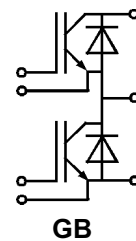
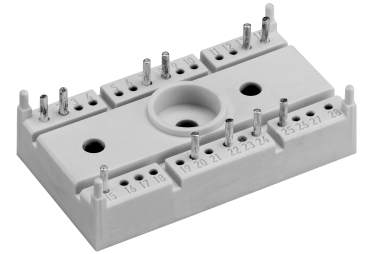


SEMITOP® 3 IGBT Module

SK 80 GB 063



| Absolute Maximum Ratings | | | |
|------------------------------------|--|----------------|-------|
| Symbol | Conditions ¹⁾ | Values | Units |
| V _{CEs} | | 600 | V |
| V _{GES} | | ± 20 | V |
| I _C | T _h = 25/80 °C | 81 / 57 | A |
| I _{CM} | t _p < 1 ms; T _h = 25/80 °C | 162 / 114 | A |
| I _F = -I _C | T _h = 25/80 °C | 79 / 53 | A |
| I _{FM} = -I _{CM} | t _p < 1 ms; T _h = 25/80 °C | 158 / 106 | A |
| T _j | | - 40 ... + 150 | °C |
| T _{stg} | | - 40 ... + 125 | °C |
| T _{sol} | Terminals, 10 s | 260 | °C |
| V _{isol} | AC, 1 min | 2500 | V |

| Characteristics | | | | | |
|------------------------------------|--|-----------|----------|------|-------|
| Symbol | Conditions ¹⁾ | min. | typ. | max. | Units |
| V _{CEsat} | I _C = 60 A; T _j = 25 (125) °C | - | 1,8(1,9) | - | V |
| t _{d(on)} | V _{CC} = 300 V; V _{GE} = ± 15 V I _C = 60 A, T _j = 125 °C R _{Gon} = R _{Goff} = 10 Ω inductive load | - | 45 | - | ns |
| t _r | | - | 30 | - | ns |
| t _{d(off)} | | - | 300 | - | ns |
| t _f | | - | 35 | - | ns |
| E _{on} + E _{off} | | - | 4,7 | - | mJ |
| C _{ies} | | - | 5,6 | - | nF |
| R _{thjh} ³⁾ | | - | - | 0,6 | K/W |
| Inverse Diode ²⁾ | | | | | |
| V _F = V _{EC} | I _F = 60 A; T _j = 25 (125) °C | - | 1,4(1,3) | - | V |
| V _{TO} | T _j = 125 °C | - | 0,85 | 0,9 | V |
| r _T | T _j = 125 °C | - | 6,5 | 11 | mΩ |
| I _{RRM} | I _F = 60 A; V _R = 300 V di _F /dt = - 3000 A/μs V _{GE} = 0 V; T _j = 125 °C | - | 90 | - | A |
| Q _{rr} | | - | 7 | - | μC |
| E _{off} | | - | 1,2 | - | mJ |
| R _{thjh} ³⁾ | | per Diode | - | - | 0,9 |
| Mechanical Data | | | | | |
| M ₁ | mounting torque | - | - | 2,5 | Nm |
| w | | - | 29 | - | g |
| Case | | T 26 | | | |

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 punch-through IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E 63 532

Typical Applications

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

¹⁾ T_h = 25 °C, unless otherwise specified

²⁾ CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

³⁾ Thermal resistance junction to heatsink

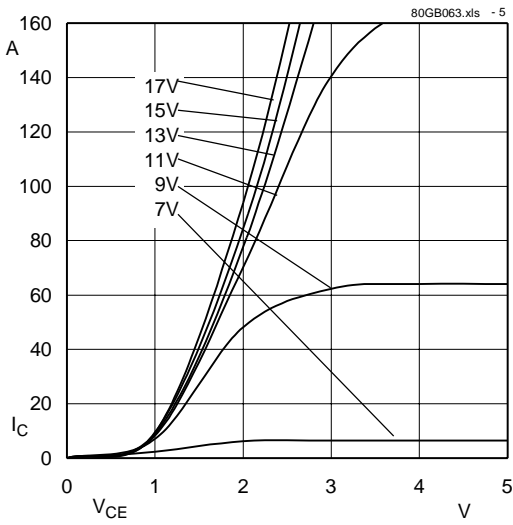


Fig. 5 Typ. output characteristic, $t_p = 250 \mu s$; $25 \text{ }^\circ\text{C}$

