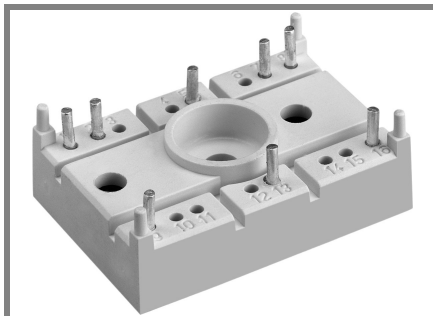


SK 85 MH 10



SEMITOP[®] 2

MOSFET Module

SK 85 MH 10

Preliminary Data

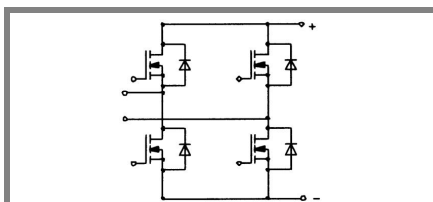
Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonding aluminium oxide ceramic (DBC)
- Trench-gate technology
- Short internal connections and low inductance case

Typical Applications

- Low switched mode power supplies
- DC servo drives
- UPS

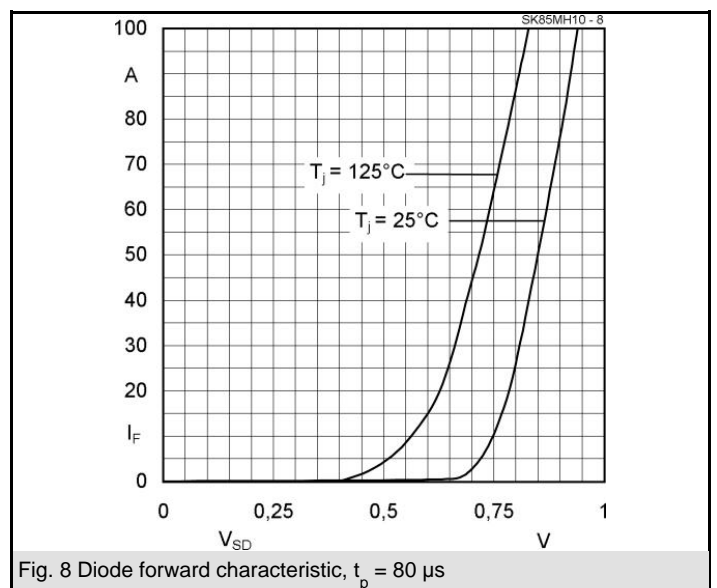
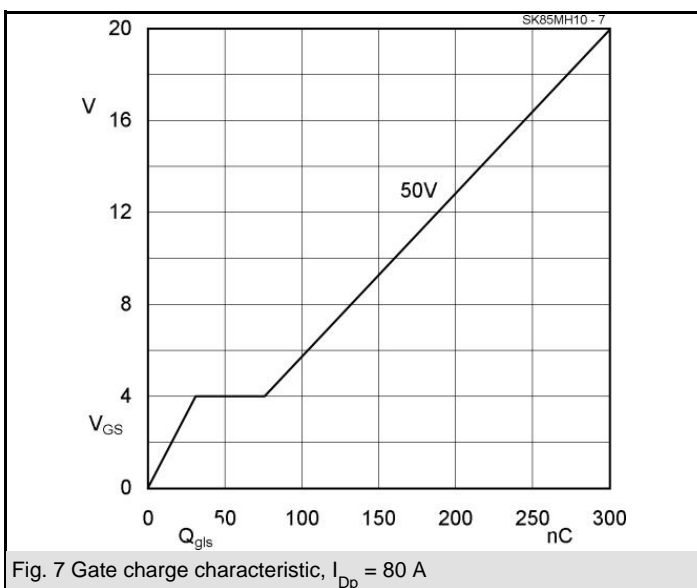
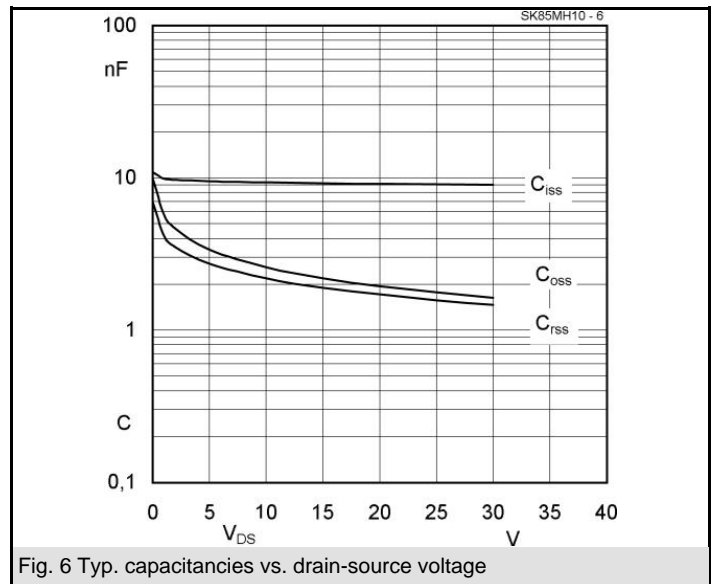
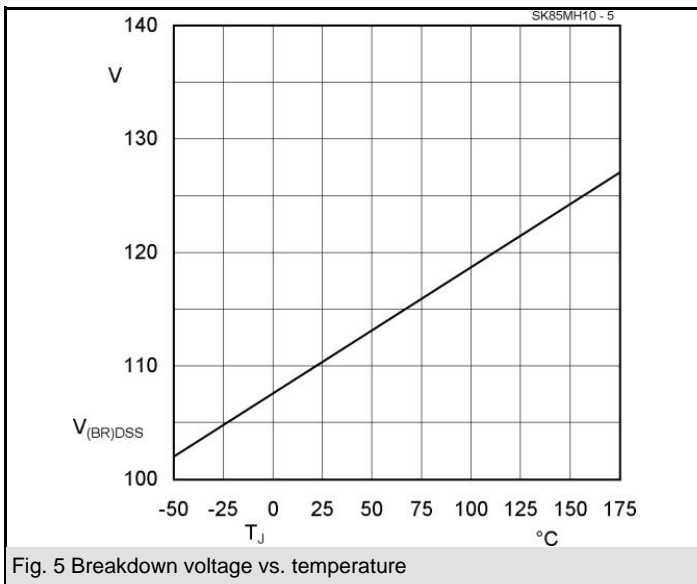
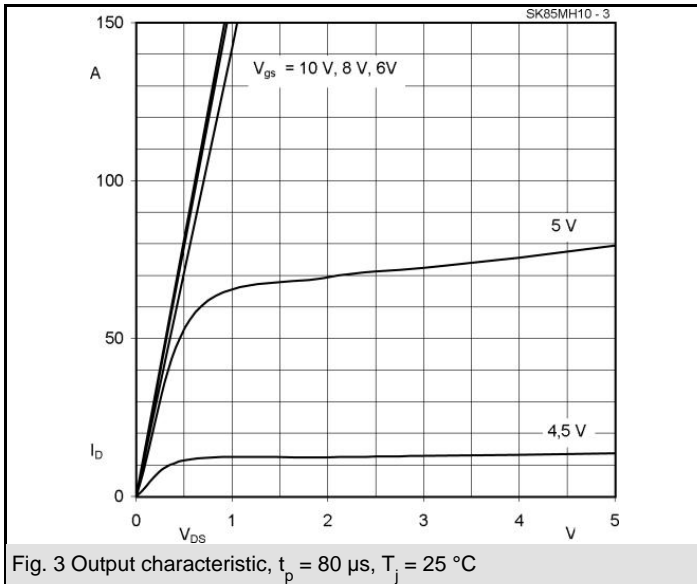
1) Maximum PCB temperature, at pins contact, = 85°C

