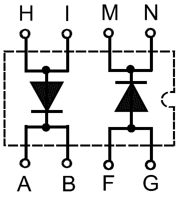
**IXYS** **DSEI 2x30-10P**

# Fast Recovery Epitaxial Diode (FRED)

$I_{FAVM}$ = 2x30 A
$V_{RRM}$ = 1000 V
$t_{rr}$ = 35 ns

| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Type |
|---|---|---|
| 1000 | 1000 | DSEI 2x 30-10P |



| Symbol | Conditions | Maximum Ratings (per diode) | |
|---|---|---|---|
| $I_{FRMS}$ | $T_{VJ} = T_{VJM}$ | 70 | A |
| $I_{FAVM}$ ① | $T_C$ = 50°C; rectangular; d = 0.5 | 30 | A |
| $I_{FRM}$ | $t_P$ < 10 µs; rep. rating; pulse width limited by $T_{VJM}$ | 375 | A |
| $I_{FSM}$ | $T_{VJ}$ = 45°C; t = 10 ms (50 Hz), sine | 200 | A |
| $T_{VJ}$ | | -40...+150 | °C |
| $T_{VJM}$ | | 150 | °C |
| $T_{stg}$ | | -40...+150 | °C |
| $P_{tot}$ | $T_C$ = 25°C | 100 | W |
| $V_{ISOL}$ | 50/60 Hz, RMS t = 1 min | 2500 | V~ |
| | $I_{ISOL} \leq 1$ mA t = 1 s | 3000 | V~ |
| $M_d$ | Mounting torque (M4) | 1.5 - 2.0 | Nm |
| | | 14 - 18 | lb.in. |
| Weight | | 18 | g |

| Symbol | Conditions | Characteristic Values (per diode)<br>typ. | max. | |
|---|---|---|---|---|
| $I_R$ | $T_{VJ}$ = 25°C $V_R = V_{RRM}$ | | 750 | µA |
| | $T_{VJ}$ = 25°C $V_R = 0.8 \bullet V_{RRM}$ | | 250 | µA |
| | $T_{VJ}$ = 125°C $V_R = 0.8 \bullet V_{RRM}$ | | 7 | mA |
| $V_F$ | $I_F$ = 30 A; $T_{VJ}$ = 150°C | | 2.0 | V |
| | $T_{VJ}$ = 25°C | | 2.4 | V |
| $V_{T0}$ | For power-loss calculations only | | 1.5 | V |
| $r_T$ | $T_{VJ} = T_{VJM}$ | | 12.5 | mΩ |
| $R_{thJC}$ | | | 1.25 | K/W |
| $R_{thCK}$ | | 0.05 | | K/W |
| $t_{rr}$ | $I_F$ = 1 A; -di/dt = 100 A/µs<br>$V_R$ = 30 V; $T_{VJ}$ = 25°C | 35 | 50 | ns |
| $I_{RM}$ | $V_R$ = 540 V; $I_F$ = 30 A; -$di_F$/dt = 240 A/µs<br>L ≤ 0.05 µH; $T_{VJ}$ = 100°C | 16 | 18 | A |
| $d_S$ | Creeping distance on surface | | min. 11.2 | mm |
| $d_A$ | Creeping distance in air | | min. 11.2 | mm |
| a | Allowable acceleration | | max. 50 | m/s² |

① $I_{FAVM}$ rating includes reverse blocking losses at $T_{VJM}$, $V_R = 0.8\ V_{RRM}$, duty cycle d = 0.5
Data according to IEC 60747

## Features

- 2 independent FRED in 1 package
- Isolation voltage 3000 V~
- Planar passivated chips
- 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 capability
- Low noise switching
- Small and light weight

**Recommended replacement:**
**DSEI 2x31-10P, DSEI 2x31-10B**

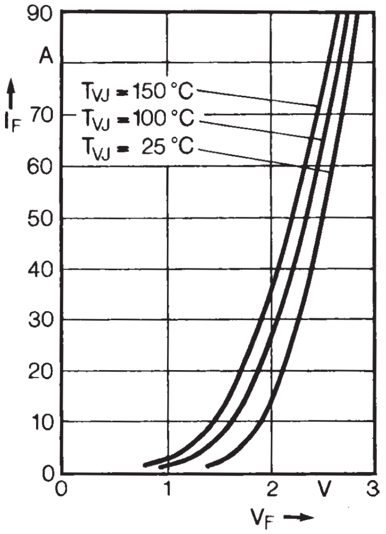


Fig. 1 Forward current versus voltage drop.

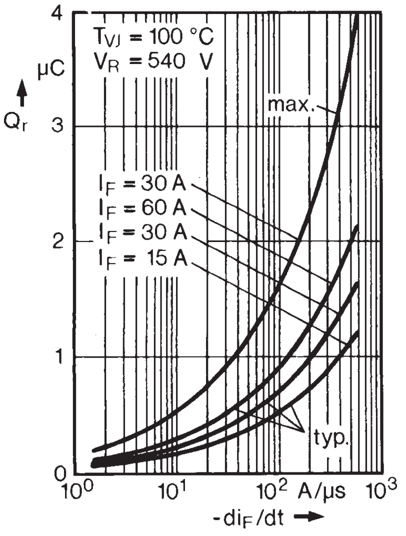


Fig. 2 Recovery charge versus $-di_F/dt$.

