

## The patent analysis for the inverters

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### Summary

It is important for a company to put themselves under the protection of patent right to keep their unique competitive advantages when they confront global competition. This issue is of particular importance in Taiwan since a growing number of Taiwanese companies have been sued by foreign competitors for patent infringement. For inverter industry, producing labor-saving, energy-saving, space-saving, high-communicational, high-functional, low-noise and cost-saving inverters become a more and more important topic.

This research investigates the state of the art of current inverter technology. By using United States Patent & Trademark Office (USPTO) database, we collect global patent data for inverter technology analysis and for developing the patent map. By our patent analysis, we provide some useful information for domestic inverter industry as their reference to make the basis of planning their technological strategies.

After reviewing the patents, we found the patent application of the inverters dropped continuously since 2003. Technological lifespan represents a declining phenomenon. At this stage, the power of market growth entirely depends on developing more extensive application for inverter. A new find of extensive application for inverter will generate the next wave of inverter patent application fever.

Finally, we got the following important conclusions. As we know, for patent application strategies, companies should apply for patents complementary to those held by their main competitors or follow open standards set by standard setting organizations, so that they won't be controlled subjects of their competitors. For technology landmine area, software control and hardware design for inverter is the core techniques for foreign advanced companies. It is hard to make a breakthrough. On the other hand, peripheral technologies such as mechanism design, testing, strategy improvement and manipulation improvement for inverter are still in the beginning state. There still exist a lot of techniques need to be developed. Therefore, we suggest domestic inverter manufacturing companies could follow our suggestion to do the research and development to get a better niche market.

**keywords:** inverter, competitive advantage, patent analysis

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