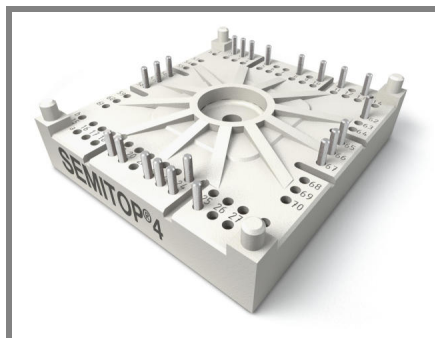


# SK75GD066T



**SEMITOP® 4**

## IGBT Module

**SK75GD066T**

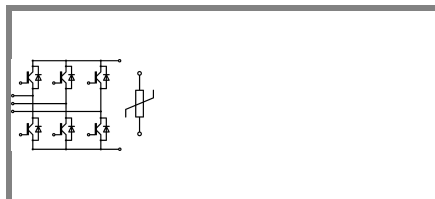
Preliminary Data

### 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

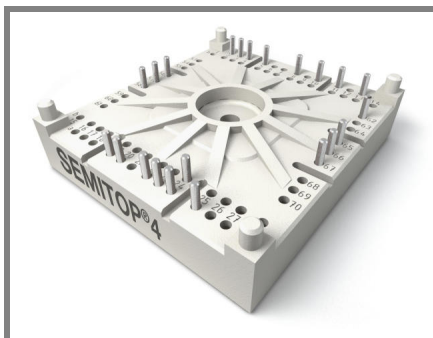
- Inverter up to 16 kVA
- Typ. motor power 7,5 kW



**GD-T**

| Absolute Maximum Ratings |   | $T_s = 25\text{ °C}$ , unless otherwise specified |                    |
|--------------------------|---|---|--------------------|
| Symbol                   | Conditions  | Values  | Units              |
| <b>IGBT</b>              |   |   |                    |
| $V_{CES}$                | $T_j = 25\text{ °C}$  | 600   | V                  |
| $I_C$                    | $T_j = 175\text{ °C}$   | $T_s = 25\text{ °C}$                              | 83 A               |
|                          |   | $T_s = 70\text{ °C}$                              | 67 A               |
| $I_{CRM}$                | $I_{CRM} = 2 \times I_{Cnom}$   | 150   | A                  |
| $V_{GES}$                |   | $\pm 20$  | V                  |
| $t_{psc}$                | $V_{CC} = 360\text{ V}$ ; $V_{GE} \leq 20\text{ V}$ ; $T_j = 125\text{ °C}$<br>$V_{CES} < 600\text{ V}$ | 6   | $\mu\text{s}$      |
| <b>Inverse Diode</b>     |   |   |                    |
| $I_F$                    | $T_j = 175\text{ °C}$   | $T_s = 25\text{ °C}$                              | 92 A               |
|                          |   | $T_s = 70\text{ °C}$                              | 73 A               |
| $I_{FRM}$                | $I_{FRM} = 2 \times I_{Fnom}$   | 150   | A                  |
| <b>Module</b>            |   |   |                    |
| $I_{t(RMS)}$             |   |   | A                  |
| $T_{vj}$                 |   | -40 ... +150                                      | $^{\circ}\text{C}$ |
| $T_{stg}$                |   | -40 ... +125                                      | $^{\circ}\text{C}$ |
| $V_{isol}$               | AC, 1 min.  | 2500  | V                  |

| Characteristics |  | $T_s = 25\text{ °C}$ , unless otherwise specified   |       |        |                  |
|-----------------|--|---|-------|--------|------------------|
| Symbol          | Conditions   | min.  | typ.  | max.   | Units            |
| <b>IGBT</b>     |  |   |       |        |                  |
| $V_{GE(th)}$    | $V_{GE} = V_{CE}$ , $I_C = 1,2\text{ mA}$                      | 5   | 5,8   | 6,5    | V                |
| $I_{CES}$       | $V_{GE} = 0\text{ V}$ , $V_{CE} = V_{CES}$                     | $T_j = 25\text{ °C}$                                |       | 0,0038 | 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               |
| $V_{CE0}$       |  | $T_j = 25\text{ °C}$                                | 0,8   | 1,1    | V                |
|                 |  | $T_j = 150\text{ °C}$                               | 0,7   | 1      | V                |
| $r_{CE}$        | $V_{GE} = 15\text{ V}$   | $T_j = 25\text{ °C}$                                | 8     | 10     | $\text{m}\Omega$ |
|                 |  | $T_j = 150\text{ °C}$                               | 12,7  | 14     | $\text{m}\Omega$ |
| $V_{CE(sat)}$   | $I_{Cnom} = 75\text{ A}$ , $V_{GE} = 15\text{ V}$              | $T_j = 25\text{ °C}_{chiplev.}$                     | 1,45  | 1,85   | V                |
|                 |  | $T_j = 150\text{ °C}_{chiplev.}$                    | 1,65  | 2,05   | V                |
| $C_{ies}$       | $V_{CE} = 25$ , $V_{GE} = 0\text{ V}$                          | $f = 1\text{ MHz}$                                  | 4,7   |        | nF               |
| $C_{oes}$       |  |   | 0,3   |        | nF               |
| $C_{res}$       |  |   | 0,145 |        | nF               |
| $t_{d(on)}$     | $R_{Gon} = 16\ \Omega$<br>$di/dt = 2250\text{ A}/\mu\text{s}$  | $V_{CC} = 300\text{V}$<br>$I_C = 75\text{A}$        | 95    |        | ns               |
| $t_r$           |  |   | 50    |        | ns               |
| $E_{on}$        | $R_{Goff} = 16\ \Omega$<br>$di/dt = 2250\text{ A}/\mu\text{s}$ | $T_j = 150\text{ °C}$<br>$V_{GE} = -7/+15\text{ V}$ | 3,1   |        | mJ               |
| $t_{d(off)}$    |  |   | 541   |        | ns               |
| $t_f$           |  |   | 70    |        | ns               |
| $E_{off}$       |  |   | 2,8   |        | mJ               |
| $R_{th(j-s)}$   | per IGBT   |   | 0,75  |        | K/W              |



