

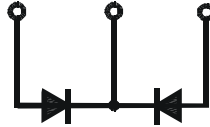
## Fast Recovery Epitaxial Diode (FRED) Module

## PSMD 30E

$I_{FAV} = 25 \text{ A}$   
 $V_{RRM} = 200\text{-}600 \text{ V}$

### Preliminary Data Sheet

$V_{RSM}$ V	$V_{RRM}$ V	Type
200	200	PSMD 30E/02
400	400	PSMD 30E/04
600	600	PSMD 30E/06



Symbol	Test Conditions	Maximum Ratings
$I_{FAV}$	$T_C = 85^\circ\text{C}$	25 A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine	400 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	440 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine	360 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	400 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine	800 $\text{A}^2 \text{ s}$
	$t = 8.3 \text{ ms}$ (60 Hz), sine	800 $\text{A}^2 \text{ s}$
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms}$ (50 Hz), sine	650 $\text{A}^2 \text{ s}$
	$t = 8.3 \text{ ms}$ (60 Hz), sine	660 $\text{A}^2 \text{ s}$
$T_{VJ}$		-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 (M5)	5 Nm
	Terminal connection torque (M5)	5 Nm
Weight	typ.	160 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

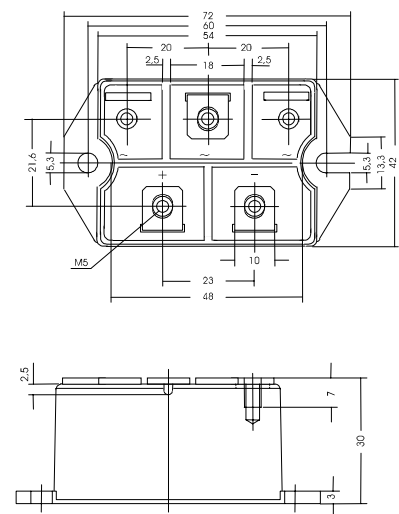
- Inductive heating and melting
- Free wheeling diode in converters and motor control circuits
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### 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
$I_R$	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 750 \mu\text{A}$
	$V_R = 0,8 \cdot V_{RRM}$ $T_{VJ} = 125^\circ\text{C}$	$\leq 7 \text{ mA}$
$V_F$	$I_F = 30 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 1.25 \text{ V}$
$t_{rr}$	$T_{VJ} = 25^\circ\text{C}$ , $I_F = 1 \text{ A}$ ; $-di/dt = 100 \text{ A}/\mu\text{s}$ ; $V_R = 30 \text{ V}$	typ. 60 ns
$V_{TO}$	For power-loss calculations only	1.5 V
$r_T$	$T_{VJ} = T_{VJM}$	12.5 $\text{m}\Omega$
$R_{thJC}$	per diode; DC current	1.0 K/W
	per module	0.5 K/W
$R_{thJK}$	per diode; DC current	1.2 K/W
	per module	0.6 K/W
$d_S$	Creeping distance on surface	10 mm
$d_A$	Creeping distance in air	9.4 mm
$a$	Max. allowable acceleration	50 $\text{m/s}^2$