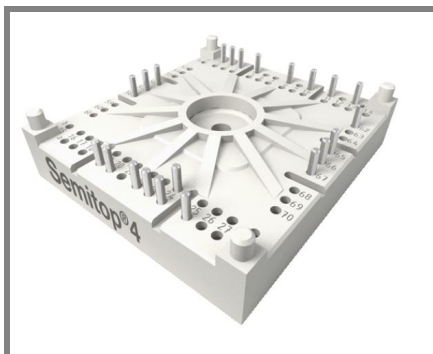


SK200GD066T



SEMITOP® 4

IGBT Module

SK200GD066T

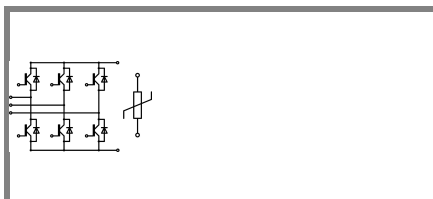
Target Data

Features

- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications

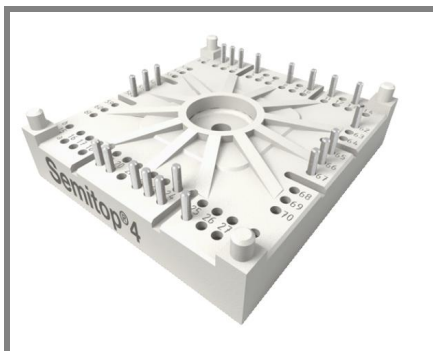
- Inverter up to 42 kVA
- Typ. motor power 18,5 kW



GD-T

| Absolute Maximum Ratings | | $T_s = 25\text{ °C}$, unless otherwise specified | | |
|--------------------------|---|---|-----|-------|
| Symbol | Conditions | Values | | Units |
| IGBT | | | | |
| V_{CES} | $T_j = 25\text{ °C}$ | 600 | | V |
| I_C | $T_j = 175\text{ °C}$ | $T_s = 25\text{ °C}$ | 174 | A |
| | | $T_s = 70\text{ °C}$ | 131 | A |
| I_{CRM} | $I_{CRM} = 2 \times I_{Cnom}$ | 400 | | A |
| V_{GES} | | ± 20 | | V |
| t_{psc} | $V_{CC} = 360\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 125\text{ °C}$ $V_{CES} < 600\text{ V}$ | 6 | | µs |
| Inverse Diode | | | | |
| I_F | $T_j = 175\text{ °C}$ | $T_s = 25\text{ °C}$ | 99 | A |
| | | $T_s = 70\text{ °C}$ | 79 | A |
| I_{FRM} | $I_{FRM} = 2 \times I_{Fnom}$ | 120 | | A |
| Module | | | | |
| $I_{t(RMS)}$ | | | | A |
| T_{vj} | | -40 ... +150 | | °C |
| T_{stg} | | -40 ... +125 | | °C |
| V_{isol} | AC, 1 min. | 2500 | | V |

