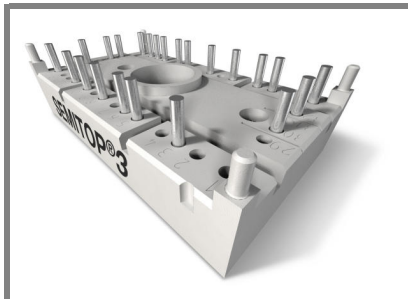


SK45GD063



SEMITOP® 3

IGBT Module

SK45GD063

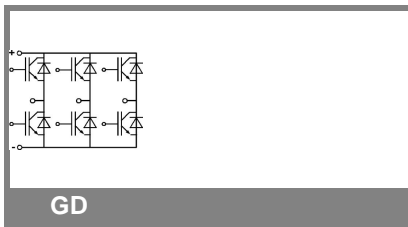
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N channel, homogeneous Silicon structure (NPT-Non punchthrough IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E63532

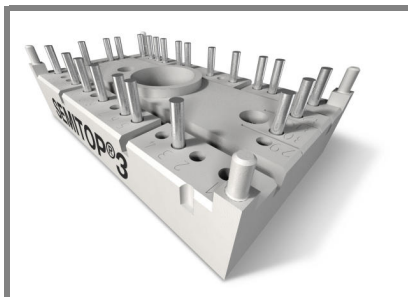
Typical Applications*

- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



| Absolute Maximum Ratings | | T _s = 25 °C, unless otherwise specified | |
|--------------------------|--|--|-------|
| Symbol | Conditions | Values | Units |
| IGBT | | | |
| V _{CES} | T _j = 25 °C | 600 | V |
| I _C | T _j = 125 °C | T _s = 25 °C | 45 A |
| | | T _s = 80 °C | 30 A |
| I _{CRM} | I _{CRM} = 2 × I _{Cnom} | 100 | A |
| V _{GES} | | ± 20 | V |
| t _{psc} | V _{CC} = 300 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 600 V | 10 | μs |
| Inverse Diode | | | |
| I _F | T _j = 125 °C | T _s = 25 °C | 36 A |
| | | T _s = 80 °C | 24 A |
| I _{FRM} | I _{FRM} = 2 × I _{Fnom} | | A |
| I _{FSM} | t _p = 10 ms; half sine wave T _j = 150 °C | 200 | A |
| Module | | | |
| I _{t(RMS)} | | | A |
| T _{vj} | | -40 ... +150 | °C |
| T _{stg} | | -40 ... +125 | °C |
| V _{isol} | AC, 1 min. | 2500 | V |

| Characteristics | | T _s = 25 °C, unless otherwise specified | | | |
|----------------------|---|--|------|------|-------|
| Symbol | Conditions | min. | typ. | max. | Units |
| IGBT | | | | | |
| V _{GE(th)} | V _{GE} = V _{CE} , I _C = 1 mA | 4,5 | 5,5 | 6,5 | V |
| I _{CES} | V _{GE} = 0 V, V _{CE} = V _{CES} | T _j = 25 °C | | 0,15 | mA |
| | | T _j = 125 °C | | | mA |
| I _{GES} | V _{CE} = 0 V, V _{GE} = 30 V | T _j = 25 °C | | 120 | nA |
| | | T _j = 125 °C | | | nA |
| V _{CE0} | | T _j = 25 °C | 1 | | V |
| | | T _j = 125 °C | 1,1 | | V |
| r _{CE} | V _{GE} = 15 V | T _j = 25 °C | 20 | | mΩ |
| | | T _j = 125 °C | | | mΩ |
| V _{CE(sat)} | I _{Cnom} = 50 A, V _{GE} = 15 V | T _j = 25 °C _{chiplev.} | 2,1 | 2,5 | V |
| | | T _j = 125 °C _{chiplev.} | | | V |
| C _{ies} | V _{CE} = 25, V _{GE} = 0 V f = 1 MHz | | 2,2 | | nF |
| C _{oes} | | | | nF | |
| C _{res} | | 0,2 | | nF | |
| Q _G | V _{GE} = 0 ... 20 V | | 155 | | nC |
| t _{d(on)} | R _{Gon} = 22 Ω | V _{CC} = 300V I _C = 30A | 45 | | ns |
| t _r | | | 40 | | ns |
| E _{on} | | | 1,4 | | mJ |
| t _{d(off)} | R _{Goff} = 22 Ω | T _j = 125 °C V _{GE} = ±15V | 250 | | ns |
| t _f | | | 30 | | ns |
| E _{off} | | | 1,2 | | mJ |
| R _{th(j-s)} | per IGBT | | | 1 | K/W |



