

Excellence in quartz crystals



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日本總代理店

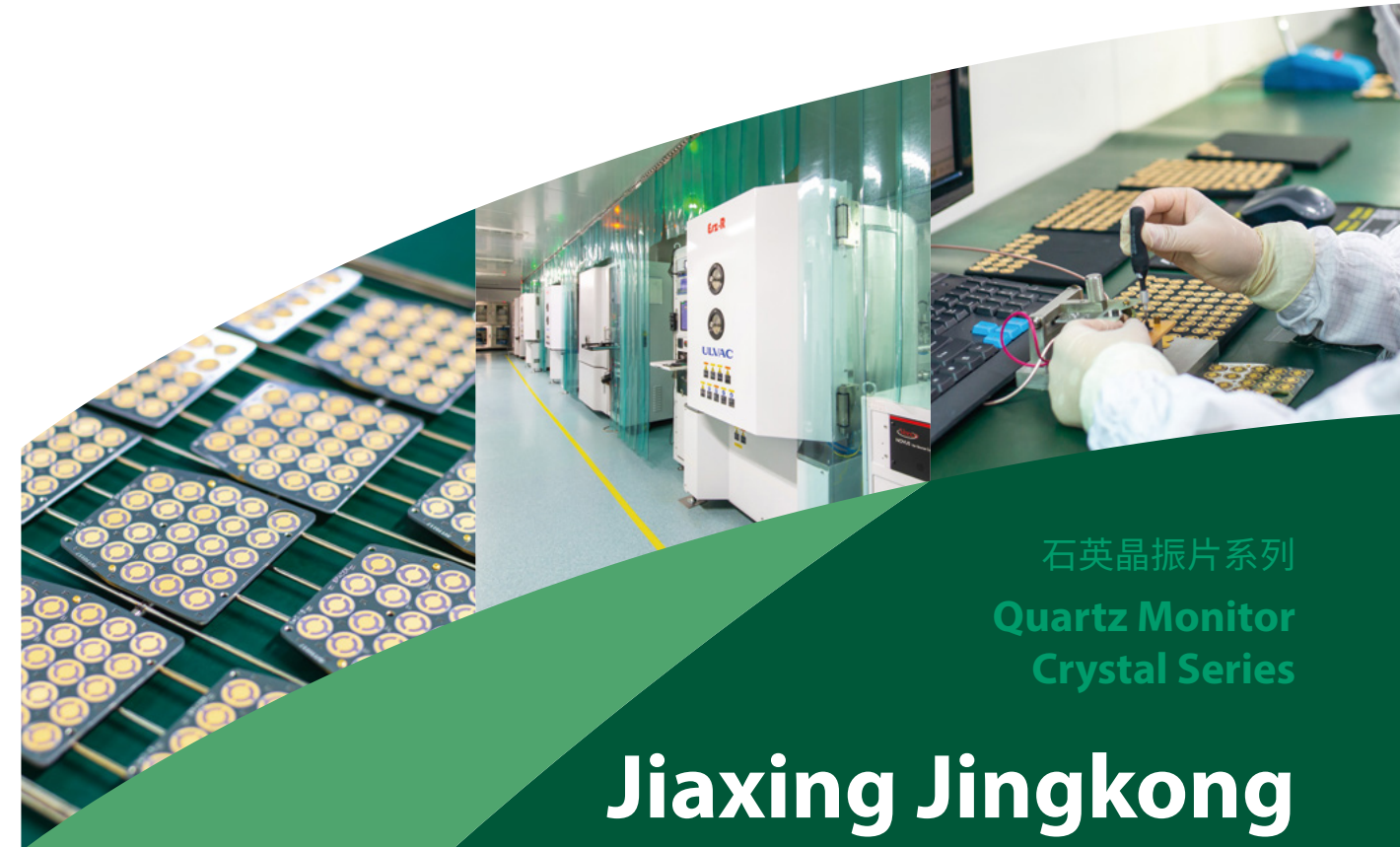


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石英晶振片系列
Quartz Monitor
Crystal Series

**Jiaxing Jingkong
Electronic**

嘉兴晶控电子有限公司
JIAXING JINGKONG ELECTRONIC CO., LTD.



使命 Mission

专注于石英晶控细分领域的探索钻研，孜孜不倦，精益求精，成就客户最具竞争力的价值选择。

JJK focuses on quartz crystal control in the field of exploration and study, and strives constantly and tirelessly for perfection so as to provide customers the most competitive value choice.



嘉兴晶控电子有限公司—晶振片专业生产厂家
原材料到成品的100%制造

JJK monitoring crystals are produced 100% in house—from blank quartz crystals to the finished product—ensuring unparalleled quality.



为客户提供最可靠的晶振片，是JJK不懈追求的目标。JJK深知，晶振片的任何一片失败，都可能给客户带来巨大的损失。所以，JJK晶振片的制造工艺，可以为了追求高可靠性而技术过剩，但不会为了降低成本而对可靠性造成任何损害。

为进一步满足客户的需求，JJK不断研发关联新产品，为客户提供多种价廉物美的镀膜材料、晶控相关备件等。

To provide customers with the most reliable crystal oscillator, JJK's relentless pursuit of the goal. JJK knew that any failure of the chip could bring huge losses to the customer. Therefore, the manufacturing process of JJK crystal oscillator can be in excess of technology in order to pursue high reliability, but will not cause any damage to reliability in order to reduce cost.

In order to further meet the needs of customers, JJK continues to develop related new products, providing customers with a variety of inexpensive coating materials, crystal control related spare parts.

