

## Trench IGBT Platform Featuring PT (Punch Through) and FS (Field Stop) Technologies in Bare Die



### KEY BENEFITS

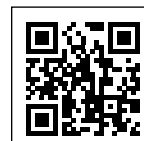
- Offering includes one Trench PT and six Trench FS IGBTs
  - Low collector-to-emitter voltages down to 1.07 V at 50 % rated current and +125 °C provide extremely low conduction losses
  - Fast and soft turn-on and turn-off reduce switching losses and power consumption
- Soft turn-off reduces peak overvoltages, extends power ratings, and simplifies circuit layouts
  - Trench PT devices optimized for low switching frequencies to 1 kHz
  - Trench FS IGBTs offer 6  $\mu$ s short circuit rating and high operating temperature to +175 °C
  - Optimized for use with Vishay's new FRED Pt<sup>®</sup> Gen 4 Ultrafast soft diodes

### APPLICATIONS

- Motor drives, UPS, solar inverters, and welding machine inverters
- Single- and three-phase inverters, power factor correction (PFC) circuits, and full- and half-bridge DC/DC converters

### RESOURCES

- Datasheets: see next page for list of datasheets featured in this product sheet
- For technical questions, contact [diewafer@vishay.com](mailto:diewafer@vishay.com)
- Material categorization: For definitions of compliance, please see <http://www.vishay.com/doc?99912>





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Vishay Semiconductors' Trench PT IGBTs, featuring a negative temperature coefficient for low collector-to-emitter voltages down to 1.07 V at 50 % rated current and +125 °C, provide extremely low conduction losses for applications with low switching frequencies to 1 kHz. With their Trench construction, the devices offer a smaller size than planar IGBTs, providing higher current density and lower thermal resistance, without compromising performance and reliability.

Vishay's Trench FS devices reduce conduction losses with their low collector-to-emitter saturation voltage down to 1.4 V at full current and 25 °C, while also providing fast and soft switching for reduced power consumption and low turn-on and turn-off losses. In addition, the devices' soft turn-off reduces peak overvoltages, extends power ratings, and simplifies circuit layouts. Offering a robust design, the FS IGBTs feature a high operating temperature to +175 °C, while their 6 µs short circuit rating time allows for safe and reliable operation under extreme load and failure conditions. The devices' low and positive temperature coefficient of the saturation voltage enables simple paralleling.

Both Trench PT and Trench FS IGBTs are optimized for use in power modules with Vishay's new FRED Pt Gen 4 Ultrafast soft diodes, where the devices will offer exceptionally low EMI and plug-and-play reliability.

| IGBT PLATFORM TECHNOLOGY |              |           |                                    |            |               |          |
|--------------------------|--------------|-----------|------------------------------------|------------|---------------|----------|
| PART NUMBER              | $V_{CE}$ (V) | $I_C$ (A) | $\frac{V_{CE(ON)}}{V_{CESAT}}$ (V) | TECHNOLOGY | DIE SIZE (MM) | DIE TYPE |
| VS-GC200A060LC           | 600          | 200       | 1.34                               | Trench PT  | 12.7 x 10.3   | Sawn     |
| VS-GC200A060LB           | 600          | 200       | 1.34                               | Trench PT  | 12.7 x 10.3   | Unsawn   |
| VS-GC200C060TC           | 600          | 200       | 1.45                               | Trench FS  | 10.3 x 9.8    | Sawn     |
| VS-GC200C060TB           | 600          | 200       | 1.45                               | Trench FS  | 10.3 x 9.8    | Unsawn   |
| VS-GC200C065TC           | 650          | 200       | 1.6                                | Trench FS  | 10.3 x 9.8    | Sawn     |
| VS-GC200C065TB           | 650          | 200       | 1.6                                | Trench FS  | 10.3 x 9.8    | Unsawn   |
| VS-GC030C060TC           | 600          | 30        | 1.5                                | Trench FS  | 3.5 x 4.3     | Sawn     |
| VS-GC030C060TB           | 600          | 30        | 1.5                                | Trench FS  | 3.5 x 4.3     | Unsawn   |
| VS-GC030C065TC           | 650          | 30        | 1.55                               | Trench FS  | 3.5 x 4.3     | Sawn     |
| VS-GC030C065TB           | 650          | 30        | 1.55                               | Trench FS  | 3.5 x 4.3     | Unsawn   |
| VS-GC240C060TC           | 600          | 240       | 1.4                                | Trench FS  | 12.6 x 10.3   | Sawn     |
| VS-GC240C060TB           | 600          | 240       | 1.4                                | Trench FS  | 12.6 x 10.3   | Unsawn   |
| VS-GC240C065TC           | 650          | 240       | 1.55                               | Trench FS  | 12.6 x 10.3   | Sawn     |
| VS-GC240C065TB           | 650          | 240       | 1.55                               | Trench FS  | 12.6 x 10.3   | Unsawn   |

For more information on Vishay Semiconductors Trench PT IGBTs, please contact [diewafer@vishay.com](mailto:diewafer@vishay.com)