

Global Crystal Oscillator Industry Report, 2007



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Crystal is a kind of colorless and transparent quartz crystal minerals, the one having one-way wafer surface is called crystal; by contrast, the rest mixed with other materials what have special quality is quartz. However, in electronic field, they are equivalent, and in Japan, people usually name it with crystal instead of quartz.

According to the horizontal comparison in the three factors of quartz component technology including frequency, accuracy and dimension, Euro-American manufacturers are predominant in frequency development. Due to Euro-American enterprises' development in wireless communication technology during the World War II, they have outstanding ability in design and development yet low production efficiency. By contrast, Japanese manufacturers with leading technologies possess excellent product promotion ability in terms of accuracy and dimension; meanwhile, they can put products into further mass production and automatic production. As for Taiwan manufacturers, most of them directly purchase raw material directions, machines and equipments or immediately buy the production process; and orienting at short launching time of products, Taiwan-based manufacturers have recently transferred technology into self-owned ability and have improved it through promoting equipments and processing ability. The manufacturers in mainland China produce over 1.3 billion quartz components, mainly being low-grade products and accounting for 19-24% of the world's total; besides, 80% of the low-end components are exported. Nevertheless, owing to the domestic demand of 1.3-1.5 billion, mainland China only has the self-supplying ratio of 20%, indicating that local manufacturers cannot meet the huge domestic market demand effectively. Therefore, in recent years, major manufacturers in mainland China have actively improved the technical ability and set foot in the production of medium- and high-grade products.

In Taiwan, there are the following quartz component manufacturers with certain production scale: TXC Corporation, Syward Crystal Technology, HELE, Taisaw Technology and Aker Technology Co., Ltd., of which TXC Corporation has the largest market share, and HELE followed.

Japanese manufacturers dominate the quartz component market. Considering from the global market, quartz components have a high market concentration degree. It is estimated that Japanese companies will account for about 60-70% of the world's production value, and the rest market share goes to Euro-America, Taiwan, mainland China and SK. America manufacturers enjoy high research level, yet with a small output, and mainly produce military products; as the industry leader, Japan not only has top-ranking products but also has the largest production value; most of SK's quartz components aim at meeting its own demand; Taiwan-based manufacturers are at a medium and high level; mainland China majors in low-end DIP quartz components, and several enterprises have set foot in SMD product manufacture.

Crystal manufacturers fall into two types: one is comprehensive enterprise with overall product liens and technologies, the world's top four Japanese manufacturers are just listed into this type; the other is unique enterprises with obvious emphasis, except the top four manufacturers, most of the rest belong to this category. For instance, Vectron specializes in aviation & spaceflight and civil area with great emphasis on VCXO; TXC majors in laptop computers and desktop computers; Micro Crystal is affiliated to the notable clock enterprise -- Swatch Group, and naturally powerful in clock field; TEW is accomplished in artificial crystal; Rakon is absolutely the first in GPS crystal area with the market share of over 50%; Pericom deals with whole solutions in allusion to its own IC. And enterprises of too small scale have to face continuous merger and acquisition in the industry: Epson's crystal division purchased Toyocom, Rakon acquired the

frequency control division of C-MAC, Corning bought the frequency control department of OAK, yet Vectron purchased the frequency control division of Corning, and Kyocera acquired Kinseki, etc.

Table of Content

1 Brief introduction to crystal oscillator

- 1.1 Definition
- 1.2 User's guide
- 1.3 Working principle
- 1.4 Manufacturing process
- 1.5 Industry chain

2 Status quo and future trend of crystal oscillator market

- 2.1 Status quo and future of crystal oscillator downstream market
- 2.2 Status quo of crystal oscillator market
- 2.3 Future trend of crystal oscillator market
- 2.4 Future trend of crystal oscillator product

3 Status quo and future demand of crystal oscillator industry

- 3.1 Status quo
- 3.2 MEMS oscillator
 - 3.2.1 Prospect
 - 3.2.2 Status quo
 - 3.2.3 Technology
 - 3.2.4 Brief introduction to Discera SiTime Silicon Clocks
- 3.3 QMEMS