JJK是个非常重视积累的企业，特别在压电石英晶体行业积累了超过30年的实践经验。JJK的企业管理，一直把员工队伍的稳定性放在重要位置。经过多年的积累，JJK逐步建立起了一支高稳定的经营团队。JJK的客户群体，更在不断积累中壮大，至2019年底，JJK的直接用户数已经超过了800家。

JJK is a company that attaches great importance to accumulation, especially in the piezoelectric quartz crystal industry with more than 30 years of practical experience. JJK's enterprise management has always put the stability of the staff in an important position. After years of accumulation, JJK has gradually established a highly stable management team. The customer base of JJK is growing steadily. By the end of 2016, the number of direct users of JJK has exceeded 800.

关于嘉兴晶控 About JJK

嘉兴晶控电子有限公司坐落于浙江省嘉兴市余新镇镇北路23号，厂房面积7600平方米，员工70人，是一家专注于石英晶体振荡式传感器研发、生产和销售的小型科技企业。

Jiaying Jingkong Electronics Co., Ltd., located at No. 23, Zhenbei Road, Yuxin Town, Jiaying City, Zhejiang Province, is a small technology enterprise focusing on the research, development, production and sales of quartz crystal oscillating sensors, with a factory area of 7600 square meters and 70 employees.

" 品质创造价值
可靠赢得市场
Survival by reputation and development by quality "

专注于石英晶控细分领域的探索钻研，孜孜不倦，精益求精，成就客户最具竞争力的价值选择。

JJK focuses on quartz crystal control in the field of exploration and study, and strives constantly and tirelessly for perfection so as to provide customers the most competitive value choice.



JJK致力于在自身最具专业的细分市场—石英晶控产品领域的研发生产，创新精进，继而做深、做透、做强、做长，从而真正具备能够为客户持续创造价值的能力。

JJK is committed to doing research, developing and producing quartz crystal control products in the most professional market segment, making innovation and progress, and then making itself deeper, stronger and longer so as to continuously advance its ability to create the best values for customers.

打造石英晶控片卓越民族品牌

Create excellent national brand of quartz crystal control tablets



品牌无国界，民族的，就是世界的。晶控苑囿于石英晶控领域的探索，充分地发扬工匠精神，以恒久的自主创新为基调，构筑品牌坚实的后盾。同时借助稳步的品牌建设推进策略，实现JJK品牌的全面渗透和扩张，坚实地成为细分市场中无国界的隐型冠军。

As a small manufacturing company, JJK's core value proposition is that everything must follow the law and rule. The most prominent theme is the harmonious development of the company's employees, customers and social stakeholders. Therefore, all crystal controllers need to strictly observe the bottom line of the moral value.

The brand knows no borders. What's unique for a nation is also precious for the world. The crystal control garden is limited to the exploration of the quartz crystal control field, fully develops the spirit of craftsmen, and builds a solid backing of the brand based on constant and independent innovation. At the same time, with the help of steady brand building promotion strategies, the JJK brand will achieve the full penetration and expansion, and become a hidden champion without boundaries in the market segment.

“
打造石英晶控片卓越民族品牌
Create excellent national brand of quartz crystal control tablets
”

孜孜不倦：专注与重复是我们创造价值的必由之路；坚守规范是我们走向未来的基本信念；而价值和尊严是我们长期不懈、永不停歇的动力源泉。

精益求精：JJK要秉承工匠精神，精耕细作，运用创造性的构思，服务和创意人民生活，提升人类生活质量。

Persevere: Focus and repetition are the only way for us to create value; sticking to the norms is our basic belief towards the future; and value and dignity are our long-term unremitting and never-ending power source.

Keep improving: JJK should uphold the spirit of craftsman, work hard, use creative ideas, serve and provide new ways for the people, and improve the quality of human life.

作为一家小型的制造企业，晶控核心价值主张综合来说就是一切要遵循大道和规则，其最为彰显的主题是——公司协同员工、客户和社会相关方的和谐发展。因此，所有的晶控人需要谨遵这一道德价值底线。



Quartz Monitoring Crystals for Thin Film Deposition Control



JJK quartz monitoring crystals meet all your requirements for reliability, availability and affordability. JJK monitoring crystals are produced 100% in house – from blank quartz crystals to the finished product – ensuring unparalleled quality no other company can guarantee.

100%测试检验

为确保晶振片的稳定、精确的速率和最大寿命值，对每片产品做如下检测：

- ⊙ 阻抗检测—保证测量的稳定性和更长的镀膜寿命，谐振阻抗是电极的电接触和附着力的指标。
- ⊙ 频率检测—小范围起始频率确保精确的厚度测量。
- ⊙ 曲率检测—曲率测试确保共振平衡，曲率测试的共振稳定性低则产品品质下降快。
- ⊙ 一致性检测—每个晶体做电极均匀性、表面划痕、亮点检测，这些是电极沾覆性差和晶振片污染的指标。

100% Testing and Inspection

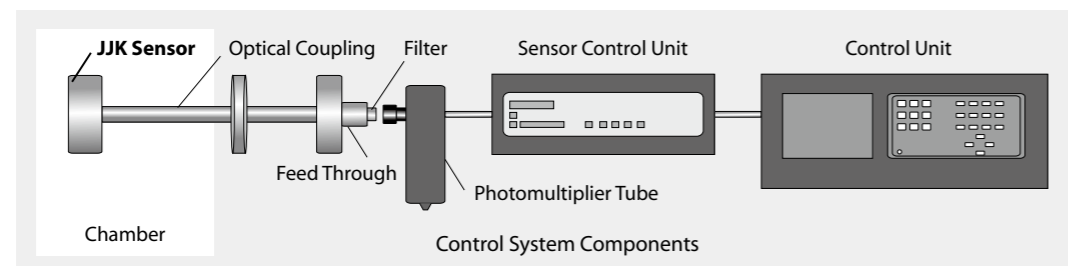
To ensure maximum lifetime in your process and stable and accurate rate control, each crystal is examined for:

- ⊙ Resistance-Resistance is checked to assure measurement stability and longer coating life. Resistance is an indicator of electrical contact and electrode adhesion.
- ⊙ Frequency-Starting frequency within a small specification range is verified to ensure accurate thickness measurement.

