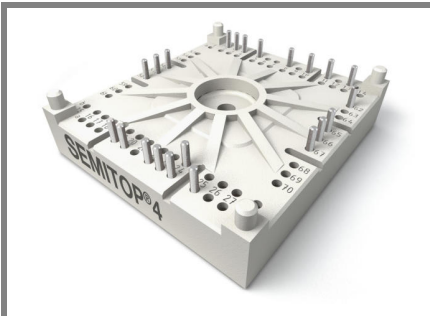


# SK 50 DGDL 126 T



**SEMITOP<sup>®</sup> 4**

**3-phase bridge rectifier +  
brake chopper + 3-phase  
bridge inverter**  
**SK 50 DGDL 126 T**

Target Data

## Features

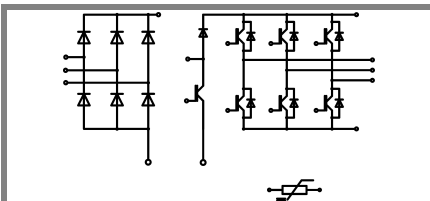
- One screw mounting module
- Fully compatible with SEMITOP<sup>®</sup>1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology free-wheeling diode
- Integrated NTC temperature sensor

## Typical Applications

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

1)  $V_{ce,sat}$ ,  $V_f$  = chip level value

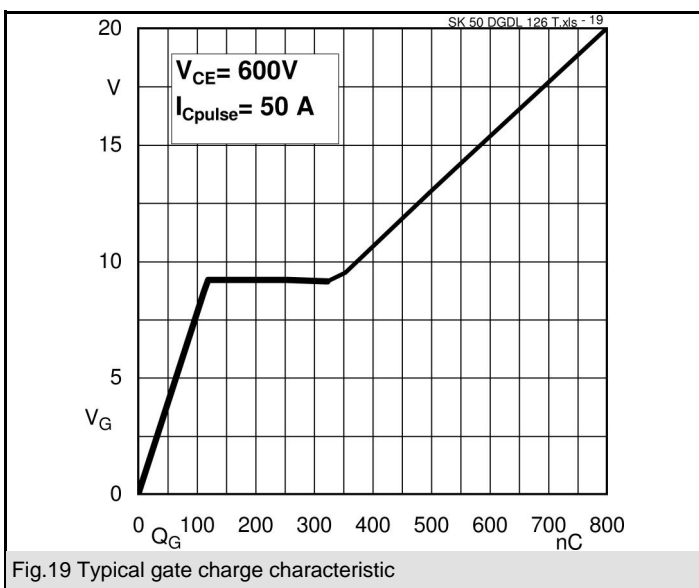
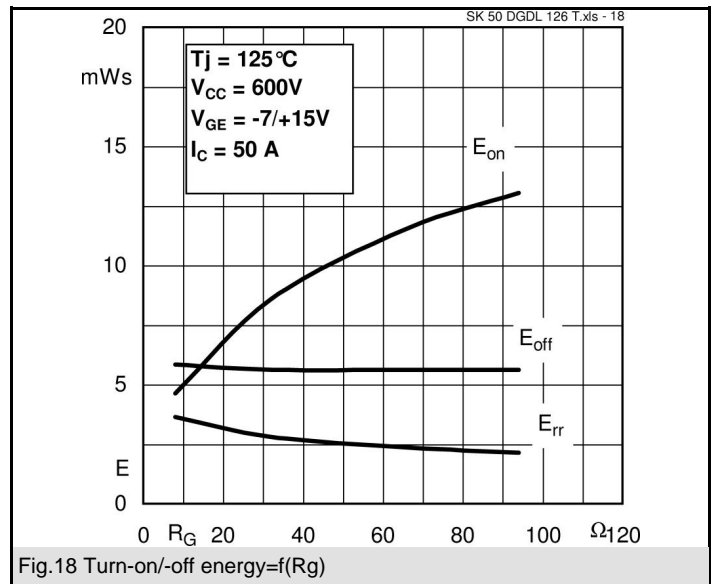
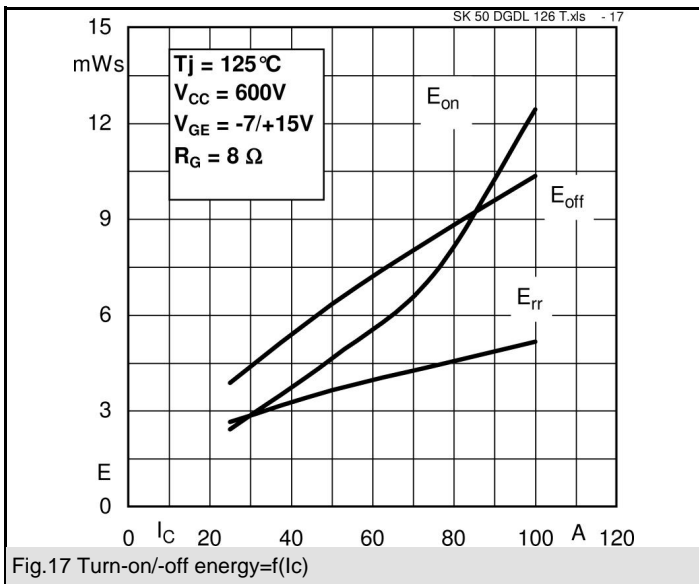
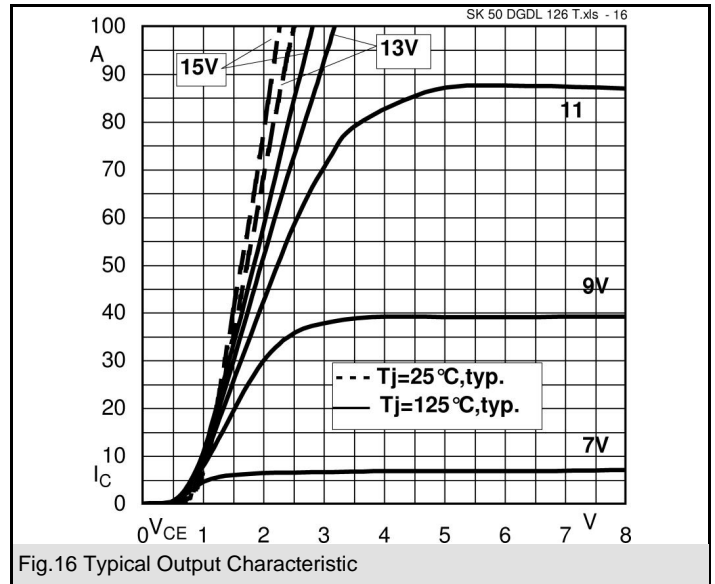
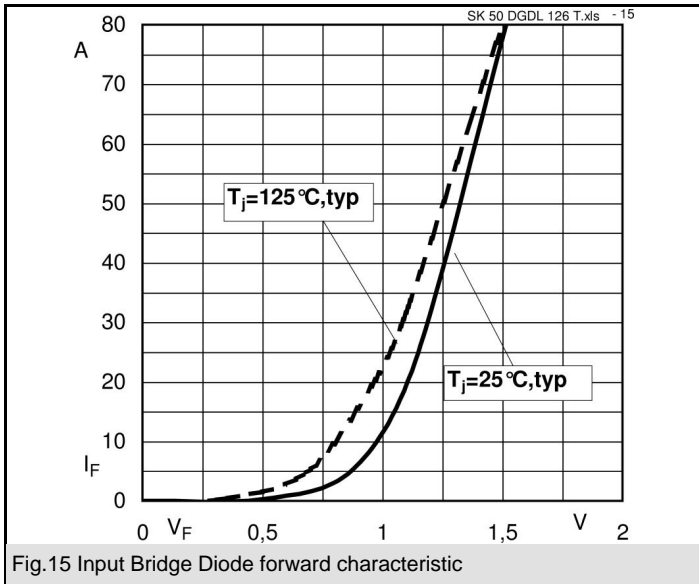
2) For IGBT chopper diagrams please refer to SK35DGDL126T