| Characteristics | | $T_s = 25\text{ °C}$, unless otherwise specified | | | |
|-----------------|--|--|------|------|-------|
| Symbol | Conditions | min. | typ. | max. | Units |
| IGBT | | | | | |
| $V_{GE(th)}$ | $V_{GE} = V_{CE}$, $I_C = 3,2\text{ mA}$ | 5 | 5,8 | 6,5 | V |
| I_{CES} | $V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$ | $T_j = 25\text{ °C}$ | | | mA |
| | | $T_j = 125\text{ °C}$ | | | mA |
| I_{GES} | $V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$ | $T_j = 25\text{ °C}$ | 1200 | | nA |
| | | $T_j = 125\text{ °C}$ | | | nA |
| V_{CE0} | | $T_j = 25\text{ °C}$ | 0,6 | 1 | V |
| | | $T_j = 150\text{ °C}$ | 0,7 | 0,8 | V |
| r_{CE} | $V_{GE} = 15\text{ V}$ | $T_j = 25\text{ °C}$ | 2,75 | 4 | mΩ |
| | | $T_j = 150\text{ °C}$ | 4,25 | 5,5 | mΩ |
| $V_{CE(sat)}$ | $I_{Cnom} = 200\text{ A}$, $V_{GE} = 15\text{ V}$ | $T_j = 25\text{ °C}_{chiplev.}$ | 1,45 | 1,9 | V |
| | | $T_j = 150\text{ °C}_{chiplev.}$ | 1,7 | 2,15 | V |
| C_{ies} | $V_{CE} = 25$, $V_{GE} = 0\text{ V}$ | $f = 1\text{ MHz}$ | 12,2 | | nF |
| C_{oes} | | | 0,76 | | nF |
| C_{res} | | | 0,36 | | nF |
| $t_{d(on)}$ | $R_{Gon} = 22\text{ }\Omega$ $di/dt = 2575\text{ A}/\mu\text{s}$ | $V_{CC} = 300\text{ V}$ $I_{Cnom} = 200\text{ A}$ | 134 | | ns |
| t_r | | | 125 | | ns |
| E_{on} | $R_{Goff} = 22\text{ }\Omega$ $di/dt = 2575\text{ A}/\mu\text{s}$ | $T_j = 125\text{ °C}$ $V_{GE} = -7/+15\text{ V}$ | 17,6 | | mJ |
| $t_{d(off)}$ | | | 1131 | | ns |
| t_f | | | 86 | | ns |
| E_{off} | | | 11,8 | | mJ |
| $R_{th(j-s)}$ | per IGBT | 0,45 | | K/W | |



SEMITOP® 4

IGBT Module

SK200GD066T

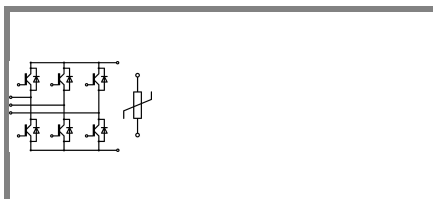
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- Trench IGBT technology
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Typical Applications

