



Engineering the Invisible Backbone of Modern Electronics

In today's environment of increasingly compact devices and rising performance expectations, the enabling technologies behind modern electronics often remain out of sight. Beneath the surface of smartphones, medical devices, and high-performance computing systems lies a sophisticated network of flexible circuits and advanced interconnects that make these innovations possible. For over three decades, QDOS has played a consistent role in supporting this technological evolution from its base in Malaysia.

The company's journey began in the early 1990s in Kulim, where it established its foundation in the manufacturing and assembly of flexible printed circuits (FPCs) and IC substrates, covering everything from circuit design to prototype fabrication and production. Over time, QDOS steadily expanded its footprint and capabilities. Today, the company operates across Malaysia and the People's Republic of China, with its headquarters in Penang, two manufacturing facilities in Bayan Lepas and Batu Kawan, and an additional plant in Xiamen, **marking its evolution into a regionally strong and globally connected manufacturer.**

Alongside this geographic and manufacturing expansion, QDOS has established a reputation defined by credibility and consistency. With **33 years of experience in FPC manufacturing and 13 years in IC substrate manufacturing, the company has cultivated long-standing trust among its customers.** This is reflected in its diverse customer base of approximately **380 customers across 33 shipment destinations, demonstrating both the scale of its operations and the confidence it inspires as a reliable partner.**

This trust is reinforced by the company's ability to deliver technologies aligned with the demands of modern electronics. Flexible printed circuits, by design, are lightweight, thin, and highly adaptable, capable of bending and fitting into compact or irregular spaces. As a result, they are widely used in applications such as smartphones, wearable devices, cameras, and medical equipment, where space optimization and flexibility are essential. In addition, FPCs reduce the need for connectors and wires, improving reliability while simplifying assembly processes.

Alongside its FPC capabilities, QDOS has also advanced its IC substrate manufacturing through the adoption of semi-additive process technologies. Compared to conventional methods, these enable ultra-fine line widths, higher interconnection density, and precise multilayer alignment. This technological capability supports a broad spectrum of applications, from high-performance computing and networking systems to industrial equipment, medical devices, and automotive electronics - each requiring a balance of precision, speed, and durability. As these application requirements continue to evolve, QDOS is taking proactive steps to further enhance its manufacturing capabilities. The company is investing in research and development to advance fine-line manufacturing processes for FPC production, enabling higher interconnection density and improved electrical performance. At the same time, enhancements at the Batu Kawan facility are strengthening operational efficiency and quality control.

These improvements are supported by targeted investments in critical equipment to ensure manufacturing consistency and support future growth:

- ▶ Circuit formation equipment to enable finer capabilities
- ▶ Mechatronic systems to improve production efficiency and consistency
- ▶ Circuit protection equipment to enhance yield and product reliability
- ▶ Circuit verification systems to strengthen quality assurance and process control



While technology and infrastructure are critical, QDOS recognizes that operational excellence is driven by people and processes. **To this end, the company places strong emphasis on workforce development through Global Electronics Association programs.** These initiatives ensure that engineers, technical staff, and management remain aligned with industry best practices and technological advancements, enabling the company to stay competitive in the dynamic electronics and semiconductor sectors.

This commitment to continuous improvement is further reinforced by **QDOS' membership in the Association. Through this engagement, the company gains access to internationally recognized IPC standards, skill development programs, and a global network of industry professionals.** At the same time, it strengthens customer confidence, as many customers are already familiar with the value and reliability of IPC-driven processes.

In fact, **IPC standards serve as a critical foundation in QDOS' operations, enabling effective collaboration with customers on technical matters and ensuring consistency across projects.** Looking ahead, QDOS sees strong potential in the evolving role of the Global Electronics Association, particularly in fostering knowledge exchange and advancing standards tailored to emerging technologies and new market demands.

As Shared by QDOS Leadership



IPC Standards continue to be the baseline for our industry (FPC & IC Substrates), which helps tremendously in collaborating with customers on technical topics. With the new avatar Global Electronics Association, we expect greater exchange within industry and user groups for developing new standards, especially catered to emerging markets and cutting-edge technologies.

Mr. Iqbal Siddiqui, General Manager, QDOS



Ultimately, QDOS' progress reflects a structured and forward-looking approach to growth supported by continued investment in advanced manufacturing, a strong focus on workforce development and active participation in the Global Electronics Association. Through these efforts, the company not only strengthens its own capabilities but also contributes to the advancement of the global electronics manufacturing ecosystem.

CONTACT

DR. RANEE RAMYA
COUNTRY MANAGER-MALAYSIA
Email: raneeramyia@electronics.org
Mobile: +60 17-560 2171

MR. ABDUL AZIM OTHMAN
OFFICE EXECUTIVE-MALAYSIA
Email: othmab@electronics.org
Mobile: +60 17-4490 277