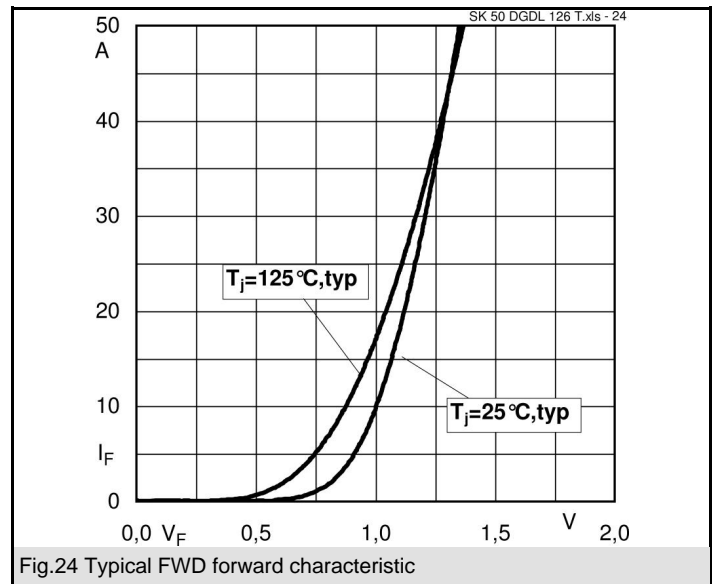
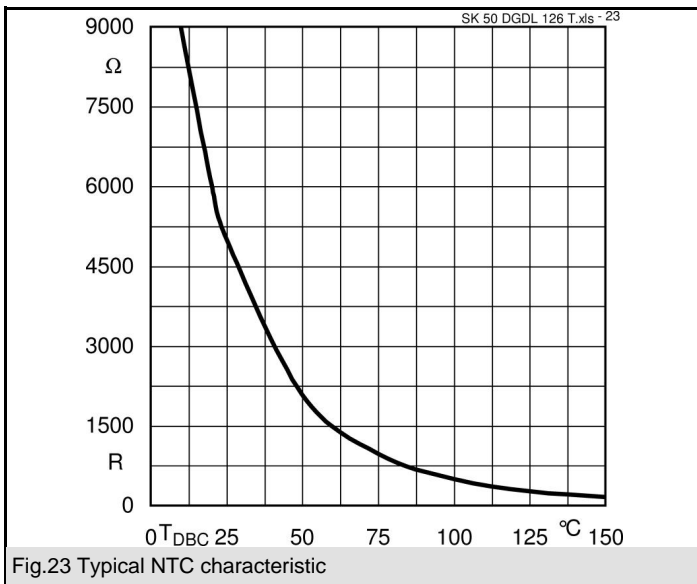
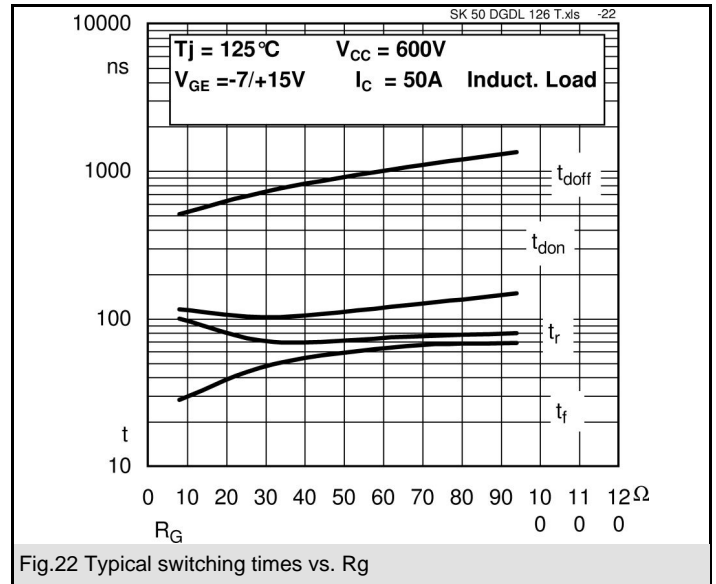
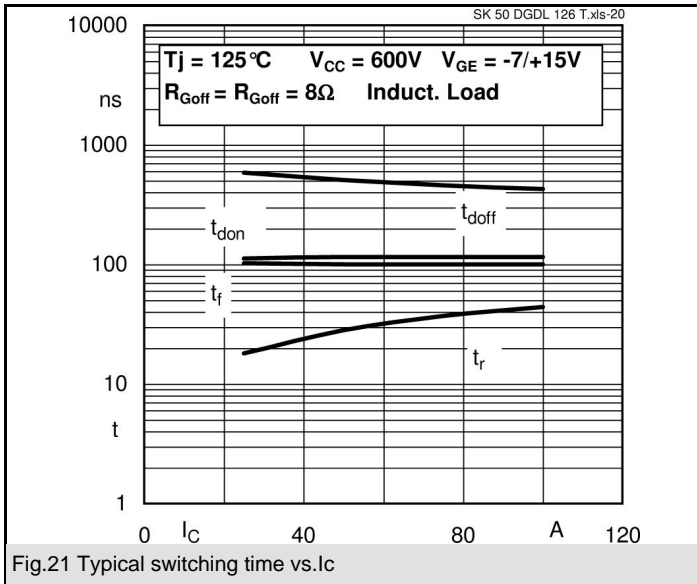


