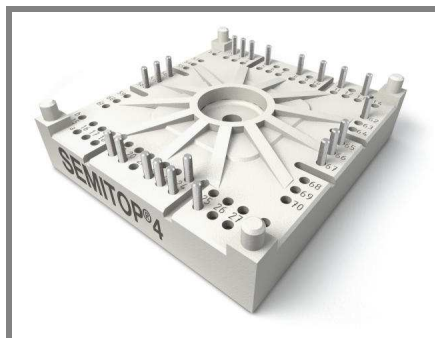


SK50GD126T



SEMITOP® 4

IGBT Module

SK50GD126T

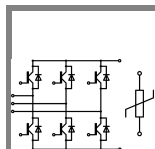
Preliminary Data

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 28 kVA
- Typ. motor power 15 kW

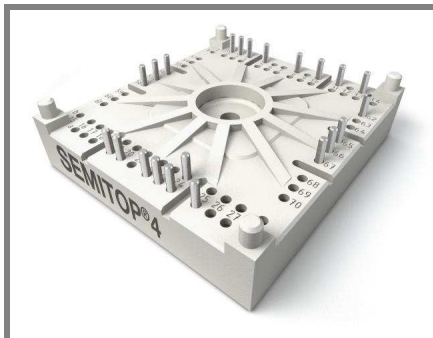


GD-T

| Absolute Maximum Ratings | | $T_s = 25\text{ °C}$, unless otherwise specified | | |
|--------------------------|--|---|----|-------|
| Symbol | Conditions | Values | | Units |
| IGBT | | | | |
| V_{CES} | $T_j = 25\text{ °C}$ | 1200 | | V |
| I_C | $T_j = 150\text{ °C}$ | $T_s = 25\text{ °C}$ | 68 | A |
| | | $T_s = 70\text{ °C}$ | 52 | A |
| I_{CRM} | $I_{CRM} = 2 \times I_{Cnom}$ | 100 | | A |
| V_{GES} | | ± 20 | | V |
| t_{psc} | $V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ °C}$ $V_{CES} < 1200\text{ V}$ | 10 | | µs |
| Inverse Diode | | | | |
| I_F | $T_j = 150\text{ °C}$ | $T_s = 25\text{ °C}$ | 62 | A |
| | | $T_s = 70\text{ °C}$ | 46 | A |
| I_{FRM} | $I_{FRM} = 2 \times I_{Fnom}$ | 100 | | 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 | | | | | |
| $V_{GE(th)}$ | $V_{GE} = V_{CE}, I_C = 2\text{ mA}$ | 5 | 5,8 | 6,5 | V |
| I_{CES} | $V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$ | $T_j = 25\text{ °C}$ | 0,0067 | | mA |
| | | $T_j = 125\text{ °C}$ | | | mA |
| I_{GES} | $V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$ | $T_j = 25\text{ °C}$ | 600 | | nA |
| | | $T_j = 125\text{ °C}$ | | | nA |
| V_{CE0} | | $T_j = 25\text{ °C}$ | 1 | 1,2 | V |
| | | $T_j = 125\text{ °C}$ | 0,9 | 1,1 | V |
| r_{CE} | $V_{GE} = 15\text{ V}$ | $T_j = 25\text{ °C}$ | 14 | 19 | mΩ |
| | | $T_j = 125\text{ °C}$ | 22 | 27 | mΩ |
| $V_{CE(sat)}$ | $I_{Cnom} = 50\text{ A}, V_{GE} = 15\text{ V}$ | $T_j = 25\text{ °C}_{chiplev.}$ | 1,7 | 2,1 | V |
| | | $T_j = 125\text{ °C}_{chiplev.}$ | 2 | 2,45 | V |
| C_{ies} | $V_{CE} = 25, V_{GE} = 0\text{ V}$ | $f = 1\text{ MHz}$ | 3,6 | | nF |
| C_{oes} | | | 0,188 | | nF |
| C_{res} | | | 0,163 | | nF |
| $t_{d(on)}$ | $R_{Gon} = 8\text{ } \Omega$ | $V_{CC} = 600\text{ V}$ $I_C = 50\text{ A}$ | 115 | | ns |
| t_r | | | 28 | | ns |
| E_{on} | | | 4,6 | | mJ |
| $t_{d(off)}$ | $R_{Goff} = 8\text{ } \Omega$ | $T_j = 125\text{ °C}$ $V_{GE} = -7 / +15\text{ V}$ | 509 | | ns |
| t_f | | | 100 | | ns |
| E_{off} | | | 6,3 | | mJ |
| $R_{th(j-s)}$ | per IGBT | 0,6 | | K/W | |

SK50GD126T



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IGBT Module

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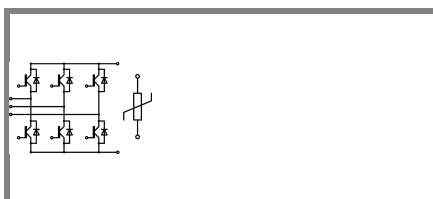
Preliminary Data

Features

- One screw mounting module
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- Trench IGBT technology
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- Integrated NTC temperature sensor

Typical Applications*

- Inverter up to 28 kVA
- Typ. motor power 15 kW



GD-T

Characteristics

| Symbol | Conditions | min. | typ. | max. | Units |
|---------------------------|--|------------------------------------|--|------|-------|
| Inverse Diode | | | | | |
| $V_F = V_{EC}$ | $I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$ | | $T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$ | 1,35 | V |
| | | | $T_j = 125 \text{ }^\circ\text{C}_{\text{chiplev.}}$ | 1,35 | V |
| V_{F0} | | | $T_j = 25 \text{ }^\circ\text{C}$ | 0,95 | V |
| | | | $T_j = 125 \text{ }^\circ\text{C}$ | 0,85 | V |
| r_F | | | $T_j = 25 \text{ }^\circ\text{C}$ | 8 | mΩ |
| | | | $T_j = 125 \text{ }^\circ\text{C}$ | 10 | mΩ |
| I_{RRM} | $I_F = 50 \text{ A}$ | $T_j = 125 \text{ }^\circ\text{C}$ | 30 | | A |
| Q_{rr} | $di/dt = 500 \text{ A}/\mu\text{s}$ | | 10 | | μC |
| E_{rr} | $V_{CC} = 600\text{V}$ | | 3,6 | | mJ |
| $R_{th(j-s)D}$ | per diode | | 1 | | K/W |
| M_s | to heat sink | 2,5 | | 2,75 | 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.

* 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.

