

Global Crystal Oscillator Industry Report, 2007

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Abstracts

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 selfowned 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 mediumand 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.



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