



**SEMITOP® 2**

## IGBT Module

SK 30 GB 067

SK 30 GAR 067

SK 30 GAL 067

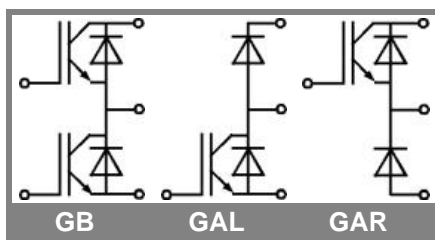
Target Data

### Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Hyper fast NPT IGBT
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- Positive Vcesat temperature coefficient (Easy paralleling)
- Low tail current with low temperature dependence
- Low threshold voltage

### Typical Applications

- Switching (not for linear use)
- High Frequencies Applications
- Welding Generator
- Switched mode power supplies
- UPS



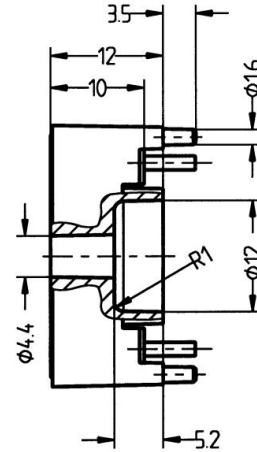
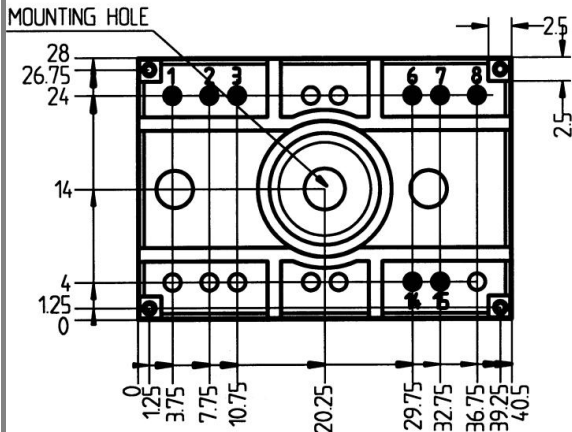
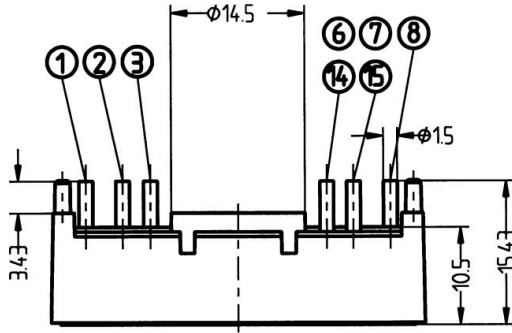
| Absolute Maximum Ratings          |   | $T_s = 25\text{ °C}$ , unless otherwise specified |       |
|-----------------------------------|---|---|-------|
| Symbol                            | Conditions  | Values  | Units |
| <b>IGBT</b>                       |   |   |       |
| $V_{CES}$                         |   | 600   | V     |
| $V_{GES}$                         |   | $\pm 20$  | V     |
| $I_C$                             | $T_s = 25\text{ (80) °C}$ ;                       | 45 (30)   | A     |
| $I_{CM}$                          | $t_p < 1\text{ ms}$ ; $T_s = 25\text{ (80) °C}$ ; | 90 (60)   | A     |
| $T_j$                             |   | - 40 ... + 150                                    | °C    |
| <b>Inverse/Freewheeling Diode</b> |   |   |       |
| $I_F$                             | $T_s = 25\text{ (80) °C}$ ;                       | 45 (30)   | A     |
| $I_{FM} = -I_{CM}$                | $t_p < 1\text{ ms}$ ; $T_s = 25\text{ (80) °C}$ ; | 90 (60)   | A     |
| $T_j$                             |   | - 40 ... + 150                                    | °C    |
| $T_{stg}$                         |   | - 40 ... + 125                                    | °C    |
| $T_{sol}$                         | Terminals, 10 s                                   | 260   | °C    |
| $V_{isol}$                        | AC 50 Hz, r.m.s. 1 min. / 1 s                     | 2500 / 3000                                       | V     |

