

Fast Recovery Epitaxial Diode (FRED)

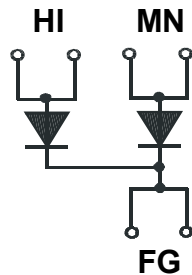
PSEK 60

$$I_{FAVM} = 2 \times 34 \text{ A}$$

$$V_{RRM} = 200 \text{ V}$$

$$t_{rr} = 35 \text{ ns}$$

Preliminary Data Sheet



| V_{RSM} (V) | V_{RRM} (V) | Type |
|------------------|------------------|------------|
| 200 | 200 | PSEK 60/02 |

| Symbol | Test Conditions | Maximum Ratings |
|---------------|---|----------------------|
| I_{FRMS} | $T_{VJ} = T_{VJM}$ | 50 A |
| I_{FAVM}^* | $T_C = 115^\circ\text{C}$, rectangular, $d=0.5$ | 34 A |
| I_{FRM} | $t_p < 10\mu\text{s}$; rep. rating, pulse width limited by T_{VJM} | 375 A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine | 325 A |
| | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine | 350 A |
| | $T_{VJ} = 125^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine | 290 A |
| $\int i^2 dt$ | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine | 310 A |
| | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine | 530 A ² s |
| | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine | 510 A ² s |
| T_{VJ} | $T_{VJ} = 125^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine | 420 A ² s |
| | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine | 400 A ² s |
| T_{VJM} | | -40... + 150 °C |
| T_{stg} | | 150 °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 (M4) | 1.5 - 1.8 Nm |
| | | 14 - 16 lb.in. |
| Weight | typ. | 16 g |

Features

- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Very short recovery time
- Extremely low switching losses
- UL registered, E 148688

Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- Low noise switching
- Small and light weight

| Symbol | Test Conditions | Characteristic Value |
|------------|--|------------------------|
| I_R | $T_{VJ} = 25^\circ\text{C}$, $V_R = V_{RRM}$ | max. 200 μA |
| | $T_{VJ} = 25^\circ\text{C}$, $V_R = 0.8 \cdot V_{RRM}$ | max. 50 μA |
| | $T_{VJ} = 125^\circ\text{C}$, $V_R = 0.8 \cdot V_{RRM}$ | max. 5 mA |
| V_F | $I_F = 30 \text{ A}$, $T_{VJ} = 25^\circ\text{C}$ | max. 1.10 V |
| V_{TO} | For power-loss calculations only | 0.72 V |
| r_T | | 4.2 m Ω |
| R_{thJC} | per diode; max. | 1.25 K/W |
| R_{thCH} | per diode; typ. | 0.05 K/W |
| I_{RM} | $I_F = 30 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$; $V_R = 100 \text{ V}$ $L \leq 0.05 \text{ mH}$; $T_{VJ} = 100^\circ\text{C}$ | typ. 4 A |
| t_{rr} | $I_F = 1 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ | typ. 35 ns |
| d_s | Creeping distance on surface | 11.2 mm |
| d_A | Creeping distance in air | 12.8 mm |
| a | Max. allowable acceleration | 50 m/s ² |

Data according to IEC 60747 refer to a single diode unless otherwise stated

* I_{FAVM} rating includes blocking losses at T_{VJM} ;
 $V_R = 0.8 V_{RRM}$; duty cycle $d = 0.5$

Package style and outline

Dimensions in mm (1mm = 0.0394")

