

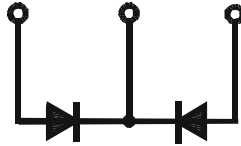
## Fast Recovery Epitaxial Diode (FRED) Module

### PSMD 50E

$I_{FAV} = 50 \text{ A}$   
 $V_{RRM} = 200-600 \text{ V}$

Preliminary Data Sheet

$V_{RSM}$ V	$V_{RRM}$ V	Type
200	200	PSMD 50E/02
400	400	PSMD 50E/04
600	600	PSMD 50E/06



### 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

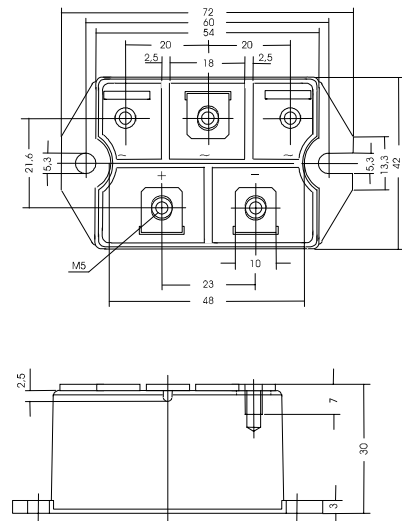
- Inductive heating and melting
- Free wheeling diode in converters and motor control circuits
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### 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	Maximum Ratings
$I_{FAV}$	$T_C = 85^\circ\text{C}$	50 A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	800 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	880 A
	$T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz), sine	720 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	790 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	3200 A <sup>2</sup> s
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	3210 A <sup>2</sup> s
	$T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz), sine	2590 A <sup>2</sup> s
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	2590 A <sup>2</sup> s
$T_{VJ}$		-40 ... + 150 °C
$T_{VJM}$		150 °C
$T_{stg}$		-40 ... + 125 °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 (M5)	5 Nm
	Terminal connection torque (M5)	5 Nm
Weight	typ.	160 g

Symbol	Test Conditions	Characteristic Value
$I_R$	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 150 \mu\text{A}$
	$V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$	$\leq 15 \text{ mA}$
$V_F$	$I_F = 50 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 1.25 \text{ V}$
$t_{rr}$	$T_{VJ} = 25^\circ\text{C}$ , $I_F = 1 \text{ A}$ ; $-di/dt = 100 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$	typ. 60 ns
$V_{TO}$	For power-loss calculations only	1.1 V
$r_T$	$T_{VJ} = T_{VJM}$	2.6 mΩ
$R_{thJC}$	per diode; DC current	0.9 K/W
	per module	0.45 K/W
$R_{thJK}$	per diode; DC current	1.1 K/W
	per module	0.55 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 <sup>2</sup>