SEMITOR[®] 3

IGBT Module

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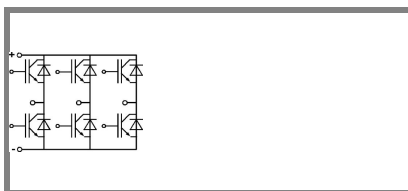
Preliminary Data

Features

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Typical Applications*

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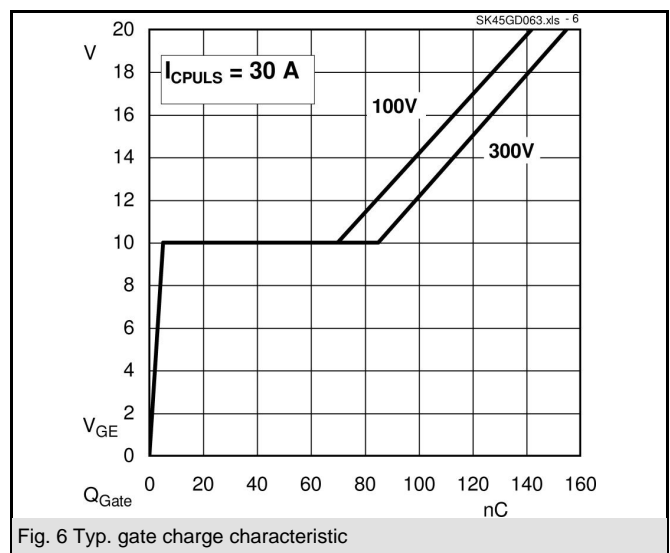