**SEMITOP® 4**

## IGBT Module

**SK75GD066T**

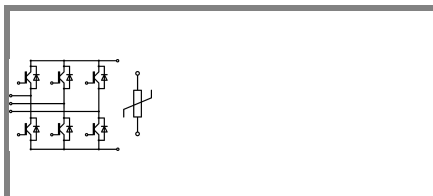
Preliminary Data

### Features

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### Typical Applications

- Inverter up to 16 kVA
- Typ. motor power 7,5 kW

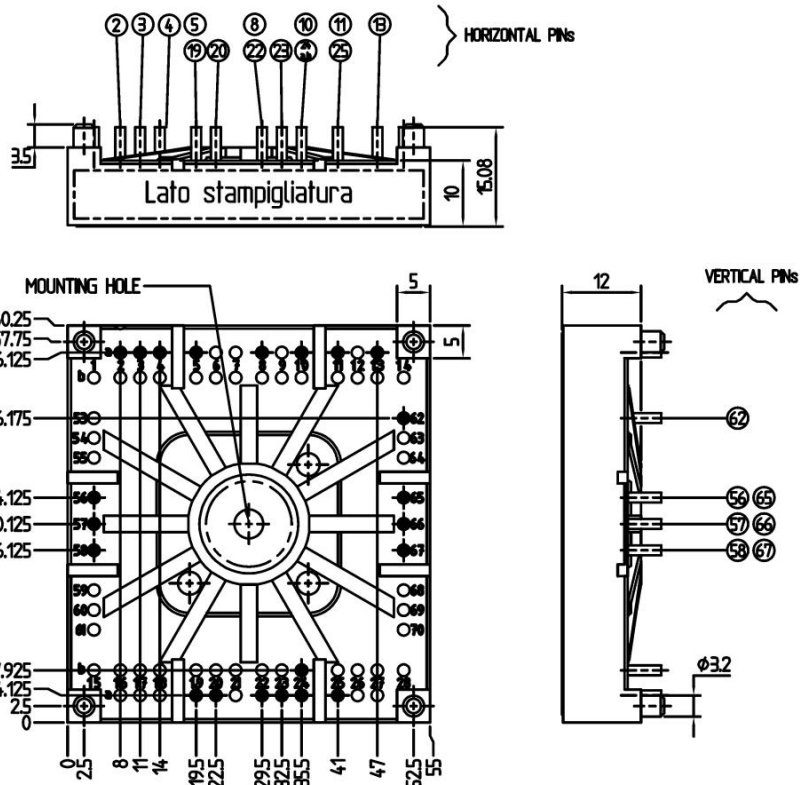


**GD-T**

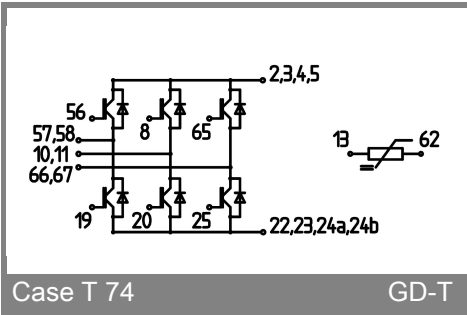
| Characteristics           |  |  | min. | typ.   | max. | Units |
|---------------------------|--|--|------|--------|------|-------|
| Symbol                    | Conditions   |  |      |        |      |       |
| <b>Inverse Diode</b>      |  |  |      |        |      |       |
| $V_F = V_{EC}$            | $I_{Fnom} = 60 \text{ A}; V_{GE} = 0 \text{ V}$    | $T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$  |      | 1,35   |      | V     |
|                           |  | $T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$ |      | 1,31   |      | V     |
| $V_{F0}$                  |  | $T_j = 25 \text{ }^\circ\text{C}$                    |      |        |      | V     |
|                           |  | $T_j = 150 \text{ }^\circ\text{C}$                   |      | 0,85   |      | V     |
| $r_F$                     |  | $T_j = 25 \text{ }^\circ\text{C}$                    |      |        |      | mΩ    |
|                           |  | $T_j = 150 \text{ }^\circ\text{C}$                   |      | 7,8    |      | mΩ    |
| $I_{RRM}$                 | $I_F = 75 \text{ A}$                               | $T_j = 150 \text{ }^\circ\text{C}$                   |      | 60     |      | A     |
| $Q_{rr}$                  | $di/dt = 2250 \text{ A}/\mu\text{s}$               |  |      | 6      |      | μC    |
| $E_{rr}$                  | $V_{CC} = 300\text{V}$                             |  |      | 0,85   |      | mJ    |
| $R_{th(j-s)D}$            | per diode  |  |      | 1,2    |      | K/W   |
| $M_s$                     | to heat sink                                       |  | 2,5  |        | 2,75 | Nm    |
| w                         |  |  |      | 60     |      | g     |
| <b>Temperature sensor</b> |  |  |      |        |      |       |
| $R_{100}$                 | $T_s = 100^\circ\text{C} (R_{25}=5\text{k}\Omega)$ |  |      | 493±5% |      | Ω     |

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

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



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