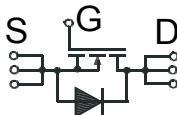


## MOSFET Module

## PSMG 60/08

$$\begin{aligned}
 V_{DSS} &= 800 \text{ V} \\
 I_{D25} &= 60 \text{ A} \\
 R_{DS(on)} &= 0.12 \text{ } \Omega \\
 t_{rr} &\leq 250 \text{ ns}
 \end{aligned}$$

Preliminary Data Sheet



### MOSFET (data related to single chip)

| Symbol        | Test Conditions   | Maximum Ratings                         |
|---------------|---|---|
| $V_{DSS}$     | $T_J = 25 \text{ }^\circ\text{C}$ to $150 \text{ }^\circ\text{C}$   | 800 V                                   |
| $V_{DGR}$     | $T_J = 25 \text{ }^\circ\text{C}$ to $150 \text{ }^\circ\text{C}$ , $R_{GS} = 1 \text{ M}\Omega$  | 800 V                                   |
| $V_{GS}$      | continuous  | $\pm 20$ V                              |
| $V_{GSM}$     | transient   | $\pm 30$ V                              |
| $I_{D25}$     | $T_{Case} = 25 \text{ }^\circ\text{C}$  | 60 A                                    |
| $I_{DM}$      | $T_{Case} = 25 \text{ }^\circ\text{C}$ , pulse width limited by $T_{JM}$  | 240 A                                   |
| $I_{AR}$      |   | 60 A                                    |
| $E_{AR}$      | $T_C = 25 \text{ }^\circ\text{C}$   | 64 mJ                                   |
| $E_{AS}$      | $T_C = 25 \text{ }^\circ\text{C}$   | 3 J                                     |
| $dv/dt$       | $I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ ,<br>$T_J \leq 150 \text{ }^\circ\text{C}$ , $R_G = 2 \text{ } \Omega$ | 5 V/ns                                  |
| $P_D$         | $T_{Case} = 25 \text{ }^\circ\text{C}$  | 1200 W                                  |
| $T_J$         |   | $-55 \dots +150 \text{ }^\circ\text{C}$ |
| $T_{JM}$      |   | $+150 \text{ }^\circ\text{C}$           |
| $T_{stg}$     |   | $-55 \dots +150 \text{ }^\circ\text{C}$ |
| $V_{ISOL}$    | 50/60 Hz, RMS $t = 1 \text{ min.}$  | 2500 V~                                 |
| $V_{ISOL}$    | $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$  | 3000 V~                                 |
| $M_d$         | Mounting torque (M4)  | 1.5 Nm<br>14 lb.in.                     |
| <b>a</b>      | max. allowed acceleration   | 50 $\text{m/s}^2$                       |
| <b>Weight</b> |   | 26 g                                    |



Typical picture; changes of the pin configuration is reserved.

### Features

- Package with DCB ceramic base plate
- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Low  $R_{DS(on)}$  HDMOS™ process
- Fast intrinsic Rectifier
- UL registered, E 148688

### Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

### Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

**Caution:** These devices are sensitive to electrostatic discharge. Users should observe proper ESD handling precautions.

| Symbol   | Test Conditions   | Characteristic Values  |
|--|---|------------------------|
| $(T_J = 25 \text{ }^\circ\text{C}$ , unless otherwise specified) |   |                        |
| $V_{DSS}$  | $V_{GS} = 0 \text{ V}$ , $I_D = 3 \text{ mA}$                               | min. 800 V             |
|  | $V_{DSS}$ temperature coefficient   | typ. 0.096 %/K         |
| $V_{GS(th)}$   | $V_{GS} = V_{DS}$ , $I_D = 8 \text{ mA}$                                    | min. 3.0 V             |
|  |   | max. 5.0 V             |
|  | $V_{GS(th)}$ temperature coefficient  | typ. -0.214 %/K        |
| $I_{GSS}$  | $V_{DS} = 0 \text{ V}$ , $V_{GS} = \pm 20 \text{ V}$                        | max. $\pm 200$ nA      |
| $I_{DSS}$  | $V_{DS} = V_{DSS}$ , $T_J = 25 \text{ }^\circ\text{C}$                      | max. 100 $\mu\text{A}$ |
|  | $V_{GS} = 0 \text{ V}$ , $T_J = 125 \text{ }^\circ\text{C}$                 | max. 2 mA              |
| $R_{DS(on)}$   | $V_{GS} = 10 \text{ V}$ , $I_D = 0.5 \cdot I_{D25}$                         |                        |
|  | pulse test, $t \leq 300 \text{ } \mu\text{s}$ ,<br>duty cycle $d \leq 2 \%$ | max. 0.12 $\Omega$     |