- ⊙ Curvature-An electrical test for curvature is performed to assure resonance stability. Poor curvature results in measurement stability degrading more rapidly.
- ⊙ Visual Conformity-Each crystal is inspected for electrode uniformity, surface flaws, and other imperfections that are indicators of poor electrode adhesion and contamination.

晶振片-膜厚控制仪

JJK晶振片满足了客户对产品质量稳定、有效可靠的要求。从石英原材料到晶振片成品，我们做到了对全生产过程的质量监控。





" Survival by reputation and development by quality "

可靠稳定便利的晶振片

- ◎ JJK有5MHz&6MHz金、银、合金电极晶振片，整个生产过程有严格的技术规范和精密检测，确保产品的高产能和最佳稳定性。
- ◎ 石英晶体基片采用AT切型平凸设计，以减少沉积速率和膜厚控制过程中可能发生的频率跳动现象。
- ◎ 充足的库存满足客户紧急和长期的需求。
- ◎ 我们还可根据您提供的尺寸、频率等技术参数，定制生产。

JJK晶振片优越性

- ◎ 无电极平凸结构确保基片稳定性。
- ◎ AT切型的石英基片提高了晶振片的稳定性，操作温度范围更广。
- ◎ 电极与晶体之间的底层沾覆性改善，确保了晶振片更长久可靠。
- ◎ 镀金、银电极膜层有最大的寿命值。
- ◎ 晶振片的频率和电阻100%出厂检验。
- ◎ JJK晶振片兼容于美国、德国、日本、韩国的镀膜设备。
- ◎ 万级净化无尘室避免微粒子污染，保证产品质量稳定性。

选择正确的晶振片

- ◎ 我们持续不断地对晶振片的特性做研究改进，以给您提供最稳定可靠的产品。
- ◎ 金电极晶振片适合大部分应用，它具有低接触电阻，高化学稳定性。金电极晶振片最适合于低应力材料的镀膜监控，如金、银、铜的膜厚控制。
- ◎ 银电极晶振片有非常低的接触电阻和优良的塑变性，适合在热负荷高的工艺（如溅射）中提供优越的性能。
- ◎ 银铝合金晶振片多用于镀介质材料和半导体行业，适合高应力膜料的膜厚控制，如SiO₂、MgF₂、TiO₂等。



Quartz Monitor Crystal

How to Choose the Right Crystal

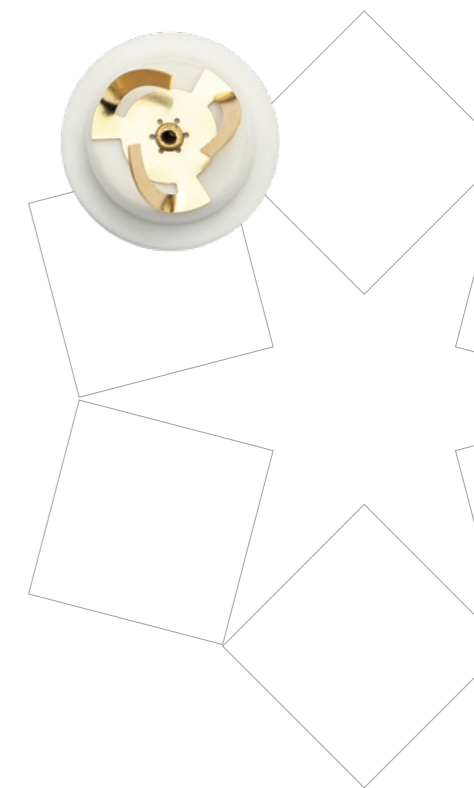
- ◎ Our continuing research into quartz crystal characteristics results in ongoing improvements to offer the highest reliability in your process.
- ◎ We recommend gold crystals for most applications. They have low contact resistance, high chemical stability. The gold electrodes crystals are best suited for low stress material coating monitoring, such as gold, silver, copper film thickness control.
- ◎ Silver crystals will provide superior performance in processes with high heat loads, such as sputtering. They may also improve the deposition of oxides.
- ◎ Alloy crystals are recommended for optical coating with dielectric materials and for semiconductor processes with high-stress materials, such as SiO₂, MgF₂, TiO₂ and so on.

Delivering Just the Right Crystal

- ◎ Available in 5 and 6 MHz with gold, silver, or stress reducing alloy electrodes, JJK quartz monitor crystals are produced to stringent specifications and carefully inspected to assure high yields and optimum reliability.
- ◎ Our AT-cut plano-convex design reduces errors in deposition rate and thickness by minimizing spurious vibrational modes.
- ◎ We have abundant inventory to meet both your immediate and long-term requirements.
- ◎ We also offer the flexibility to produce crystals to your specific sizes and frequencies.

Advantages

- ◎ Plano-convex configuration suppresses unwanted modes for greater accuracy.
- ◎ AT-cut crystal orientation enhances stability over a wide range of operating temperatures.
- ◎ Improving of adhesion underlayer from electrode-to-crystal assures the crystals' reliability and long-life.
- ◎ Gold or silver electrode coating for maximum electrode life.
- ◎ 100% testing of each crystal's frequency and activity (series resistance).
- ◎ Compatibility with all JJK sensor heads and most other manufactures instruments.
- ◎ Clean room processing to avoid particulate contamination.