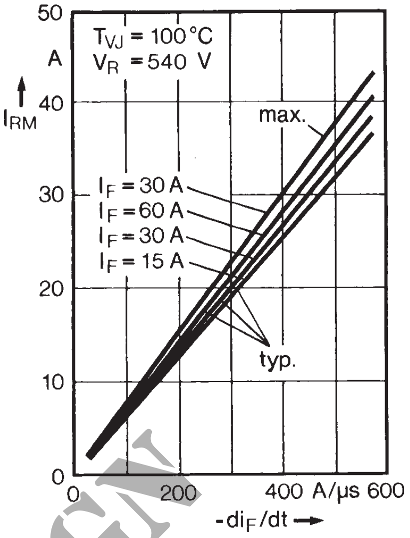


Fig. 3 Peak reverse current versus $-di_F/dt$.

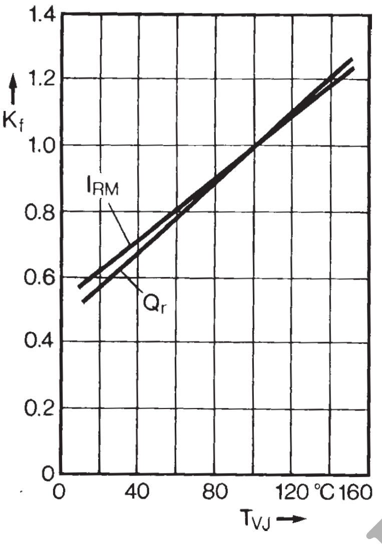


Fig. 4 Dynamic parameters versus junction temperature.

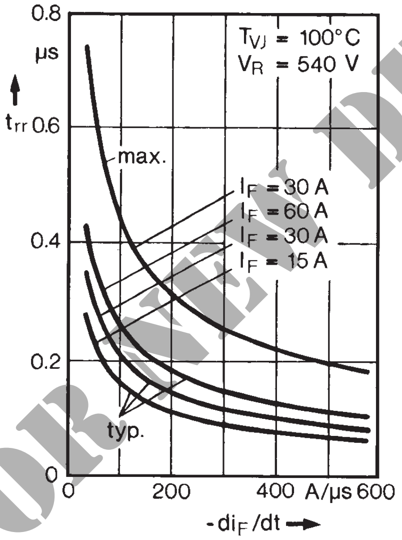


Fig. 5 Recovery time versus $-di_F/dt$.

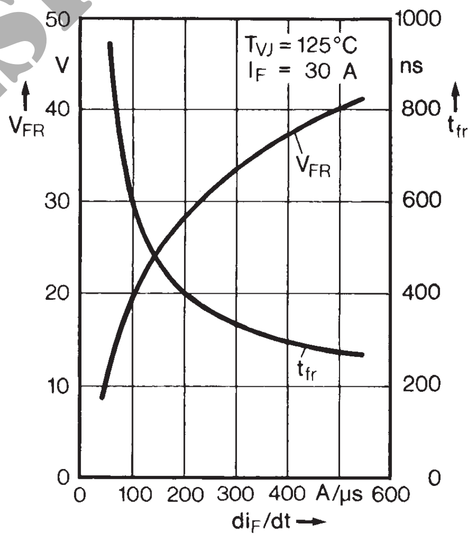


Fig. 6 Peak forward voltage versus $di_F/dt$.

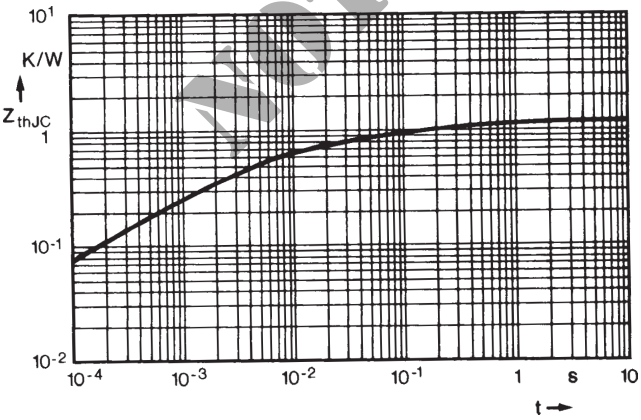
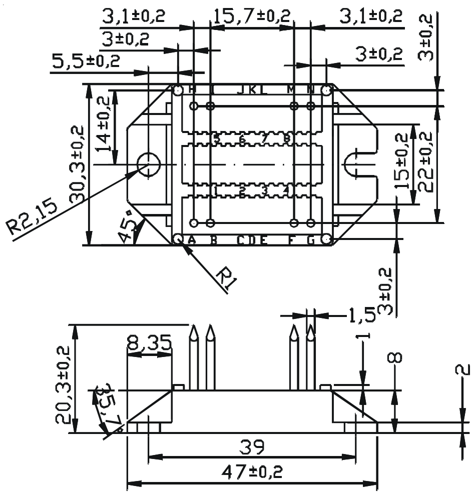


Fig. 7 Transient thermal impedance junction to case.

Dimensions in mm (1mm = 0.0394")



20070731a