

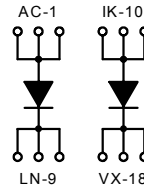
Fast Recovery Epitaxial Diode (FRED)

$I_{FAVM} = 2x147 \text{ A}$
 $V_{RRM} = 600 \text{ V}$
 $t_{rr} = 35 \text{ ns}$

ECO-PAC 2

Preliminary Data Sheet

| V_{RSM} | V_{RRM} | Typ |
|-----------|-----------|----------------|
| V | V | |
| 600 | 600 | DSEI 2x161-06P |



| Symbol | Conditions | Maximum Ratings | |
|--------------|----------------------------------------------------------------------------------------|---------------------|------------------|
| I_{FRMS} | $T_{VJ} = T_{VJM}$ | 270 | A |
| I_{FAVM}^* | $T_C = 70^\circ\text{C}$; rectangular; $d = 0.5$ | 147 | A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$; $V_R = 0 \text{ V}$; $t = 10 \text{ ms}$ (50 Hz), sine | 1200 | A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1300 | A |
| I^2dt | $T_{VJ} = 45^\circ\text{C}$; $V_R = 0 \text{ V}$; $t = 10 \text{ ms}$ (50 Hz), sine | 7200 | A^2s |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 7100 | A^2s |
| I^2dt | $T_{VJ} = 125^\circ\text{C}$; $V_R = 0 \text{ V}$; $t = 10 \text{ ms}$ (50 Hz), sine | 1080 | A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1170 | A |
| 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 ~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ | $t = 1 \text{ s}$ | 3600 V ~ |
| M_d | Mounting torque (M4) | | 1.5-2.0 Nm |
| | | | 14-18 lb.in. |
| Weight | typ. | 20 | g |

Features

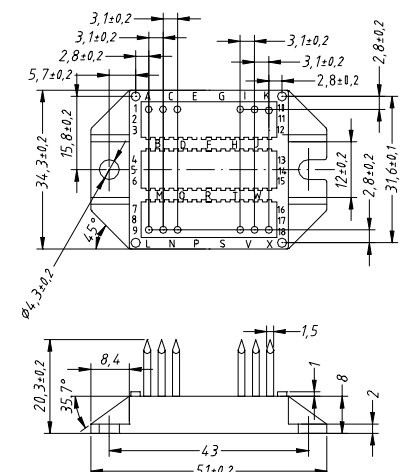
- 2 independent FRED in 1 package
- Isolation voltage 3600 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Very short recovery time
- Soft recovery behaviour

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
- Low noise switching
- Small and light weight

Dimensions in mm (1 mm = 0,0394")


| Symbol | Conditions | Characteristic Values | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|-------------------|
| | | min. | typ. | max. |
| I_R | $T_{VJ} = 25^\circ\text{C}$; $V_R = V_{RRM}$ | | | 12 mA |
| | $T_{VJ} = 25^\circ\text{C}$; $V_R = 0.8 \cdot V_{RRM}$ | | | 3 mA |
| | $T_{VJ} = 125^\circ\text{C}$; $V_R = 0.8 \cdot V_{RRM}$ | | | 80 mA |
| V_F | $I_T = 200 \text{ A}$; $T_{VJ} = 25^\circ\text{C}$ | | | 1.45 V |
| V_{TO} | For power-loss calculations only | | | 0.85 V |
| r_T | | | | 2.7 mΩ |
| R_{thJC} | per Diode | | | 0.29 K/W |
| R_{thCH} | per Diode | 0.2 | | K/W |
| I_{RM} | $I_F = 100 \text{ A}$; $-di_F/d_t = 200 \text{ A}/\mu\text{s}$; $V_R = 100 \text{ V}$ $L \leq 0.05 \text{ mH}$; $T_{VJ} = 100^\circ\text{C}$ | | 45 | A |
| t_{rr} | $I_F = 1 \text{ A}$; $-di_F/d_t = 400 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ | | 35 | ns |
| d_s | Creeping distance on surface | 11.2 | | mm |
| d_A | Creeping distance in air | 11.2 | | mm |
| a | Max. allowable acceleration | | | 50 m/s^2 |

* I_{FAVM} rating includes reverse blocking losses at T_{VJM} ; $V_R = 0.8 V_{RRM}$; $d = 0.5$
 IXYS reserves the right to change limits, test conditions and dimensions.

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