DGDL - T

| Absolute Maximum Ratings   |  | Ts = 25 °C, unless otherwise specified |                  |
|--|--|--|------------------|
| Symbol   | Conditions   | Values                                 | Units            |
| <b>IGBT - Inverter. For IGBT chopper maximum ratings, please refer to SK35DGDL126T</b> |  |  |                  |
| $V_{CES}$  |  | 1200                                   | V                |
| $I_C$  | $T_s = 25 (70) ^\circ C$                                 | 68 (52)                                | A                |
| $I_{CRM}$  | $I_{CRM} = 2 \times I_{Cnom}, t_p = 1 \text{ ms}$        | 100                                    | A                |
| $V_{GES}$  |  | $\pm 20$                               | V                |
| $T_j$  |  | -40 ... +150                           | $^\circ C$       |
| <b>Diode - Inverter,Chopper</b>  |  |  |                  |
| $I_F$  | $T_s = 25 (70) ^\circ C$                                 | 62 (46)                                | A                |
| $I_{FRM}$  | $I_{FRM} = 2 \times I_{Fnom}, t_p = 1 \text{ ms}$        | 100                                    | A                |
| $T_j$  |  | -40 ... +150                           | $^\circ C$       |
| <b>Rectifier</b>   |  |  |                  |
| $V_{RRM}$  |  | 1600                                   | V                |
| $I_F$  | $T_s = 70 ^\circ C$                                      | 61                                     | A                |
| $I_{FSM} / I_{TSM}$  | $t_p = 10 \text{ ms}, \sin 180^\circ, T_j = 25 ^\circ C$ | 700                                    | A                |
| $I_t^2$  | $t_p = 10 \text{ ms}, \sin 180^\circ, T_j = 25 ^\circ C$ | 2400                                   | A <sup>2</sup> s |
| $T_j$  |  | -40 ... +150                           | $^\circ C$       |
| $T_{sol}$  | Terminals, 10 s  | 260                                    | $^\circ C$       |
| $T_{stg}$  |  | -40 ... +125                           | $^\circ C$       |
| $V_{isol}$   | AC, 1 min. / 1 s   | 2500 / 3000                            | V                |

| Characteristics   |   | Ts = 25 °C, unless otherwise specified |             |             |            |
|---|---|--|-------------|-------------|------------|
| Symbol  | Conditions  | min.                                   | typ.        | max.        | Units      |
| <b>IGBT - Inverter. For IGBT chopper electrical characteristics, please refer to SK35DGDL126T</b> |   |  |             |             |            |
| $V_{CEsat}$   | $I_C = 50 \text{ A}, T_j = 25 (125) ^\circ C$                                   |  | 1,7 (2)     | 2,15 (2,45) | V          |
| $V_{GE(th)}$  | $V_{GE} = V_{CE}, I_C = 2 \text{ mA}$   | 5                                      | 5,8         | 6,5         | V          |
| $V_{CE(TO)}$  | $T_j = 25 ^\circ C (125) ^\circ C$  |  | 1 (0,9)     | 1,2 (1,1)   | V          |
| $r_T$   | $T_j = 25 ^\circ C (125) ^\circ C$  |  | 14 (22)     | 19 (27)     | m $\Omega$ |
| $C_{ies}$   | $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$                |  | 3,7         |             | nF         |
| $C_{oes}$   | $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$                |  | 0,18        |             | nF         |
| $C_{res}$   | $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$                |  | 0,16        |             | nF         |
| $R_{th(j-s)}$   | per IGBT  |  | 0,6         |             | K/W        |
| $t_{d(on)}$   | under following conditions  |  | 115         |             | ns         |
| $t_r$   | $V_{CC} = 600 \text{ V}, V_{GE} = \pm 15 \text{ V}$                             |  | 28          |             | ns         |
| $t_{d(off)}$  | $I_C = 50 \text{ A}, T_j = 125 ^\circ C$  |  | 509         |             | ns         |
| $t_f$   | $R_{Gon} = R_{Goff} = 8 \Omega$   |  | 100         |             | ns         |
| $E_{on}$  | inductive load  |  | 4,6         |             | mJ         |
| $E_{off}$   |   |  | 6,3         |             | mJ         |
| <b>Diode - Inverter,Chopper</b>   |   |  |             |             |            |
| $V_F = V_{EC}$  | $I_F = 50 \text{ A}, T_j = 25(125) ^\circ C$                                    |  | 1,35 (1,35) |             | V          |
| $V_{(TO)}$  | $T_j = 25 ^\circ C (125) ^\circ C$  |  | 0,95 (0,85) |             | V          |
| $r_T$   | $T_j = 25 ^\circ C (125) ^\circ C$  |  | 8 (10)      |             | m $\Omega$ |
| $R_{th(j-s)}$   | per diode   |  | 1           |             | K/W        |
| $I_{RRM}$   | under following conditions  |  | 30          |             | A          |
| $Q_{rr}$  | $I_F = 50 \text{ A}, V_R = 600 \text{ V}$                                       |  | 10          |             | $\mu C$    |
| $E_{rr}$  | $V_{GE} = 0 \text{ V}, T_j = 125 ^\circ C$<br>$di_{F/dt} = 500 \text{ A}/\mu s$ |  | 3,6         |             | mJ         |
| <b>Diode - Rectifier</b>  |   |  |             |             |            |
| $V_F$   | $I_F = 35 \text{ A}, T_j = 25() ^\circ C$                                       |  | 1,1         |             | V          |
| $V_{(TO)}$  | $T_j = 150 ^\circ C$  |  | 0,8         |             | V          |
| $r_T$   | $T_j = 150 ^\circ C$  |  | 11          |             | m $\Omega$ |
| $R_{th(j-s)}$   | per diode   |  | 0,9         |             | K/W        |
| <b>Temperatur sensor</b>  |   |  |             |             |            |
| $R_{ts}$  | 5 %, $T_r = 25 (100) ^\circ C$  |  | 5000(493)   |             | $\Omega$   |
| <b>Mechanical data</b>  |   |  |             |             |            |
| w   |   |  | 60          |             | g          |
| $M_s$   | Mounting torque   | 2,5                                    |             | 2,75        | Nm         |