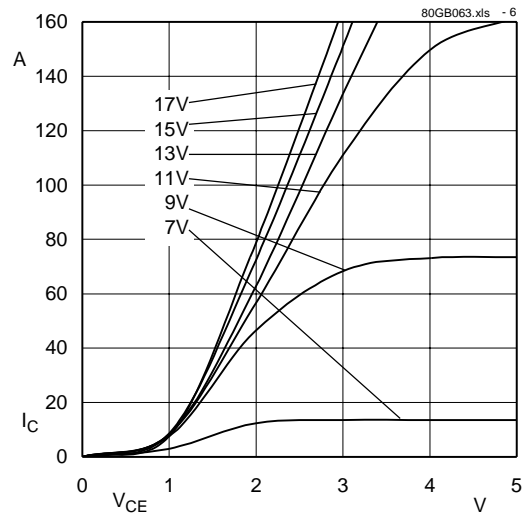


Fig. 6 Typ. output characteristic, $t_p = 250 \mu s$; $125 \text{ }^\circ\text{C}$

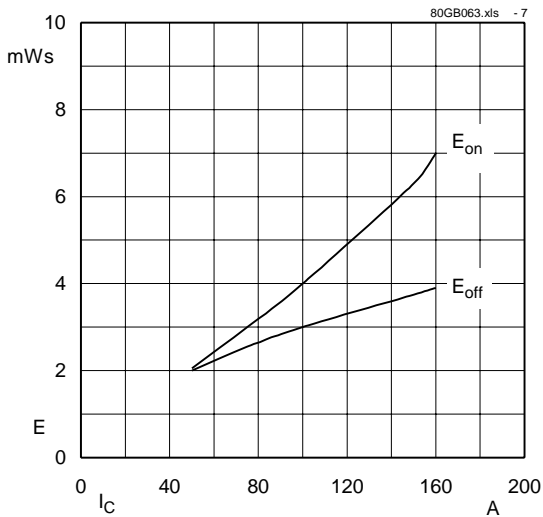


Fig. 7 Turn-on /-off energy = $f(I_c)$

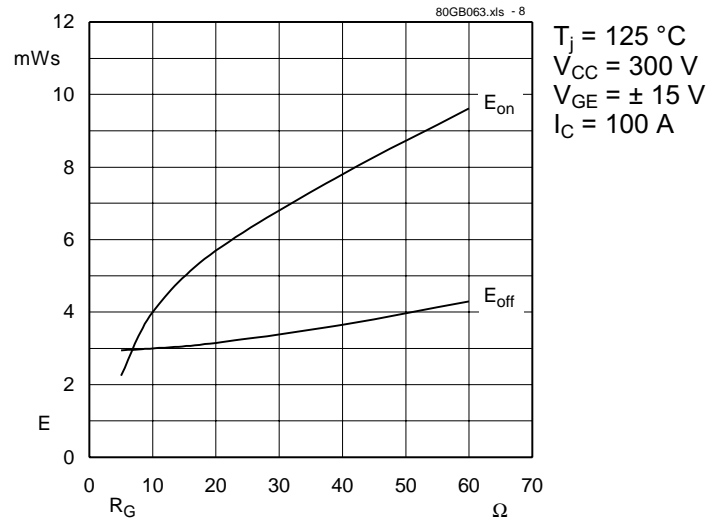


Fig. 8 Turn-on /-off energy = $f(R_g)$

