

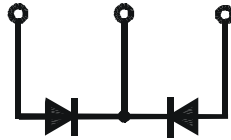
## Fast Recovery Epitaxial Diode (FRED) Module

### PSMD 200E

$I_{FAV} = 312 \text{ A}$   
 $V_{RRM} = 800-1200 \text{ V}$

Preliminary Data Sheet

| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Type         |
|----------------|----------------|--------------|
| 800            | 800            | PSMD 200E/08 |
| 1000           | 1000           | PSMD 200E/10 |
| 1200           | 1200           | PSMD 200E/12 |



| Symbol        | Test Conditions   | Maximum Ratings                |
|---------------|---|--------------------------------|
| $I_{FAV}$     | $T_C = 70^\circ\text{C}$  | 312 A                          |
| $I_{FSM}$     | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine | 3200 A                         |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 3500 A                         |
|               | $T_{VJ} = T_{VJM}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine          | 2900 A                         |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 3200 A                         |
| $\int i^2 dt$ | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine | 51200 $\text{A}^2 \text{ s}$   |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 50800 $\text{A}^2 \text{ s}$   |
|               | $T_{VJ} = T_{VJM}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine          | 42000 $\text{A}^2 \text{ s}$   |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 42500 $\text{A}^2 \text{ s}$   |
| $T_{VJ}$      |   | -40 ... + 150 $^\circ\text{C}$ |
| $T_{VJM}$     |   | 150 $^\circ\text{C}$           |
| $T_{stg}$     |   | -40 ... + 125 $^\circ\text{C}$ |
| $V_{ISOL}$    | 50/60 HZ, RMS<br>$t = 1 \text{ min}$  | 2500 V ~                       |
|               | $I_{ISOL} \leq 1 \text{ mA}$<br>$t = 1 \text{ s}$                             | 3000 V ~                       |
| $M_d$         | Mounting torque (M6)  | 5 Nm                           |
|               | Terminal connection torque (M6)   | 5 Nm                           |
| Weight        | typ.  | 270 g                          |

### Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Short recovery time
- Low forward voltage drop
- Short recovery behaviour
- UL registered, E 148688

### Applications

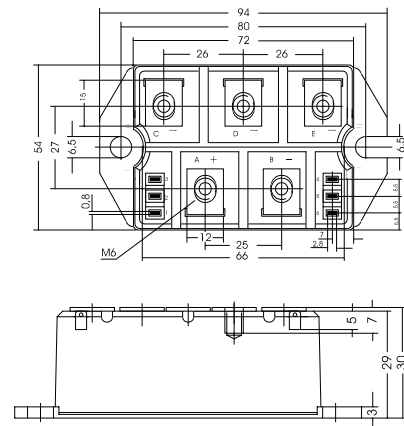
- Inductive heating and melting
- Free wheeling diode in converters and motor control circuits
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### Advantages

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses

### Package, style and outline

Dimensions in mm (1mm = 0.0394")



| Symbol     | Test Conditions                                      | Characteristic Value  |
|------------|--|-----------------------|
| $I_R$      | $V_R = V_{RRM}$<br>$T_{VJ} = 25^\circ\text{C}$       | $\leq 3.4 \text{ mA}$ |
|            | $V_R = V_{RRM}$<br>$T_{VJ} = T_{VJM}$                | $\leq 35 \text{ mA}$  |
| $V_F$      | $I_F = 200 \text{ A}$<br>$T_{VJ} = 25^\circ\text{C}$ | $\leq 1.55 \text{ V}$ |
| $t_{rr}$   | $T_{VJ} = 25^\circ\text{C}$                          | typ. 150 ns           |
| $V_{TO}$   | For power-loss calculations only                     | 0.3 V                 |
| $r_T$      | $T_{VJ} = T_{VJM}$                                   | 0.75 $\text{m}\Omega$ |
| $R_{thJC}$ | per diode; DC current                                | 0.28 K/W              |
|            | per module   | 0.14 K/W              |
| $R_{thJH}$ | per diode; DC current                                | 0.38 K/W              |
|            | per module   | 0.19 K/W              |
| $d_S$      | Creeping distance on surface                         | 10 mm                 |
| $d_A$      | Creeping distance in air                             | 9.4 mm                |
| $a$        | Max. allowable acceleration                          | 50 $\text{m/s}^2$     |