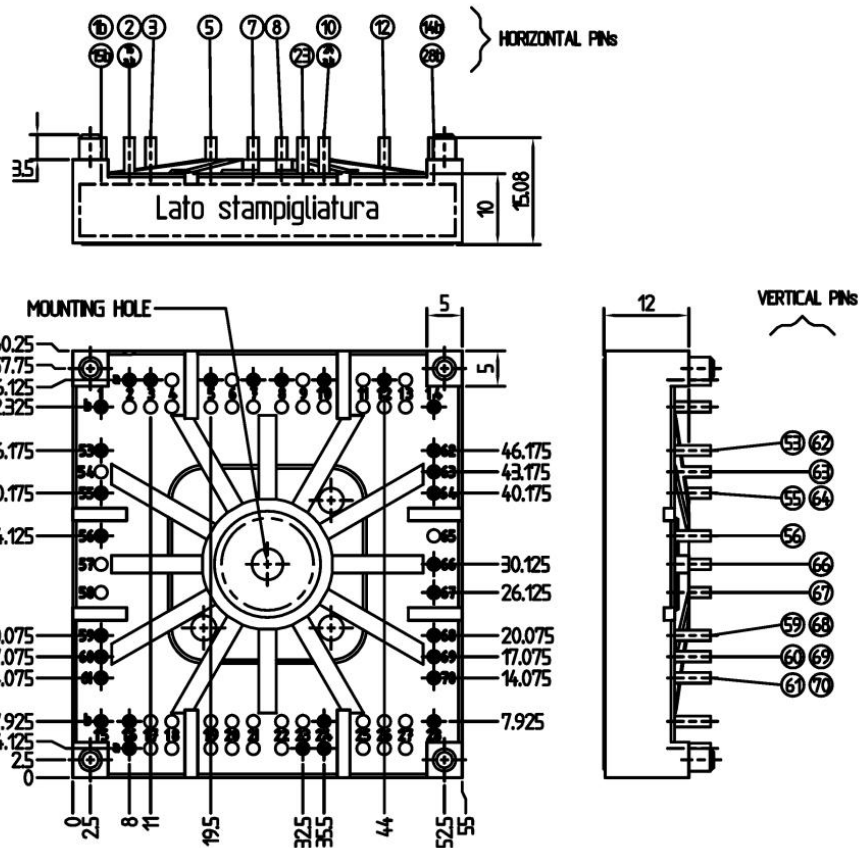




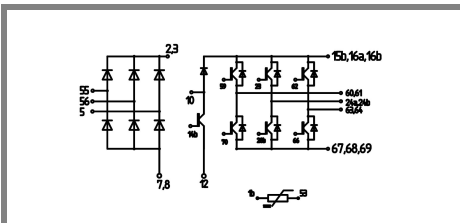
# SK 50 DGDL 126 T

UL recognized  
file no. E 63 532

Dimensions in mm



Case T 75 (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 75 (pin without letter refers to row "a", unless otherwise specified)

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.