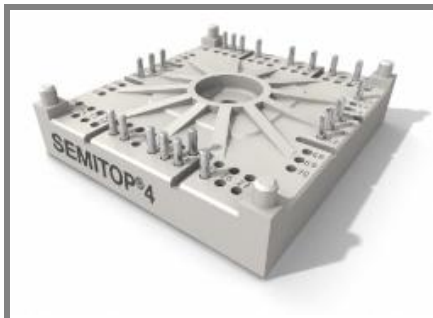


SK 75 GD 126 T



SEMITOP[®]4

3-phase bridge inverter

SK 75 GD 126 T

Target Data

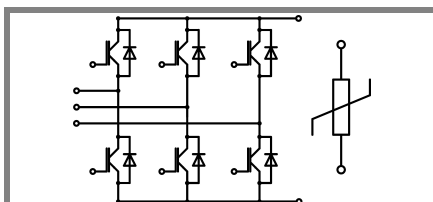
Features

- 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

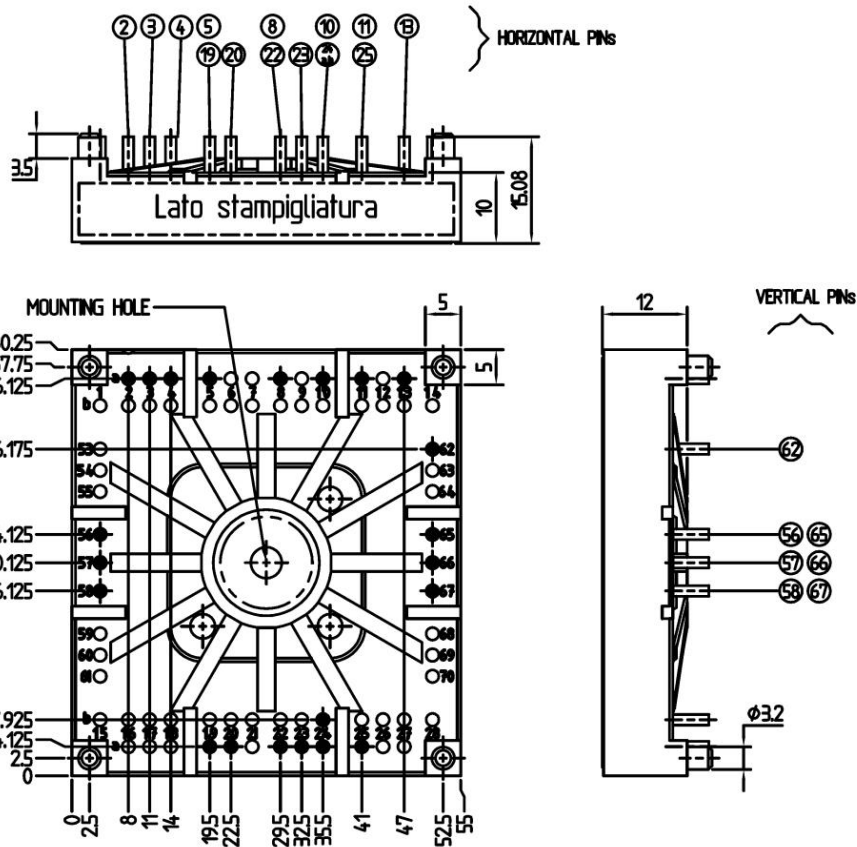
1) $V_{CE,sat}$, V_F = chip level value



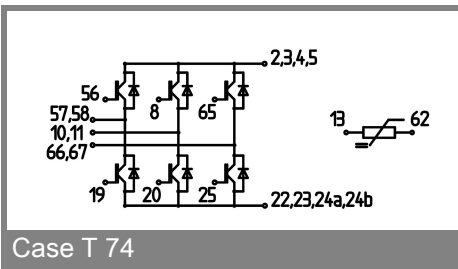
GD - T

| Absolute Maximum Ratings | | Ts = 25 °C, unless otherwise specified | |
|--------------------------|--|--|----------------------|
| Symbol | Conditions | Values | Units |
| IGBT - Inverter | | | |
| V_{CES} | $T_s = 25 (70) \text{ }^\circ\text{C}$ $t_p = 1 \text{ ms}$ | 1200 | V |
| I_C | | 88 (67) | A |
| I_{CRM} | | 176 | A |
| V_{GES} | | ± 20 | V |
| T_j | | -40 ... +150 | $^\circ\text{C}$ |
| Diode - Inverter | | | |
| I_F | $T_s = 25 (70) \text{ }^\circ\text{C}$ | 91 (68) | A |
| I_{FRM} | $I_{FRM} = 2 \times I_{Fnom}$, $t_p = 1 \text{ ms}$ | 182 | A |
| T_j | | -40 ... +150 | $^\circ\text{C}$ |
| Rectifier | | | |
| V_{RRM} | $T_s = \text{ }^\circ\text{C}$ $t_p = \text{ms}$, $\sin \text{ }^\circ$, $T_j = \text{ }^\circ\text{C}$ $t_p = \text{ms}$, $\sin \text{ }^\circ$, $T_j = \text{ }^\circ\text{C}$ | | V |
| I_{FAV}/I_{TAV} | | | A |
| I_{FSM}/I_{TSM} | | | A |
| I_t^2 | | | A^2s |
| T_j | | $^\circ\text{C}$ | |
| T_{sol} | Terminals, 10 s | 260 | $^\circ\text{C}$ |
| T_{stg} | | -40 ... +125 | $^\circ\text{C}$ |
| V_{isol} | AC, 1 min. / 1 s | 2500 / 3000 | V |

| Characteristics | | Ts = 25 °C, unless otherwise specified | | | |
|--------------------------|---|--|-------------|-----------|---------------|
| Symbol | Conditions | min. | typ. | max. | Units |
| IGBT - Inverter | | | | | |
| V_{CEsat} | $I_C = 70 \text{ A}$, $T_j = 25 (125) \text{ }^\circ\text{C}$ | | 1,7 (2) | 2,1 (2,4) | V |
| $V_{GE(th)}$ | $V_{GE} = V_{CE}$, $I_C = 3 \text{ mA}$ | 5 | 5,8 | 6,5 | V |
| $V_{CE(TO)}$ | $T_j = 25 \text{ }^\circ\text{C}$ (125) $^\circ\text{C}$ | | 1 (0,9) | 1,2 (1,1) | V |