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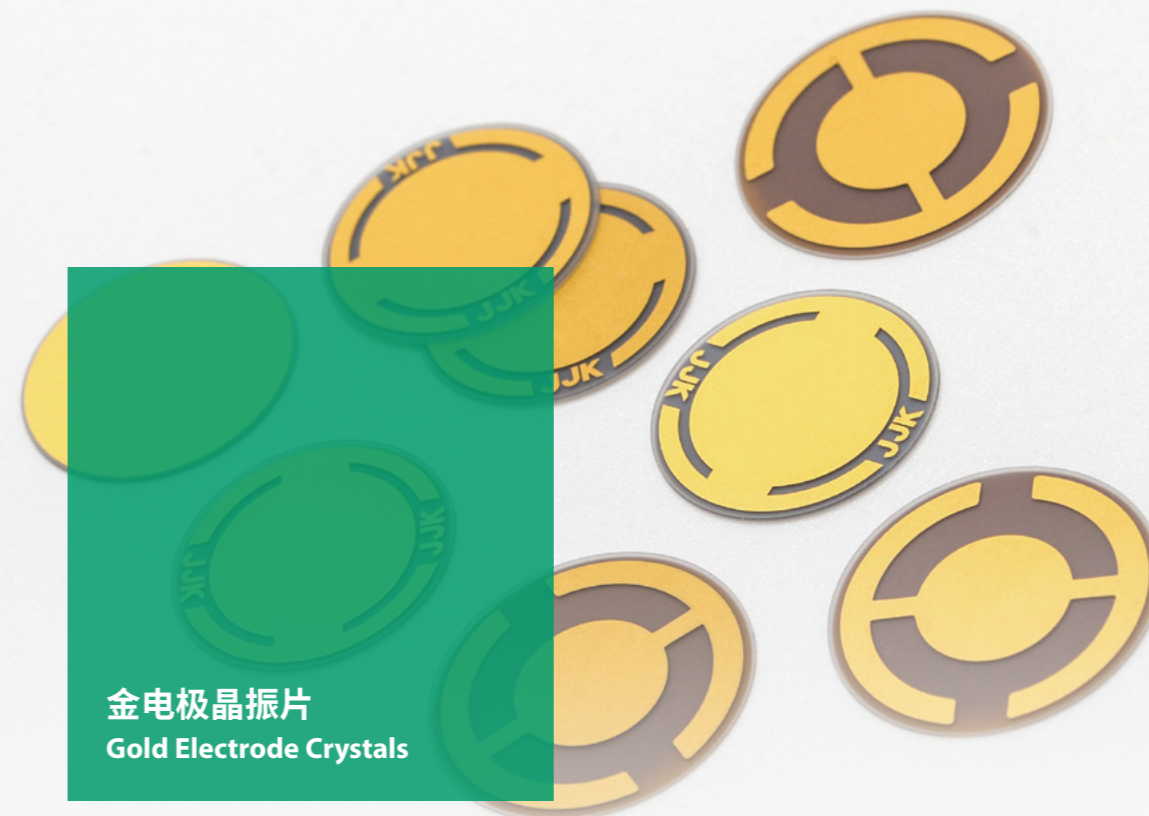
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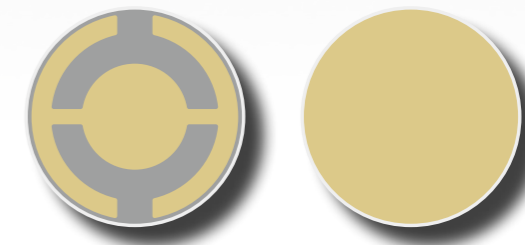
石英晶振片系列

Quartz Monitor Crystal Series

金电极晶振片

Gold Electrode Crystals

Type AC6AD14



Specifications

型号	Part No.	AC6AD14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



石英晶振片系列
Quartz Monitor Crystal Series

金电极晶振片 Gold Electrode Crystals

Type AC6AF14



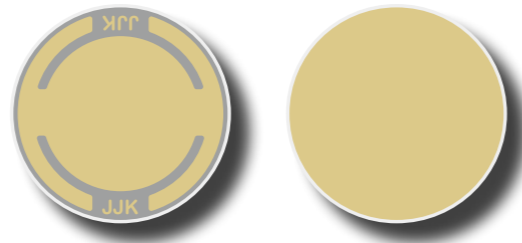
Specifications

型号	Part No.	AC6AF14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	全覆电极 Full coated
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

金电极晶振片 Gold Electrode Crystals

Type AC5AD12



Specifications

型号	Part No.	AC5AD12
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	5.001MHz
频率公差	Frequency Tolerance	±6KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



石英晶振片系列
Quartz Monitor Crystal Series

金电极晶振片 Gold Electrode Crystals

Type AC5AF12



Specifications

型号	Part No.	AC5AF12
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	5.001MHz
频率公差	Frequency Tolerance	±6KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	全覆电极 Full coated
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