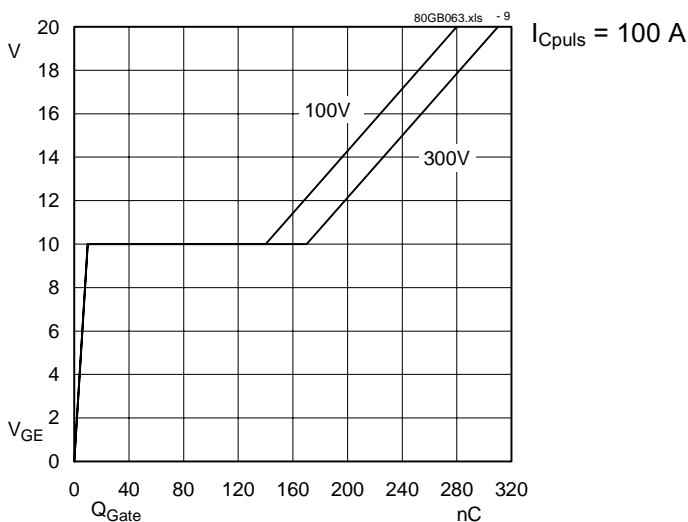


Fig. 9 Typ. gate charge characteristic

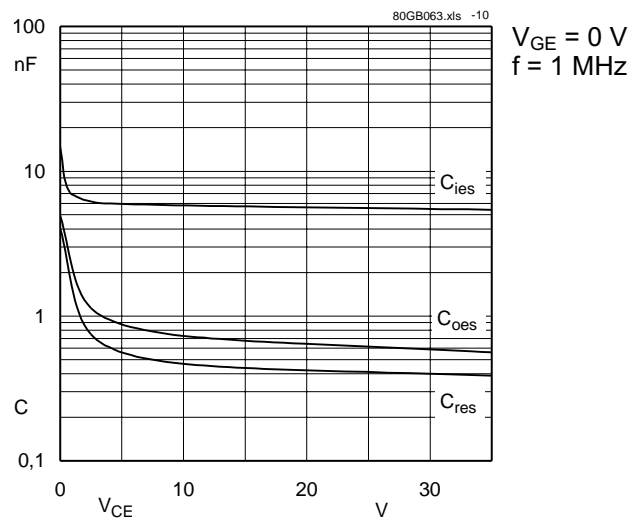


Fig. 10 Typ. capacitances vs. V_{ce}

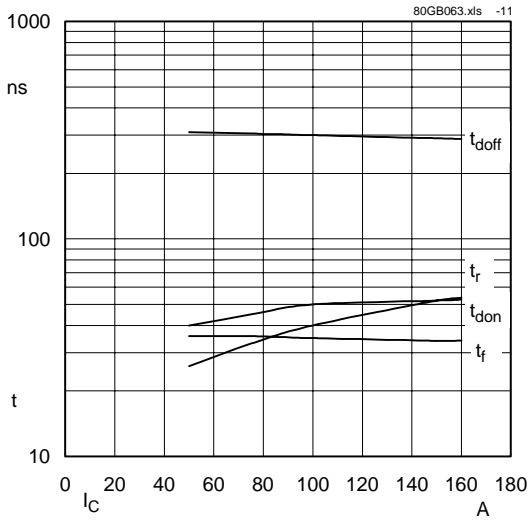


Fig. 11 Typ. switching times vs. I_C

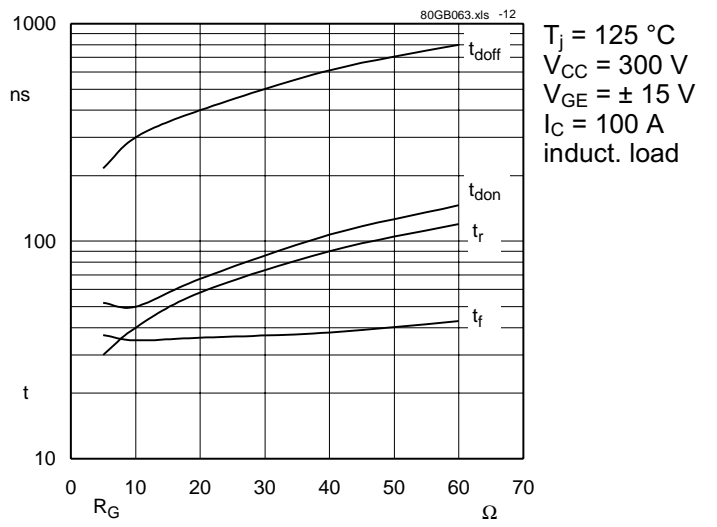


