
| 1 | -40°C±3°C | 30min | | | | | | | | | | | | | | | |
| 2 | Standard atmospheric conditions | Within 30s | | | | | | | | | | | | | | | |
| 3 | 100°C±3°C | 30min | | | | | | | | | | | | | | | |
| 4 | Standard atmospheric conditions | Within 30s | | | | | | | | | | | | | | | |



| Test Item | Condition of test | Performance Requirements |
|------------------------------|---|--------------------------------|
| Sealing | The crystal filter unit shall be immersed in a industry alcohol for 5±0.5 minutes then 25±3°C 1~2 Hr before testing | Insulation Resistance>500MΩ |
| Resistance to soldering heat |  <p>Reflow soldering cure see the chart. Soldering iron method: Bit temperature: 350°C±10°C Application time of soldering iron:5s Max</p> | Refer to verdict specification |



10.1. inner box



10.2. outer box