金电极晶振片 Gold Electrode Crystals

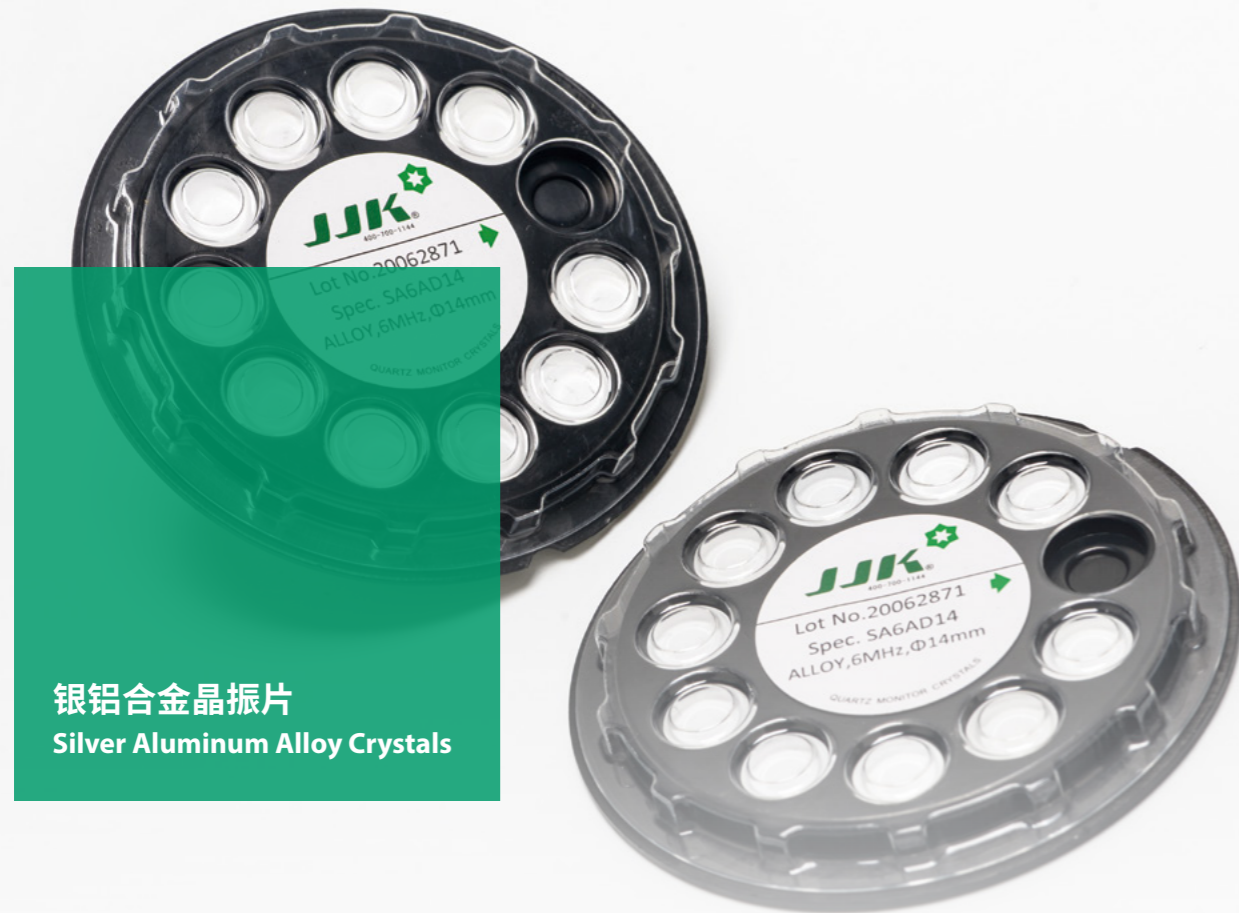
石英晶振片系列
Quartz Monitor Crystal Series

银铝合金晶振片 Silver Aluminum Alloy Crystals

Type SA6AF14

Specifications

型号	Part No.	SA6AF14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	全覆电极 Full coated
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



银铝合金晶振片 Silver Aluminum Alloy Crystals

石英晶振片系列
Quartz Monitor Crystal Series

银铝合金晶振片 Silver Aluminum Alloy Crystals

Type SA6AD14

Specifications

型号	Part No.	SA6AD14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



石英晶振片系列
Quartz Monitor Crystal Series

银铝合金晶振片 Silver Aluminum Alloy Crystals

Type SA6AD12

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型号	Part No.	SA6AD12
标称频率	Nominal Frequency	6.000MHz
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储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

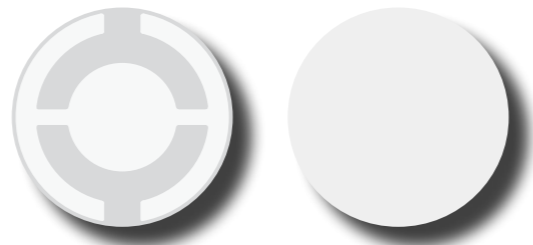




石英晶振片系列
Quartz Monitor Crystal Series

银铝合金晶振片
Silver Aluminum Alloy Crystals

Type SA5AD12



Specifications

型号	Part No.	SA5AD12
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	4.977MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

银铝合金晶振片
Silver Aluminum Alloy Crystals

Type SA5AD14



Specifications

型号	Part No.	SA5AD14
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	4.977MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

银电极晶振片
Silver Electrode Crystal

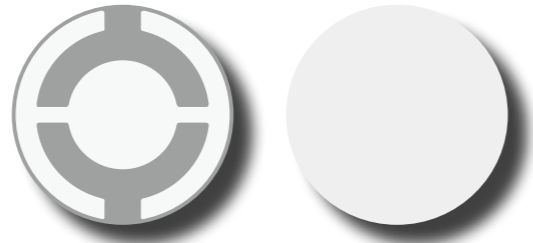




石英晶振片系列
Quartz Monitor Crystal Series

银电极晶振片 Silver Electrode Crystal

Type SC6AD12



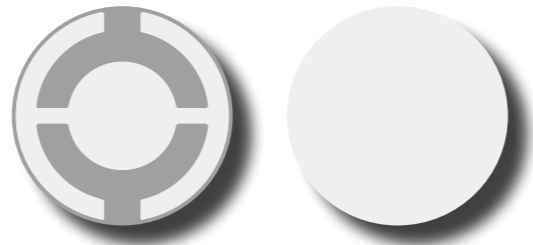
Specifications

型号	Part No.	SC6AD12
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

银电极晶振片 Silver Electrode Crystal

Type SC6AD14



Specifications

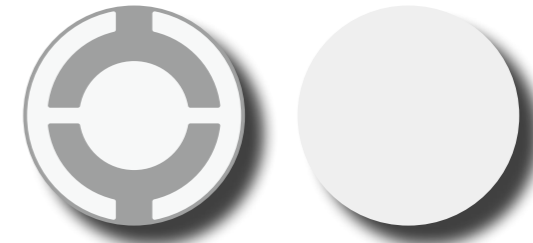
型号	Part No.	SC6AD14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铬 Silver(Ag) / Chrome(Cr)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