Fig. 12 Typ. switching times vs. gate resistor R_G

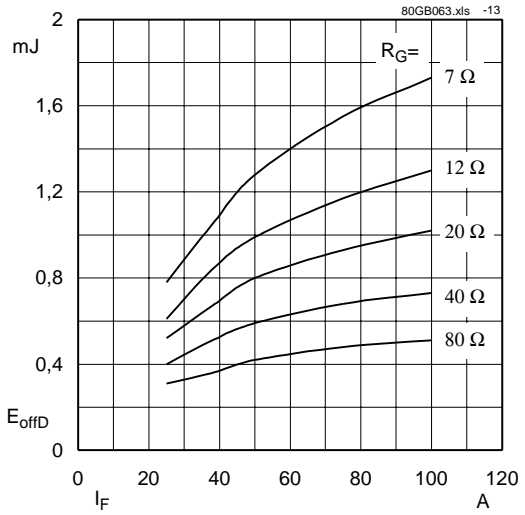
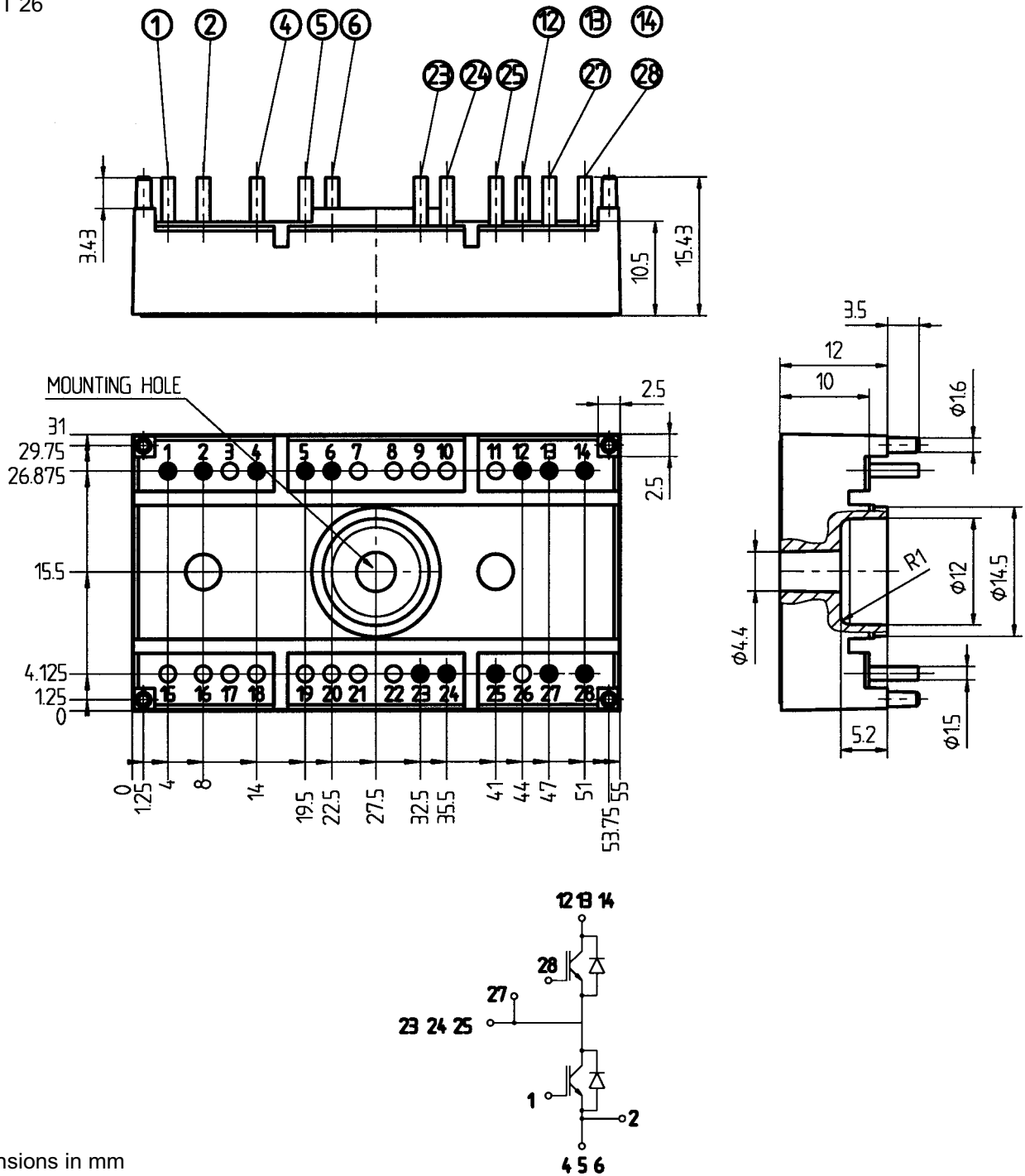


Fig. 13 Diode turn-off energy dissipation per pulse

SEMITOP® 3
SK 80 GB 063

Case T 26



Dimensions in mm

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.