| r_T | $T_j = 25 \text{ }^\circ\text{C}$ (125) $^\circ\text{C}$ | | 10 (16) | 13 (19) | m Ω |
| C_{ies} | $V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$ | | - | - | nF |
| C_{oes} | $V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$ | | - | - | nF |
| C_{res} | $V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$ | | - | - | nF |
| $R_{th(j-s)}$ | per IGBT | | 0,5 | | K/W |
| $t_{d(on)}$ | under following conditions | | - | - | ns |
| t_r | $V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$ | | - | - | ns |
| $t_{d(off)}$ | $I_C = 70 \text{ A}$, $T_j = 125 \text{ }^\circ\text{C}$ | | - | - | ns |
| t_f | $R_{Gon} = R_{Goff} = 9 \text{ }^\circ\Omega$ | | - | - | ns |
| E_{on} | inductive load | | 9 | | mJ |
| E_{off} | | | 7,7 | | mJ |
| Diode - Inverter | | | | | |
| $V_F = V_{EC}$ | $I_F = 75 \text{ A}$, $T_j = 25 (125) \text{ }^\circ\text{C}$ | | 1,46 (1,4) | | V |
| $V_{(TO)}$ | $T_j = 25 \text{ }^\circ\text{C}$ (125) $^\circ\text{C}$ | | 1,05 (0,95) | | V |
| r_T | $T_j = 25 \text{ }^\circ\text{C}$ (125) $^\circ\text{C}$ | | 5,5 (6) | | m Ω |
| $R_{th(j-s)}$ | per diode | | 0,7 | | K/W |
| I_{RRM} | under following conditions | | - | | A |
| Q_{rr} | $I_F = \text{A}$, $V_R = \text{V}$ | | - | | μC |
| E_{rr} | $V_{GE} = 0 \text{ V}$, $T_j = 125 \text{ }^\circ\text{C}$ $di_F/dt = - \text{A}/\mu\text{s}$ | | - | | mJ |
| Diode rectifier | | | | | |
| V_F | $I_F = \text{A}$, $T_j = 25 \text{ }^\circ\text{C}$ | | | | V |
| $V_{(TO)}$ | $T_j = \text{ }^\circ\text{C}$ | | | | V |
| r_T | $T_j = \text{ }^\circ\text{C}$ | | | | m Ω |
| $R_{th(j-s)}$ | per diode | | | | K/W |
| Temperatur sensor | | | | | |
| R_{ts} | 5 %, $T_r = 25 (100) \text{ }^\circ\text{C}$ | | 5000(493) | | Ω |
| Mechanical data | | | | | |
| w | | | 60 | | g |
| M_s | Mounting torque | | 3,5 | | Nm |



Case T 74



Case T 74

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

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