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- Typ. motor power 18,5 kW

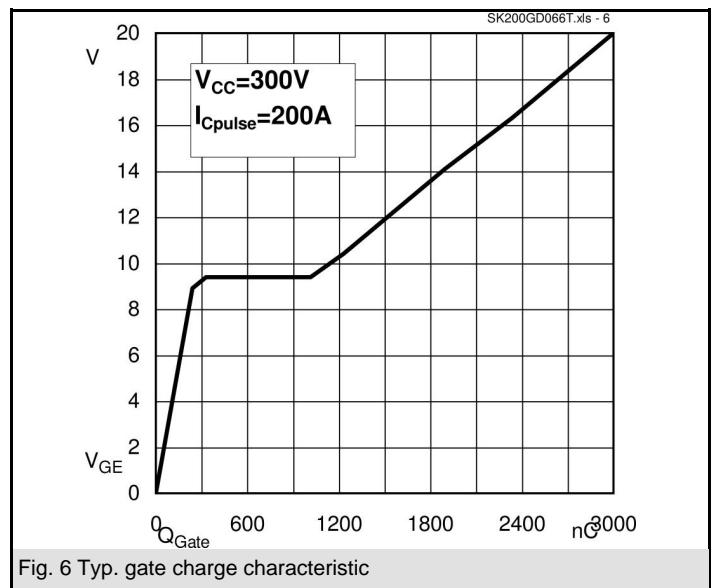
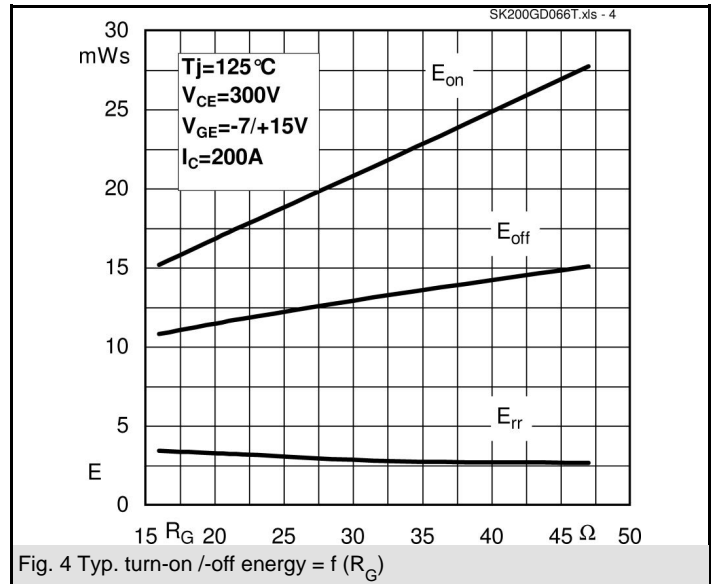
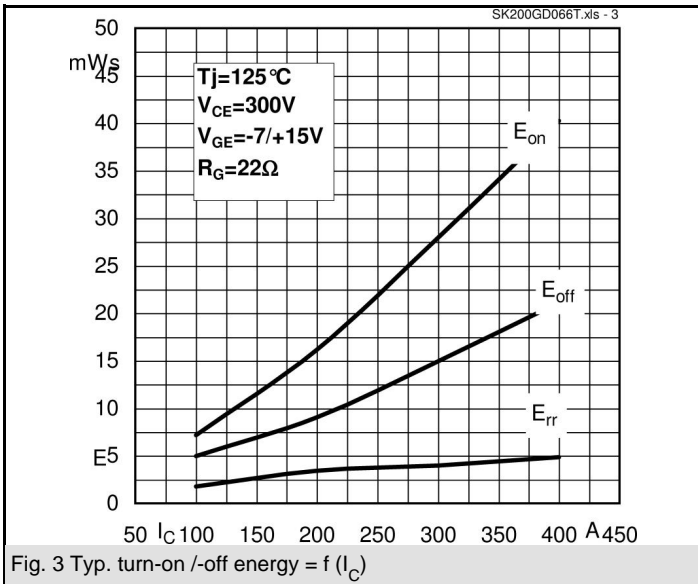
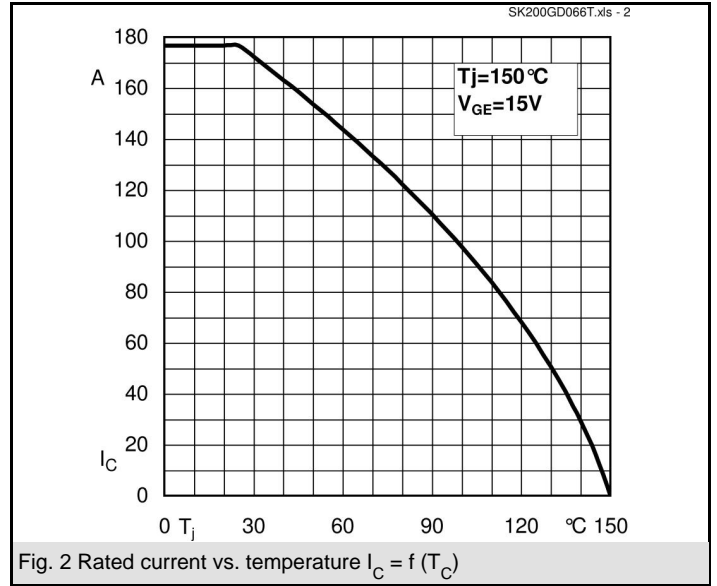
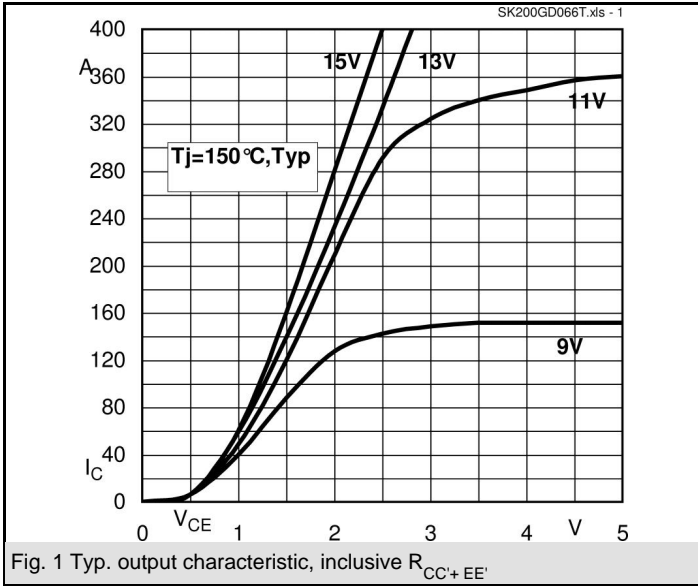


