ARTICLE

ABB provides a power protection solution for Malaysia's leading semiconductor wafer foundry

Fabrication processes rely heavily on continuous power protection. Power disturbances can result in increased costs in recovery time, resulting in loss of revenue. This will ultimately have an adverse effect on a company's operations. ABB's PCS100 Active Voltage Conditioner (AVC) is eliminating these potential risks by providing a reliable and efficient solution for a leading semiconductor wafer foundry based at the Kulim High-Tech Park in Malaysia.

The semiconductor industry is becoming increasingly important as semiconductors serve as the basic building materials for important electronic components. Semiconductor devices are extremely small, lightweight components that consume a small amount of power and are highly efficient and reliable. Today, the semiconductor industry has grown to be a $249 billion dollar industry, representing close to 10 percent of world GDP.1

The semiconductor company in the Kulim High-Tech Park incorporates value-added methods for the rapid manufacture of new technology as the demand continues to increase.

Established in 1995, the wafer foundry offers CMOS design and a broad range of fabrication processes for integrated chips (IC) in advanced logic, mixed signal and radio frequency as well as high voltage applications. The CMOS high voltage technology used in the design and fabrication of Display Driver IC (DDI), is widely used in mobile phones, GPS equipment, Personal Media Players (PMP), digital cameras and other applications.

In view of the nature of its operations, the foundry relies on highly sophisticated equipment that is immensely sensitive to voltage fluctuations. Voltage dips, lasting as briefly as several milliseconds, will have an adverse impact on the company's profile as the cost of scrapping damaged goods and plant start-up could run into millions.

With a sag and spike event occurring on average two times a month at Kulim Hi Tech Park, it was necessary to adopt ABB's power protection solution of four 750 kVA PCS100 AVCs units. This leading edge technology protects four fabrication lines, with another four PCS100 AVC units protecting the wafer fabrication production floor. The PCS100 AVCs are installed in a temperature-controlled room in order to prolong the lifetime of the units.

The PCS100 AVC solution was chosen for its range of unique features: the units require no battery, they have a 98 percent efficiency rate, they are easy to replace and they offer reliable protection with a small footprint. The package includes the PCS100 AVC itself, training, testing and commissioning. Also included in the package were ABB air circuit breakers and protection relays.

A true test of PCS100 AVC was a massive sag event occurring on 16th June. ABB's technology was able to ride through this event, enabling the production line to operate as normal without any sags or swells, proving that the foundry can rely on the new power protection package.

Jonathan Teo, Local Business Unit Manager for ABB Malaysia's Discrete Automation and Motion Division says, "We are pleased that the foundry has chosen ABB's Active Voltage Conditioner to ensure optimum power protection for its plant operations. I'm confident that this project will be a vital stepping stone for ABB into the Kulim Hi-Tech Park which is a national centre for advanced technology manufacturing and innovation."
The ABB PCS100 AVC has a power rating ranging from 160 kVA to 20 MVA. It is an inverter based system that protects sensitive industrial and commercial loads from voltage disturbances. Providing fast, accurate voltage sag and surge correction as well as continuous voltage regulation and load voltage compensation, the PCS100 AVC has been optimally designed to give required equipment immunity from the level of voltage sags expected on the AC supply network.

Standard models offer enhanced performance allowing correction of voltage sags and surges. The PCS100 AVC model provides continuous regulation within +/-10 percent of the nominal mains voltage and also removes voltage unbalance from the supply.

To find out more about ABB's power protection solutions:
Web: www.abb.com/ups
Email: powerconditioning@abb.com

—
ABB LTD.
Power Protection NZ
111 Main North Road
4110 Napier,
New Zealand

abb.com/ups

—
Additional information
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

2UCD401176-P_b