**ATTENTION:** All given data are derived from similar modules or estimated from chip data.

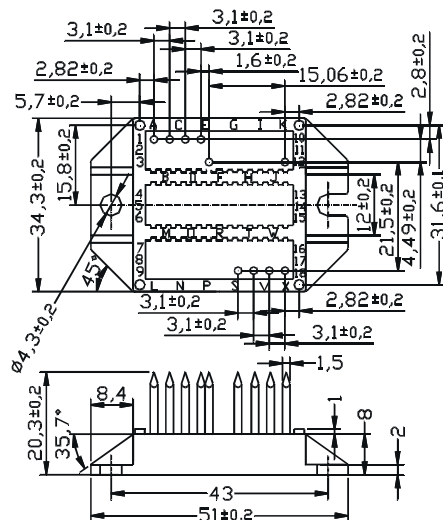
| Symbol   | Test Conditions                | Characteristic Values |       |     |
|--|--------------------------------|-----------------------|-------|-----|
| ( $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise specified) |                                |                       |       |     |
| $C_{iss}$  | $V_{GS} = 0\text{ V}$ ,        | typ.                  | 15000 | pF  |
| $C_{oss}$  | $V_{DS} = 25\text{ V}$ ,       | typ.                  | 1840  | pF  |
| $C_{rss}$  | $f = 1\text{ MHz}$             | typ.                  | 440   | pF  |
| $t_{d(on)}$  | $V_{GS} = 10\text{ V}$ ,       | typ.                  | 45    | ns  |
| $t_r$  | $V_{DS} = 0.5 \cdot V_{DSS}$ , | typ.                  | 45    | ns  |
| $t_{d(off)}$   | $I_D = 0.5 \cdot I_{D25}$      | typ.                  | 100   | ns  |
| $t_f$  | $R_G = 1\ \Omega$ (External)   | typ.                  | 40    | ns  |
| $R_{thJC}$   |                                |                       | 0.45  | K/W |
| $R_{thCK}$   |                                |                       | 0.60  | K/W |

## Source-Drain Diode

| Symbol   | Test Conditions  | Characteristic Values |     |               |
|--|--|-----------------------|-----|---------------|
| ( $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise specified) |  |                       |     |               |
| $I_S$  | $V_{GS} = 0\text{ V}$  | max.                  | 34  | A             |
| $I_{SM}$   | repetitive<br>pulse width limited by $T_{JM}$  | max.                  | 136 | A             |
| $V_{SD}$   | $I_F = I_S$ , $V_{GS} = 0\text{ V}$<br>pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$ | max.                  | 1.5 | V             |
| $t_{rr}$   | $I_F = I_S$ , $T_J = 25\text{ }^\circ\text{C}$ max.  | max.                  | 250 | ns            |
|  | $T_J = 125\text{ }^\circ\text{C}$ max.   | max.                  | 400 | ns            |
| $Q_{RM}$   | $-di/dt = 100\text{ A}/\mu\text{s}$ , $T_J = 25\text{ }^\circ\text{C}$                                 | typ.                  | 1.4 | $\mu\text{C}$ |
| $I_{RM}$   | $V_R = 100\text{ V}$   | typ.                  | 10  | A             |

## Package style and preliminary outline

Dimensions in mm (1mm = 0.0394")



**Characteristic pin configuration; changes of the pin configuration is reserved.**

**ATTENTION:** All given data are derived from similar modules or estimated from chip data.