石英晶振片系列
Quartz Monitor Crystal Series

银电极晶振片 Silver Electrode Crystal

Type SC5AD12



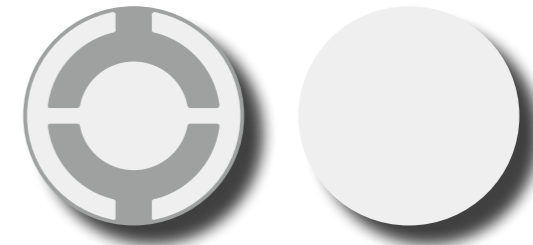
Specifications

型号	Part No.	SC5AD12
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	4.960MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

银电极晶振片 Silver Electrode Crystal

Type SC5AD14



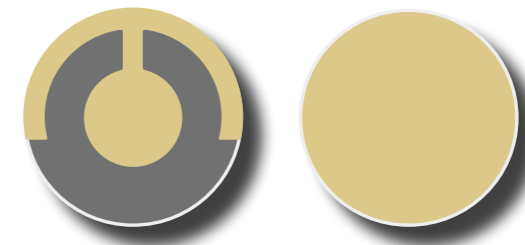
Specifications

型号	Part No.	SC5AD14
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	4.960MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铝 Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

定制产品
Custom Products

Type AC6AP14



Specifications

型号	Part No.	AC6AP14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	单锚电极 1 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



定制产品
Custom Products

石英晶振片系列
Quartz Monitor Crystal Series

定制产品
Custom Products

Type CR5GE



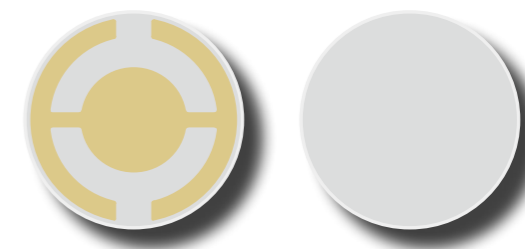
Specifications

型号	Part No.	CR5GE
标称频率	Nominal Frequency	5.000MHz
中心频率	Center Frequency	5.001MHz
频率公差	Frequency Tolerance	±6KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT(100R)
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	全覆电极 Full coated
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

定制产品
Custom Products

Type AA6AD14



Specifications

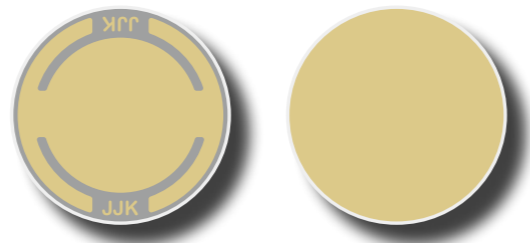
型号	Part No.	AA6AD14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 银 / 铝 Gold(Au) / Silver(Ag) / Aluminum(Al)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



石英晶振片系列
Quartz Monitor Crystal Series

定制产品
Custom Products

Type AC4AD12



Specifications

型号	Part No.	AC4AD12
标称频率	Nominal Frequency	4.000MHz
中心频率	Center Frequency	4.001MHz
频率公差	Frequency Tolerance	±6KHz@25°C
晶片直径	Wafer Diameter	12.42mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	金 / 铬 Gold(Au) / Chrome(Cr)
电极外观	Electrode Appearance	双锚电极 2 anchors
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%

石英晶振片系列
Quartz Monitor Crystal Series

定制产品
Custom Products

Type SC6AP14



Specifications

型号	Part No.	SC6AP14
标称频率	Nominal Frequency	6.000MHz
中心频率	Center Frequency	5.987MHz
频率公差	Frequency Tolerance	±7KHz@25°C
晶片直径	Wafer Diameter	13.97mm ±0.02mm
谐振阻抗	Resonance Resistance	≤15Ω
晶体切型	Crystal Cutting	AT-CUT
工作温度	Operating Temperature	25°C ~75°C
电极材料	Electrode Material	银 / 铬 Silver(Ag) / Chrome(Cr)
电极外观	Electrode Appearance	单锚电极 1 anchor
储存温度	Storage Temperature	-20°C ~+85°C
储存湿度	Storage Humidity	RH 30~50%



晶控探头
Sensor Head

晶控配件
Crystal-Control Parts

晶控探头
Sensor Head

SH0.55"

Specifications

型号	Part No.
A. 底座、卡簧	A. Chassis、jump rings
B. 圆形探头	B. Circular Sensor Head
C. 箱式探头	C. Box-type Sensor
D. 手指弹簧	D. Finger Spring
E. 水晶振荡器	E. Crystal Oscillator

镀膜材料 Coating Material



二氧化硅 (SiO_2)



氟化镁 (MgF_2)



三氧化二铝 (Al_2O_3)



五氧化三钛 (Ti_3O_5)



钛酸镧 (LaTiO_3)



镀膜过程常见问题与解答

1. 在镀膜过程中，膜厚读数有大的跳动。
2. 镀膜过程中，在晶体寿命正常结束前，晶体停止振荡。
3. 晶体不振荡或间歇振荡（在真空或大气中）
4. 晶体在真空中振荡，但大气中停止振荡。
5. 晶体中大气中振荡，但在真空中停止振荡。
6. 热不稳定性: 膜厚读数在蒸发源升温过程中（通常导致膜厚读数减小）和终止镀膜后（通常导致膜厚读数增大）有大的变化。
7. 膜厚的再现性差
8. 终止镀膜后，膜厚有大的偏离（密度为 5g/ml 时大于 200 埃）
9. 双晶体或多晶体转换问题（不转换或不对准孔径中心）
10. 晶体安装，读数始终不变，镀膜过程中不下降，不提示。

一 . 在镀膜过程中，膜厚读数有大的跳动

原因分析	解决方法
1. 由于晶振片损坏，模式跳跃	1. 更换新的晶振片
2. 膜料应力大导致所镀膜层从晶振片表面剥离，翘层。	2. 更换新的晶振片
3. 来自蒸发源（坩埚）的微颗粒或“溅物”，“杂质”打击到晶振片。	3. 镀膜前对蒸发源的材料杂质彻底清理，预融时延长挡板打开时间。
4. 晶振片的基座（探头帽）的表面有小颗粒或有外来微粒（基座不正常）。	4. 弱酸清洗或抛光基座表面，安装晶振片接触底座。
5. 小块材料落在晶振片上（晶振片一面是面向蒸发源的）	5. 检查晶振片表面有无颗粒杂质，用清洁的气体吹净

