Intelligent Power Modules
Solar Inverter Solutions

Intelligent • Efficient • Reliable

LVASIC
Gate Drive
Protection:
Over Current
Over Temperature
Under Voltage

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Powerex is a leading supplier of discrete, modular and integrated high power semiconductor solutions, supporting many markets, including:

- AC, DC and Servo Drives (Low and Medium Voltage)
- Aircraft/Bullet cap Electro-Hydrostatic Actuators
- Power Generators
- Alternative Energy and Distributed Power
- Wind
- Photovoltaic
- Flywheel
- Fuel Cell
- Microturbine
- Electric Vehicles
- Induction Heating
- Industrial Pump Controls
- Medical Power Supplies
- CT
- MRI
- X-Ray
- Power Generation and Distribution
- Pulsed Power
- Transportation
- Propulsion and Auxiliary Power for Rail and Shipboard
- Uninterruptible Power Supplies (UPS)
- Welding
- White Goods and HVAC

Powerex and its strategic partners maintain a commitment to research and innovative product development to meet customer power semiconductor requirements, including:

- Decreased Component Size
- Reduced Costs
- Increased Energy Efficiency
- Switches that Operate at Higher Frequencies
- Are More Reliable
- Offer Integrated Functions

This broad product line is enhanced by business units devoted to the development of Custom Modules, Customer Specific Assemblies.

Powerex standard and custom products are all supported by its world-class applications engineering staff.
Full-Gate CSTBT™ for Efficiency

Powerex Intelligent Power Modules (IPMs) are able to deliver unsurpassed efficiency through the use of innovative full-gate CSTBT (Carrier-Stored Trench Gate Bipolar Transistor) IGBT chips. This chip technology behaves more like an ideal switch by reducing both conduction losses and switching losses.

As shown, CSTBT Technology allows you to convert more of the harvested energy compared to competing solutions.

Find Out More

Applications Support
Powerex has a wide range of solutions, whether your application is under 5kW or over 100kW. Do you need help to determine the optimal solution for your application?

Contact our applications engineering team at PVhelp@pwrx.com.

Powerex Tools for Rapid Design and Validation
Powerex tools help you to get efficient, reliable designs to market faster.

IPM Development Kits provide rapid prototyping and design validation.
**Powerex Sense-IT™** technology provides the industry’s most sophisticated and reliable protection through on-chip sensing of current (I) and temperature (T).

**I** – On-chip current sensing provides convenient and reliable detection and protection of overload conditions. Current mirrors eliminate the bulk and losses associated with shunt resistors.

As shown, Sense-IT detects an overcurrent condition earlier than desaturation detection. Sense-IT protection activates at only 1/5000 of the peak power stresses of competing methods.

**T** – On-chip temperature sensing provides protection where it matters – at the IGBT junction – and immediately responds to protect the module. Sense-IT eliminates the slow response and peripheral resources associated with an NTC sensor.

As shown, sensing the temperature anywhere else is only giving you part of the picture. Sense-IT measures at each IGBT chip, while competitors mount one NTC sensor on a separate substrate.

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**Powerex PV Quick Studies**

- “Efficiency Benefits of Full Gate CSTBT in Practical PV Applications”
- “Practical Countermeasures for PV Inverter Failure Modes”
- “Reducing Time-to-Market in PV Inverter Design”

Go to www.pwrx.com and type keywords **PV Quick Studies**
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