| Characteristics                   |   | $T_s = 25\text{ °C}$ , unless otherwise specified |           |      |       |
|-----------------------------------|---|---|-----------|------|-------|
| Symbol                            | Conditions  | min.  | typ.      | max. | Units |
| <b>IGBT</b>                       |   |   |           |      |       |
| $V_{CE(sat)}$                     | $I_C = 60\text{ A}$ , $T_j = 25\text{ (125) °C}$                                    |   | 2,8 (3,5) |      | V     |
| $V_{GE(th)}$                      | $V_{CE} = V_{GE}$ ; $I_C = 0,0014\text{ A}$   | 3   | 4         | 5    | V     |
| $C_{res}$                         | $V_{CE} = 25\text{ V}$ ; $V_{GE} = 0\text{ V}$ ; 1 MHz                              |   | 3         |      | nF    |
| $R_{th(j-s)}$                     | per IGBT  |   |           | 0,85 | K/W   |
|                                   | per module  |   |           |      | K/W   |
| $t_{d(on)}$                       | under following conditions:<br>$V_{CC} = 400\text{ V}$ , $V_{GE} = \pm 15\text{ V}$ |   | 32        |      | ns    |
| $t_r$                             | $I_C = 60\text{ A}$ , $T_j = 125\text{ °C}$   |   | 20        |      | ns    |
| $t_{d(off)}$                      | $R_{Gon} = R_{Goff} = 11\ \Omega$   |   | 340       |      | ns    |
| $t_f$                             |   |   | 30        |      | ns    |
| $E_{on} + E_{off}$                | Inductive load  |   | 3,4       |      | mJ    |
| <b>Inverse/Freewheeling Diode</b> |   |   |           |      |       |
| $V_F = V_{EC}$                    | $I_F = 60\text{ A}$ ; $T_j = 25\text{ (150) °C}$                                    |   | (1,25)    | 2    | V     |
| $V_{(TO)}$                        | $T_j = (150)\text{ °C}$   |   | (1)       |      | V     |
| $r_T$                             | $T_j = (150)\text{ °C}$   |   | (9)       |      | mΩ    |
| $R_{th(j-s)}$                     |   |   |           | 1,6  | K/W   |
| $I_{RRM}$                         | under following conditions:<br>$I_F = 30\text{ A}$ ; $V_R = 400\text{ V}$           |   | 18        |      | A     |
| $Q_{rr}$                          | $di_F/dt = -100\text{ A}/\mu\text{s}$   |   | 1,5       |      | μC    |
| $E_{off}$                         | $V_{GE} = 0\text{ V}$ ; $T_j = 125\text{ °C}$                                       |   |           |      | mJ    |
| <b>Mechanical data</b>            |   |   |           |      |       |
| M1                                | mounting torque   |   |           | 2    | Nm    |
| w                                 |   |   | 19        |      | g     |
| Case                              | SEMITOP® 2  |   | T 32      |      |       |

# SK 30 GB 067

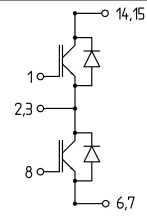
UL Recognized  
File no. E 63 532

Dimensions in mm



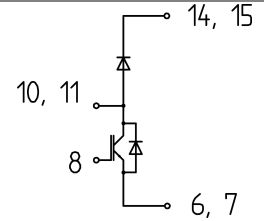
SUGGESTED HOLEDIAMETER FOR THE SOLDER PINS AND THE MOUNTING PINS IN THE PCB: 2 mm

Suggsted hole diameter for the solder pins and the mounting pins in the PCB: 2mm

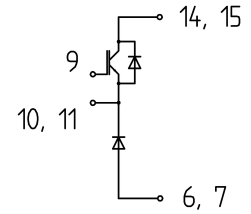


Case T32

GB



GAL



GAR

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

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