二 . 镀膜过程中，在晶体寿命正常结束前，晶体停止振荡

原因分析	解决方法
1. 来自蒸发源的微粒或“溅料”“杂质”打击晶体。	1. 镀膜前对蒸发源的材料杂质彻底清理，预融时延长挡板打开时间。
2. 晶振片基座（探头帽）上膜料厚积，掩盖了晶振片露出的监测孔。	2. 弱酸清洗晶振片基座（探头帽）
3. 存在电路短路或开路	3. 用万用表检查传感器电缆到膜厚仪中间，电缆松动，各连接件的接触，接触弹片，传感器内部连接线以及插入件的电连通。
4. 检查由于高温产生的电路短路或开路	4. 见上面 3

注意：晶体寿命与镀膜过程中膜料，蒸发源的热辐射，位置，以及残留气体的成分有很大关系。



三 . 晶体不振荡或间歇振荡（在真空或大气中）

原因分析	解决方法
1. 弹片与晶振片之间间歇接触或接触不良（接触点氧化）。	1. 用万用表检查电连通情况，阻值应小于 1 欧姆，清洗弹片接触点。
2. 弹片已经失去弹力，变形，或断脚现象，以及弹片与陶瓷圈之间松动。	2. 将弹片扳弯角度大约 45 度，或者更换新的陶瓷三角片。
3. 来自蒸发源的 RF 干扰。	3. 检查接地线，使用符合 RF 接地的接地铜带，改变仪器与振荡器的位置，远离 RF 电源线，将仪器连接不同的供电电源。
4. 电缆 / 振荡器没有连接好，或者连接到错误的传感器输入端。	4. 检查连接和与编程的传感器参数相关的输入是否正确。

备注：接触弹片，陶瓷三角片（陶瓷底圈）使用约 4000 次，就要更换。不应等到断脚，或者松动严重，陶瓷破损才更换。

四 . 晶体在真空中振荡，但大气中停止振荡

原因分析	解决方法
1. 晶振片接近于它的终止寿命；打开至空气中导致膜层氧化，增大膜层的应力。	1. 更换新的晶振片
2. 破真空时，大量的潮气聚积在晶振片表面，经过晶振片的冷却水流量小或冷却效果不好	2. 在系统破真空前，延长冷却时间；定期保养冷却水管，弱酸或压缩空气疏通内壁水垢。

五 . 晶体中大气中振荡，但在真空中停止振荡

原因分析	解决方法
1. 该现象为探头基座（单探头，多探头一样）内部接触弹片变形，断裂，或者接触不良，不是晶振片不良。	1. 检查晶振片探头接触部位，更新或者用镊子扳动，使之接触良好。
2. 离子源中和未调节好，导致过量的带电离子瞬间击穿晶振片，在晶振片表面形成点击花纹。	2. 调节中和器，使带电离子充分被中和为分子。



六. 热不稳定性：膜厚读数在蒸发源升温过程中（通常导致膜厚读数减小）和终止镀膜后（通常导致膜厚读数增大）有大的变化

原因分析	解决方法
1. 冷却水不符合要求 / 冷却水温度过高	1. 检查冷却水流量，保持冷却水温度低于 25 度。
2. 过多热量输入晶振片	2. 来自蒸发源的热辐射，移动传感器远离源，或使用高温探头，热稳定性较好。
3. 晶振片没有正确放置到基座上，底部有杂质颗粒或放置倾斜。	3. 清洗或抛光晶振片基座，清理底部残留杂物。
4. 从冷却水管到探头部位的热传输差	4. 打开真空连接法兰，更换新的冷却水管；如无新水管，在工艺允许的情况下，冷却水管与晶振探头之间用单层铝箔包住，起到隔热效果。
5. 晶振片被高能电子束击加热	5. 使用高温晶振片探头。

七. 膜厚的再现性差

原因分析	解决方法
1. 可变的离子源束流分布	1. 移动晶控探头至更接近中心位置，更可靠的取样（镀粒）
2. 扫描束斑，坩埚位置，可能从上次的镀膜后电子束与坩埚位置已变	2. 位置不变的扫描频率，手动调节光斑位置，检查坩埚位置是否正确。
3. 膜料不能吸附在晶振片上	3. 确保晶振片表面清洁，避免手指接触，使中间有附层。
4. 镀膜速率周期性变化	4. 检查功率和速率是否匹配，材料是否有杂质。



八. 终止镀膜后，膜厚有大的偏离（密度为 5g/ml 时大于 200 埃）

原因分析	解决方法
1. 由于热接触差，晶体被加热	1. 清洗或抛光晶振片基座表面
2. 外磁场干扰传感器的磁场，如离子源	2. 旋转传感器磁场至正确位置的方位尽量远离磁场
3. 晶振片子镀膜过程中出现了负跳现象	3. 更换新的晶振片

九. 双晶体或多晶体转换问题（不转换或不对准孔径中心）

原因分析	解决方法
1. 无气源，或气动压力不足	1. 将供气压力调整于 80-90PSIG
2. 镀膜材料聚集在盖上，使操作受阻	2. 按保养要求清除聚集材料
3. 准直不正确（主要为多探头）	3. 重新准直
4. 0.0225' 直径小孔未安装于电磁阀的供气一侧（主要为多探头）	4. 安装小孔，按多探头安装说明书重新安装

十. 晶体安装，读数始终不变，镀膜过程中不下降，不提示。

原因分析	解决方法
1. 探头连接断路	1. 用万用表测量，振荡器前端电压值根据说明书量得 3.3V, 4.7V 或 5.3V; 振荡器到探头部分量电阻，应小于 1 欧姆。
2. 振荡器损坏	2. 更换新的振荡器
3. 晶控系统故障	3. 关闭电源，重启电脑和膜厚控制仪；若不能解决，重新安装系统驱动