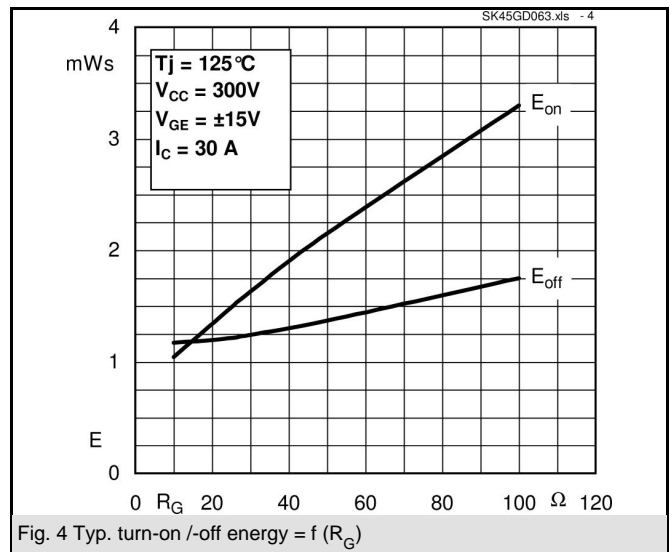
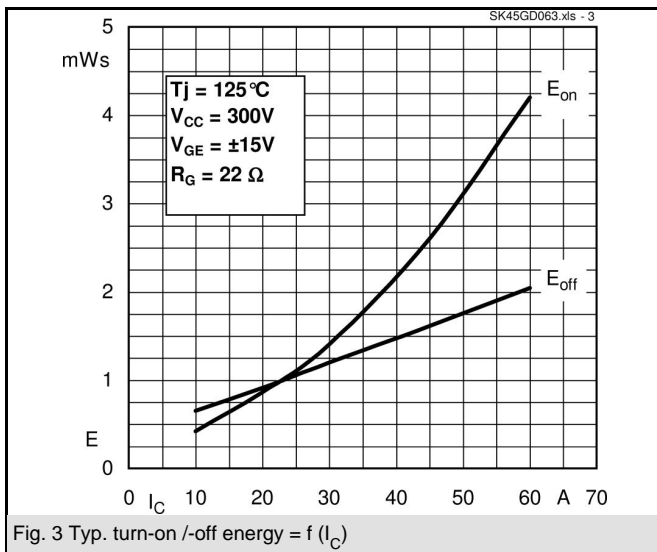
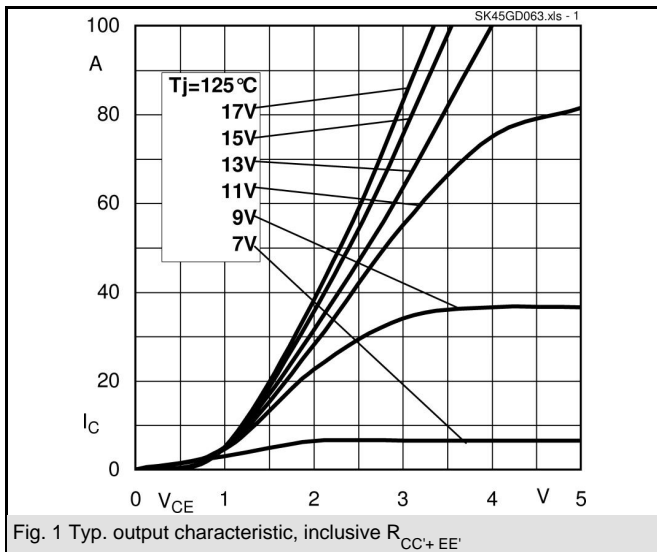
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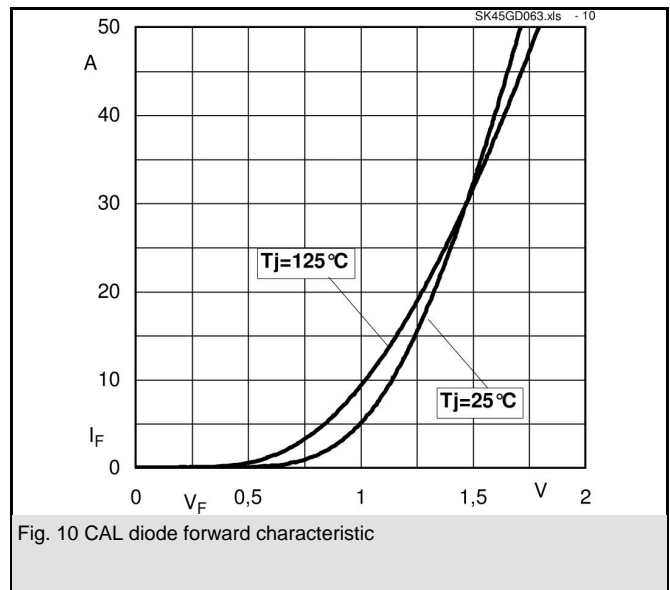
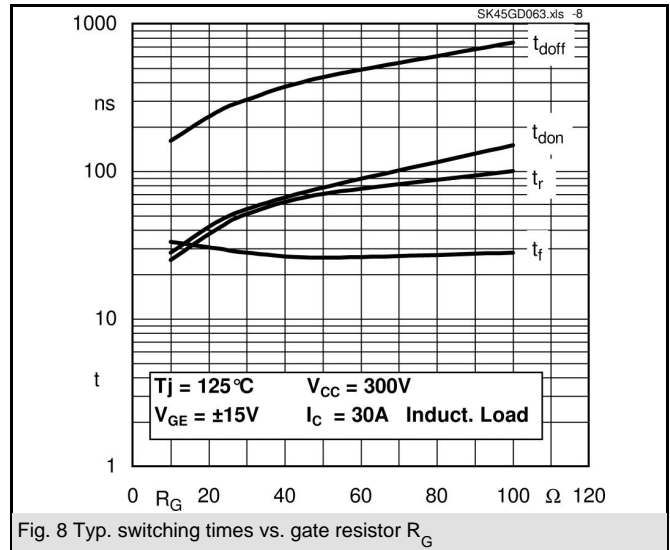
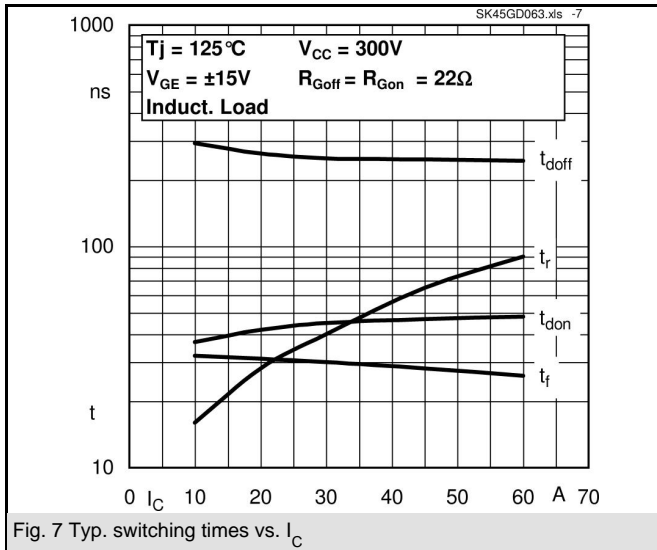
Characteristics

