

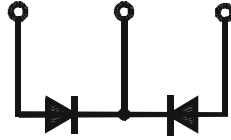
Fast Recovery Epitaxial Diode (FRED) Module

PSMD 150E

$I_{FAV} = 208 \text{ A}$
 $V_{RRM} = 800-1200 \text{ V}$

Preliminary Data Sheet

| V_{RSM} V | V_{RRM} V | Type |
|----------------|----------------|--------------|
| 800 | 800 | PSMD 150E/08 |
| 1000 | 1000 | PSMD 150E/10 |
| 1200 | 1200 | PSMD 150E/12 |



| Symbol | Test Conditions | Maximum Ratings |
|---------------|---|--------------------------------|
| I_{FAV} | $T_c = 70^\circ\text{C}$ | 208 A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine | 2500 A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 2700 A |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine | 2250 A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 2400 A |
| $\int i^2 dt$ | $T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine | 31200 $\text{A}^2 \text{ s}$ |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 30200 $\text{A}^2 \text{ s}$ |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine | 25300 $\text{A}^2 \text{ s}$ |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 23900 $\text{A}^2 \text{ s}$ |
| 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 $t = 1 \text{ min}$ | 2500 V ~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$ | 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

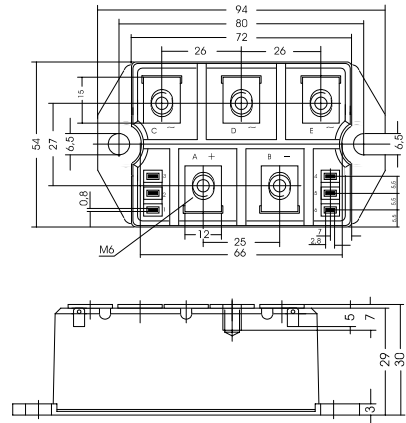
- Inductive heating and melting
- Free wheeling diode in converters and motor control circuits
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

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 | $V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$ | max. 12 mA |
| | $V_R = 0.8 \cdot V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$ | max. 3 mA |
| | $V_R = 0.8 \cdot V_{RRM}$ $T_{VJ} = T_{VJM}$ | max. 60 mA |
| V_F | $I_F = 150 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$ | $\leq 1.55 \text{ V}$ |
| t_{rr} | $T_{VJ} = 25^\circ\text{C}$; $I_F = 1 \text{ A}$; $-di_F/dt = 400 \text{ A}/\mu\text{s}$ $V_R = 30 \text{ V}$ | typ. 100 ns |
| I_{RM} | $I_F = 100 \text{ A}$; $-di_F/dt = 200 \text{ A}/\mu\text{s}$; $V_R = 100 \text{ V}$ $L \leq 0.05 \text{ mH}$; $T_{VJ} = 100^\circ\text{C}$ | typ. 48 A |
| V_{TO} | For power-loss calculations only | 0.5 V |
| r_T | $T_{VJ} = T_{VJM}$ | 0.75 $\text{m}\Omega$ |
| R_{thJH} | per diode; DC current | 0.57 K/W |
| R_{thJC} | per diode; DC current | 0.42 K/W |
| d_s | Creeping distance on surface | 10 mm |
| d_A | Creeping distance in air | 9.4 mm |
| a | Max. allowable acceleration | 50 m/s^2 |