选择 JJK 晶振片的理由 Reasons for choosing JJK crystal oscillator

1. 合理的价格。 1. A reasonable price.
2. 稳定的质量：基片连续 20 年出口美国某晶振片品牌公司；成品引进进口设备制造。 2. Second, stable quality: a substrate 20 consecutive years exports to the US of a crystal piece brands; refined equipment manufacturers depend on net imports.
3. 库存量充足：动态在库存总量超过 20 万片，常规型号保证 5 万片以上。 3. Third, adequate inventories: dynamic in the library of the total stock over 200,000, conventional models guarantee more than 50,000.
4. 交期速度快：采用国内最快速度的“顺丰速运”次日达。 4. Four delivery speed: using domestic fastest speed "SF" the next day.
5. 较好的口碑：性价比最高，同业同行知名度高。 5. Five good reputation: the highest price, with high-profile industry peers.



三种便捷包装 Three convenient packages

黑色盒子真空包装，平放硬盘可旋转，—10片/盒，使用时用真空笔取出或直接装上探头固定器。

白色盒子密封包装，竖放硬盘可旋转，—10片/盒，使用时用塑料镊子取出或直接装上探头固定器。

小方盒真空包装，晶振片用无尘纸袋装—5片/盒，使用时用真空笔或塑料镊子取出。

Black box vacuum packing, A hard disk that can rotate, — 10 / box, When used with vacuum pen out or directly on the probe holder.

White box vacuum packing, A hard disk that can rotate, — 10 / box, When used with vacuum pen out or directly on the probe holder.

Small box vacuum packing, Sliced crystals with air-laid paper bags — 5 / box, When used with vacuum pen out or directly on the probe holder.



创业历程 Business process

01

[2000年2月] 创业团队在杭州高新区组建JJK前身杭州鲲鹏电子有限公司。当时主要产品为压电石英晶体圆片，同时为意大利的一家著名晶振片生产厂家提供晶振片白片。

February 2000: A team of highly experienced entrepreneurs' set-up Hangzhou Kunpeng Electronics Co., Ltd – the predecessor of JJK. The primary focus at that time was the production of piezoelectric quartz wafers and flat-flat slice quartz crystals.

02

[2002年1月] 我们开始研发平凸的晶振片基片，并开始小批量供应美国市场。

January 2002: Research and development of flat-convex quartz crystal substrates.

03

[2004年1月] 嘉兴晶控电子有限公司注册成立。

February 2004: Jiangxing Jingkong Electronic Co., Ltd (JJK) was officially registered.

04

[2005年] 公司在晶振片基片的技术上取得重大突破。同年下半年，公司的晶振片基片大批量进入美国市场，成为美国某著名晶振片企业的基片供应商。

January 2005: Significant breakthrough in the development and production capabilities of quartz crystal substrates. JJK enters the North American market and becomes the supplier of one of the leading crystal producers.

05

[2008年10月] 第一台美国真空镀膜机抵达工厂，公司开始研发生产晶振片成品。

October 2008: Introduction of state-of-the art coating equipment allows JJK to manufacture quartz crystal end products.

06

[2008年12月] JJK品牌晶振片推向市场。与此同时，公司向国家商标局申请注册JJK商标，并于2010年10月注册成功。

December 2008: Launch of broad marketing campaign promoting JJK monitoring crystal. JJK officially

07

[2009年5月] 第二台美国进口真空镀膜机抵达工厂，JJK品牌的金电极晶振片、银电极晶振片和银铝合金电极晶振片全面上市。

May 2009: The introduction of a second coating machine S&A, allows for further product innovation and market development. Increased capacity also allows JJK to further establish itself in the market.

08

[2009年9月] 第一次亮相深圳光博会，成功参展并获得广大客户的好评。

September 2009: JJK participates in the China International Optoelectronic Exposition (CIOE) in Shenzhen. By that time customer bases encompasses blue chip companies.



09

[2010年12月] 不断进步的JJK得到更多用户的支持，2010年底产品成功进入海外市场。

December 2010: JJK enters overseas markets and develops foreign customer base.

10

[2011年3月] JJK正式任命EVOCHEM作为在德国、奥地利、瑞士、列支敦士登等四个国家总代理。

March 2011: JJK officially appoints EVOCHEM Advanced Materials as their exclusive agent for Germany, Austria, Switzerland and Liechtenstein.

11

[2011年5月] JJK产品亮相德国慕尼黑光电展，全面进入欧洲市场。

May 2011: Products are appearance in Munich Photoelectric Exhibition, Germany and enter the European market roundly.

12

[2012年5月] JJK正式任命FMC作为韩国总代理。

May 2011: JJK officially appoints FMC as their exclusive agent for Korea.

13

[2012年6月] JJK正式任命ADVANTEC作为日本总代理。

June 2011: JJK officially appoints ADVANTEC as their exclusive agent for Japan.

14

[2012年7月] JJK正式任命ADVANTEC在新加坡的分公司作为东南亚总代理。

July 2011: JJK officially appoints Singapore ADVANTEC as their exclusive agent for South East.

15

[2012年9月] JJK自主研发的自平衡离心脱水机正式亮相深圳光博会。

September 2012: The Automatic Adjustable Centrifugal Drying Machine (AACDM) which was invented by JJK officially unveiled at the CIOE in Shenzhen.

16

[2014年2月] JJK公司成品车间整体改造，环境进一步改善，产品质量得到很大提升。

February 2014: JJK has relocated in order to improve the environment and the quality of the products.

17

[2015年9月] JJK引入第三方企业管理咨询机构，进一步规范公司管理。

August 2015: JJK introduces a third party enterprise management consulting agency to further standardize company management.