| Symbol | Conditions | min. | typ. | max. | Units | |
|----------------------|---|------|---|------|-------|---------------|
| Inverse Diode | | | | | | |
| $V_F = V_{EC}$ | $I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$ | | $T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$ | 1,45 | 1,7 | V |
| | | | $T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$ | 1,4 | 1,75 | V |
| V_{F0} | | | $T_j = 125 \text{ }^\circ\text{C}$ | 0,85 | 0,9 | V |
| r_F | | | $T_j = 125 \text{ }^\circ\text{C}$ | 22 | 16 | m Ω |
| I_{RRM} | $I_F = 25 \text{ A}$ | | $T_j = 125 \text{ }^\circ\text{C}$ | 16 | | A |
| Q_{rr} | $di/dt = -500 \text{ A}/\mu\text{s}$ | | | 2 | | μC |
| E_{rr} | $V_{CC} = 300\text{V}$ | | | 0,25 | | mJ |
| $R_{th(j-s)D}$ | per diode | | | 1,7 | | K/W |
| M_s | to heat sink M1 | 2,25 | | 2,5 | | Nm |
| w | | | 30 | | | g |

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.

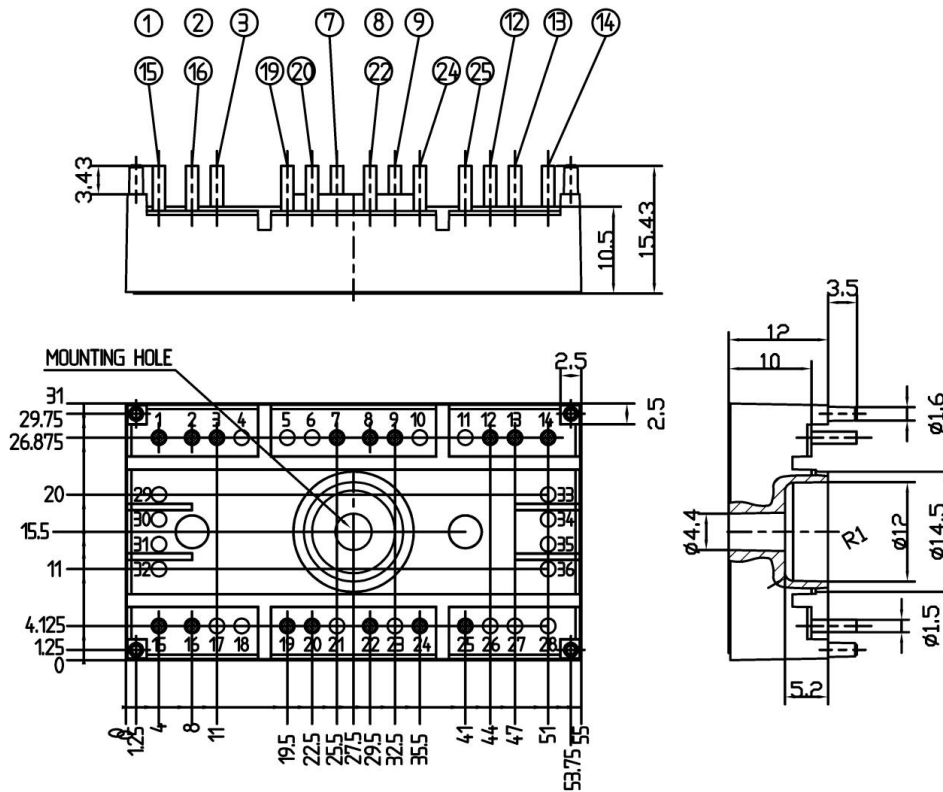




SK45GD063

UL recognized file

no. E 63 532



Case T16 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

