

Fast Recovery Epitaxial Diode (FRED) Module

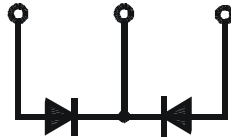
PSMD 100E

$I_{FAV} = 136 \text{ A}$
 $V_{RRM} = 200-600 \text{ V}$

Preliminary Data Sheet



V_{RSM} V	V_{RRM} V	Type
200	200	PSMD 100E/02
400	400	PSMD 100E/04
600	600	PSMD 100E/06



Symbol	Test Conditions	Maximum Ratings
I_{FAV}	$T_C = 70^\circ\text{C}$	136 A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	2000 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	2200 A
	$T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz), sine	1800 A
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	1980 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine	20000 $\text{A}^2 \text{ s}$
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	20080 $\text{A}^2 \text{ s}$
	$T_{VJ} = T_{VJM}$ $t = 10 \text{ ms}$ (50 Hz), sine	16200 $\text{A}^2 \text{ s}$
	$V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine	16250 $\text{A}^2 \text{ s}$
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

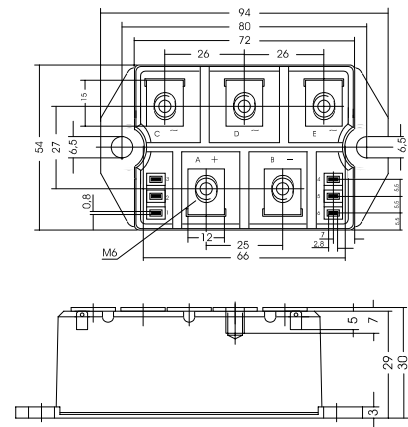
- Inductive heating and melting
- Free wheeling diode in converters and motor control circuits
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

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	$V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 250 \mu\text{A}$
	$V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$	$\leq 2.5 \text{ mA}$
V_F	$I_F = 100 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 1.25 \text{ V}$
t_{rr}	$T_{VJ} = 25^\circ\text{C}$; $I_F = 1 \text{ A}$; $-di_F/dt = 400 \text{ A}/\mu\text{s}$ $V_R = 30 \text{ V}$	typ. 60 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. 45 A
V_{TO}	For power-loss calculations only	0.45 V
r_T	$T_{VJ} = T_{VJM}$	1.25 $\text{m}\Omega$
R_{thJH}	per diode; DC current	0.84 K/W
R_{thJC}	per diode; DC current	0.65 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