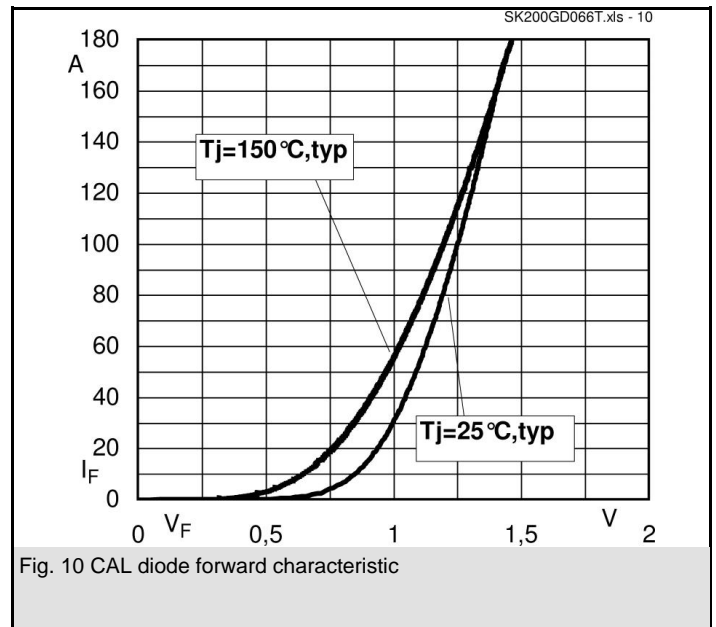
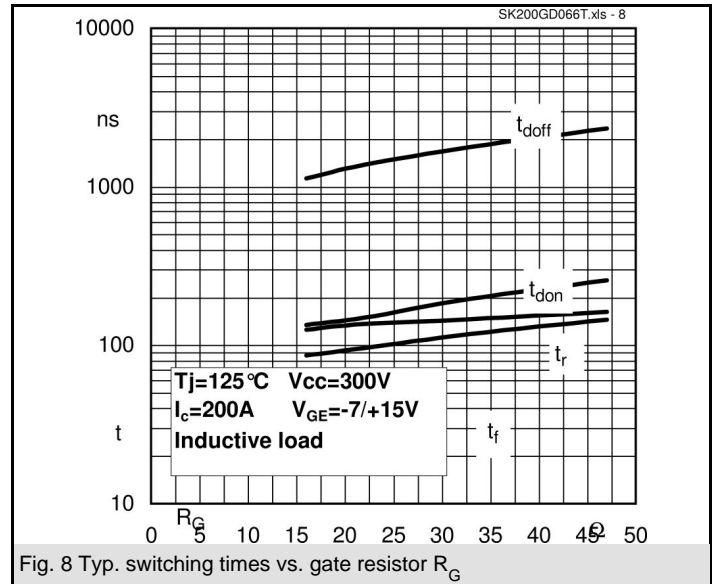
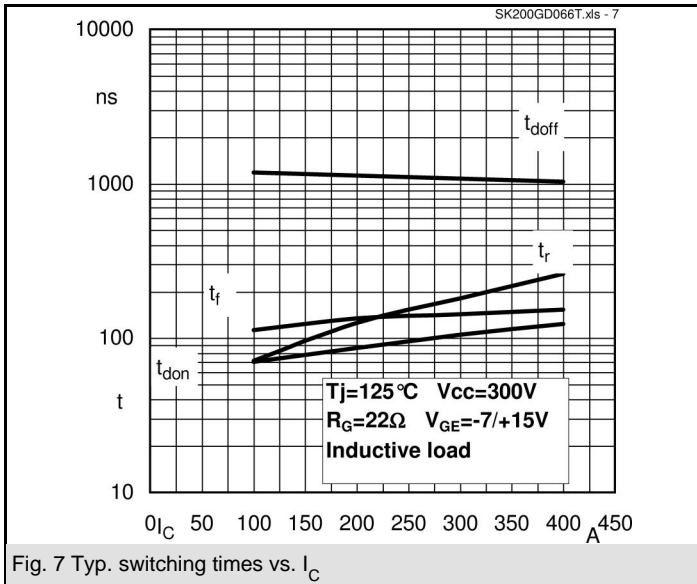
GD-T