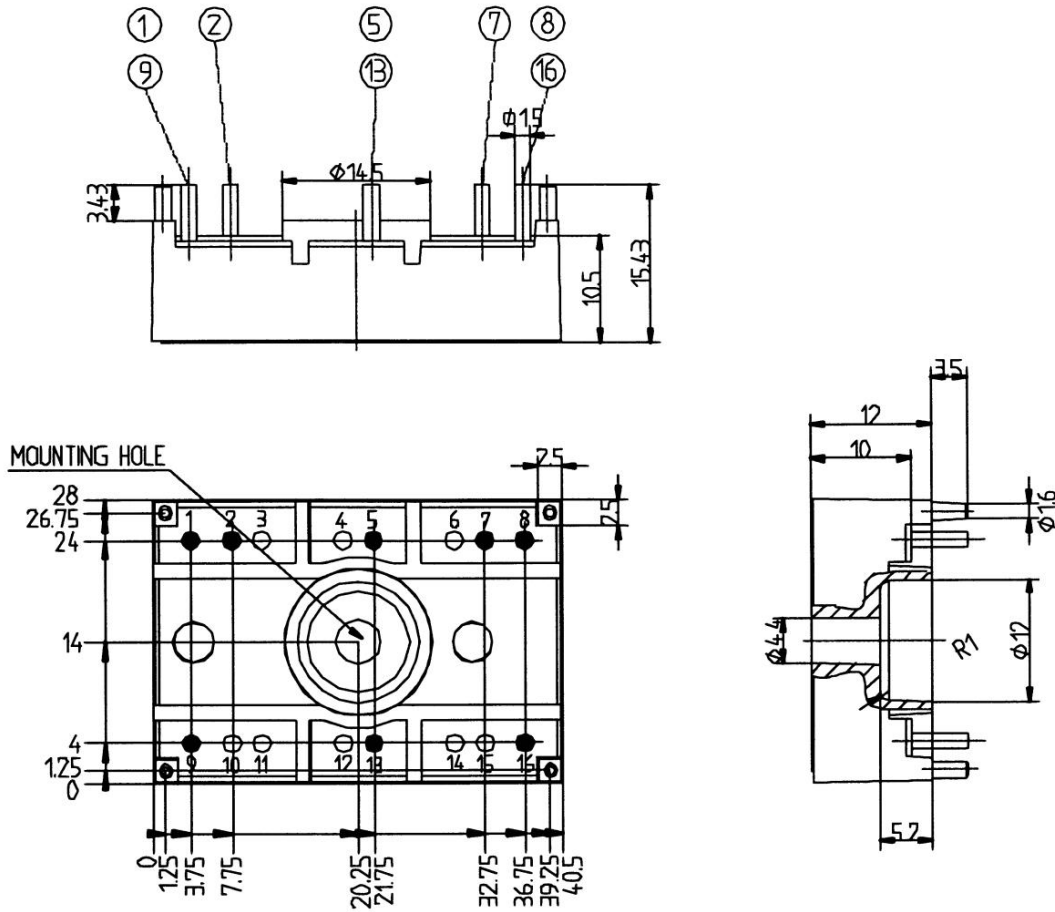


MH

| Absolute Maximum Ratings | | $T_s = 25\text{ °C}$, unless otherwise specified | |
|-------------------------------|--|---|-------|
| Symbol | Conditions | Values | Units |
| MOSFET | | | |
| V_{DSS} | | 100 | V |
| V_{GSS} | | ± 20 | V |
| I_D | $T_s = 25\text{ (80) °C}; 1)$ | 80 (60) | A |
| I_{DM} | $t_p < 1\text{ ms}; T_s = 80\text{ °C}; 1)$ | 120 | A |
| T_j | | - 40 ... + 150 | °C |
| Inverse diode | | | |
| $I_F = - I_D$ | $T_s = 25\text{ (80) °C};$ | 80 (60) | A |
| $I_{FM} = - I_{DM}$ | $t_p < 1\text{ ms}; T_s = 80\text{ () °C};$ | 120 | A |
| T_j | | - 40 ... + 150 | °C |
| Freewheeling CAL diode | | | |
| $I_F = - I_D$ | $T_s = \text{°C}$ | | A |
| T_j | | | °C |
| T_{stg} | | - 40 ... + 125 | °C |
| T_{sol} | Terminals, 10 s | 260 | °C |
| V_{isol} | AC, 1 min (1s) | 2500 / 3000 | V |