4 Crystal oscillator manufacturers

- 4.1 Epsontoyocm
- 4.2 NDK
- 4.3 Kyocera Kinseki
- 4.4 KDS
- 4.5 Vectron
- 4.6 TXC
- 4.7 TEW
- 4.8 Rakon
- 4.9 River
- 4.10 Pericom
- 4.11 Siward
- 4.13 HELE
- 4.14 Other companies in mainland China
 - 4.14.1 Hubei Dongguang Group Co., Ltd
 - 4.14.2 Nanjing Hualianxing Electronics Co., Ltd
 - 4.14.3 Taizhou Albel Electronics Co., Ltd

Tables/Figures

- Global quartz crystal oscillator output, 2004-2010
- Global quartz crystal oscillator market scale, 2004-2010

Statistics and forecast of global output of wireless base stations, 2004-2010
Statistics and forecast of global Bluetooth equipment output, 2004-2010
Statistics and forecast of global WLAN equipment output, 2004-2010
Statistics and forecast of global MP3/PMP output, 2004-2010
Statistics and forecast of global game player output, 2004-2010
Statistics and forecast of global high-end TV output, 2004-2010
Global quartz oscillator market scale and technical structure, 1997-2006
Output and structure of Japan's quartz products, 1998-2007
Production value and structure of Japan's quartz products, 1998-2007
Global quartz oscillator market scale and application structure, 2003-2009
ASP statistics and forecast of crystal oscillator, 2001-2010
Statistics and forecast of quartz oscillator market scale, 2003-2009
Statistics and forecast of TCXO market scale, 2003-2009
Statistics and forecast of crystal filter market scale, 2003-2009
Dimension and structural proportion of SMD-type quartz oscillator, 1999-2010
Ranking of the world's top 14 crystal oscillator manufacturers by revenue, 2004-2006
Global production value of crystal oscillator industry by region, 2006
Technical route of MEMS oscillator
Sketch map of Sitime's MEMS oscillator
Organization structure of NDK
NDK's income, operation profit and net profit, 2004Q1-2006Q4
NDK's product structure by technology, FY2003-2007
NDK's income structure by region, FY2003-2007
NDK's cost structure, FY2003-2007
Statistics and forecast of NDK's investment, FY2003-2008
Statistics and forecast of NDK's R&D expense, FY2003-2008
Income and pre-tax profit of Kyocera Kinseki, FY2006-2007
Long-term operation target of Kyocera Kinseki
Income of KDS, FY2003-2007
Operation profit margin and net profit margin of KDS, FY2003-2007
Downstream application structure of KDS products, FY2003-2007
KDS's product structure by technology, FY2003-2007
KDS's income structure by region, FY2003-2007
Organization structure of TXC
Income and growth rate of TXC, 2004Q1-2007Q1
Net profit and growth rate of TXC, 2004Q1-2007Q1
Application structure of TXC's products in downstream industries, 2006-2007
Application structure of TXC's products in downstream industries, 2007Q1
Technical type structure of TXC's products, 2006-2007
Client structure of TXC, 2006
Product and technical strategies of TXC
Product packaging and development plan of TXC
Production capacity of TXC's factories
Investment plan of TXC, 2007
SWOT analysis of TXC, 2006
Rakon's income, FY 2002-2007
EBITDA profit of Rakon, FY 2002-2007
Rakon's income structure by region, 2006
Application structure of Rakon's products in downstream industries, 2006
Major clients of Rakon
Main chip partners of Rakon
Major product lines of Rakon
Technical trend of Rakon
Statistics and forecast of River's income, FY2003-2008
Statistics and forecast of River's operation profit, FY2003-2008

Statistics and forecast of River's investment in equipments, FY2003-2008
Application structure of River's products in downstream industries, 2006
Siward's organization structure
Income and gross profit margin of Siward, 2002-2006
Income structure of Siward by region, 2006
Organization structure of HELE
Comparison in business of HELE, TXC and Siward
Organization structure of Jingyuan Yufeng
Output and production value of Jingyuan Yufeng, 1991-2006

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