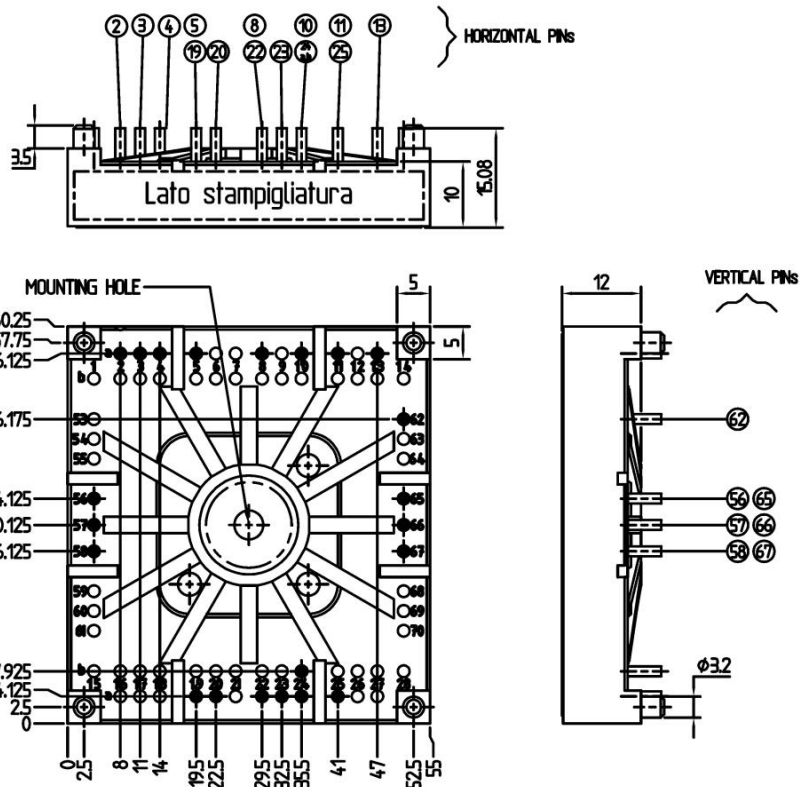
| Characteristics | | min. | typ. | max. | Units |
|---------------------------|--|------|--------|------|-------|
| Inverse Diode | | | | | |
| $V_F = V_{EC}$ | $I_{Fnom} = 200 \text{ A}; V_{GE} = 0 \text{ V}$ | | 1,48 | | V |
| | $T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$ | | | | |
| | $T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$ | | 1,5 | | V |
| V_{F0} | | | 0,95 | | V |
| | $T_j = 25 \text{ }^\circ\text{C}$ | | | | |
| | $T_j = 150 \text{ }^\circ\text{C}$ | | 0,85 | | V |
| r_F | | | 3 | | mΩ |
| | $T_j = 25 \text{ }^\circ\text{C}$ | | | | |
| | $T_j = 150 \text{ }^\circ\text{C}$ | | 3,5 | | mΩ |
| I_{RRM} | $I_{Fnom} = 200 \text{ A}$ | | 80 | | A |
| Q_{rr} | $di/dt = 2575 \text{ A}/\mu\text{s}$ | | 20 | | μC |
| E_{rr} | $V_{CC} = 300\text{V}$ | | 3,2 | | mJ |
| $R_{th(j-s)D}$ | per diode | | 0,8 | | K/W |
| M_s | to heat sink | | | 3,5 | Nm |
| w | | | 60 | | g |
| Temperature sensor | | | | | |
| R_{100} | $T_s = 100^\circ\text{C} (R_{25} = 5\text{k}\Omega)$ | | 493±5% | | Ω |

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

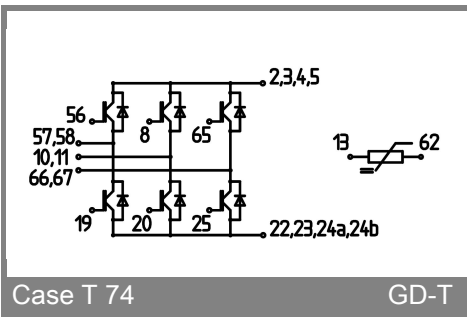
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Case T74 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm)



Case T 74

GD-T