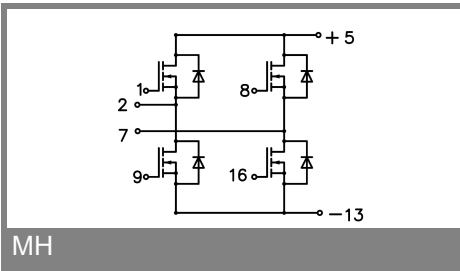
| Characteristics | | $T_s = 25\text{ °C}$, unless otherwise specified | | | |
|----------------------------|--|---|------|------|---------------|
| Symbol | Conditions | min. | typ. | max. | Units |
| MOSFET | | | | | |
| $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}; I_D = 5,6\text{ mA}$ | 100 | | | V |
| $V_{GS(th)}$ | $V_{GS} = V_{DS}; I_D = 5,6\text{ mA}$ | 2,5 | 3,3 | | V |
| I_{DSS} | $V_{GS} = 0\text{ V}; V_{DS} = V_{DSS}; T_j = 25\text{ °C}$ | | | 100 | μA |
| I_{GSS} | $V_{GS} = \pm 20\text{ V}; V_{DS} = 0\text{ V}$ | | | 100 | nA |
| $R_{DS(on)}$ | $I_D = 80\text{ A}; V_{GS} = 10\text{ V}; T_j = 25\text{ °C}$ | | | 7,5 | m Ω |
| $R_{DS(on)}$ | $I_D = 80\text{ A}; V_{GS} = 10\text{ V}; T_j = 125\text{ °C}$ | | | 13,5 | m Ω |
| C_{CHC} | per MOSFET | | | | pF |
| C_{iss} | under following conditions: | | 9,1 | | nF |
| C_{oss} | $V_{GS} = 0\text{ V}; V_{DS} = 25\text{ V}; f = 1\text{ MHz}$ | | 1,8 | | nF |
| C_{riss} | | | 1,6 | | nF |
| L_{DS} | | | | | nH |
| $t_{d(on)}$ | under following conditions: | | 300 | | ns |
| t_r | $V_{DD} = 50\text{ V}; V_{GS} = 10\text{ V};$ $I_D = 50\text{ A}$ | | 140 | | ns |
| $t_{d(off)}$ | $R_G = 56\text{ }\Omega$ | | 1550 | | ns |
| t_f | | | 150 | | ns |
| $R_{th(j-s)}$ | per MOSFET (per module) | | | 1,1 | K/W |
| Inverse diode | | | | | |
| V_{SD} | $I_F = 50\text{ A}; V_{GS} = 0\text{ V}; T_j = \text{°C}$ | | 0,9 | | V |
| I_{RRM} | under following conditions: | | 24 | | A |
| Q_{rr} | $I_F = 50\text{ A}; T_{vj} = 25\text{ °C}; R_G = 56\text{ }\Omega$ | | 0,9 | | μC |
| t_{rr} | $V_R = 65\text{ A}; di/dt = 100\text{ A}/\mu\text{s}$ | | 70 | | ns |
| Free-wheeling diode | | | | | |
| V_F | $I_F = \text{A}; V_{GS} = \text{V}$ | | | | V |
| I_{RRM} | under following conditions: | | | | A |
| Q_{rr} | $I_F = \text{A}; T_{vj} = \text{°C}$ | | | | μC |
| t_{rr} | $V_r = \text{A}; di/dt = \text{A}/\mu\text{s}$ | | | | ns |
| Mechanical data | | | | | |
| M1 | mounting torque | | | 2 | Nm |
| w | | | 20 | | g |
| Case | | | T 34 | | |





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

Case T34



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

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