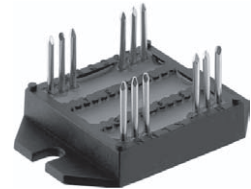
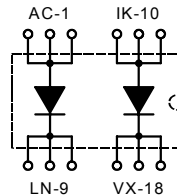


# Fast Recovery Epitaxial Diode (FRED)

## DSEI 2x101

$I_{FAVM} = 2x96 \text{ A}$   
 $V_{RRM} = 600 \text{ V}$   
 $t_{rr} = 35 \text{ ns}$

| $V_{RSM}$ | $V_{RRM}$ | Type            |
|-----------|-----------|-----------------|
| V         | V         |                 |
| 600       | 600       | DSEI 2x 101-06P |



| Symbol       | Conditions   | Maximum Ratings (per diode) |                  |
|--------------|--|-----------------------------|------------------|
| $I_{FRMS}$   | $T_{VJ} = T_{VJM}$   | 150                         | A                |
| $I_{FAVM}$ ① | $T_C = 70^\circ\text{C}$ ; rectangular; $d = 0.5$                      | 96                          | A                |
| $I_{FRM}$    | $t_p < 10 \mu\text{s}$ ; rep. rating; pulse width limited by $T_{VJM}$ | tbd                         | A                |
| $I_{FSM}$    | $T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine        | 1200                        | A                |
| $T_{VJ}$     |  | -40...+150                  | $^\circ\text{C}$ |
| $T_{VJM}$    |  | 150                         | $^\circ\text{C}$ |
| $T_{stg}$    |  | -40...+150                  | $^\circ\text{C}$ |
| $P_{tot}$    | $T_C = 25^\circ\text{C}$   | 250                         | W                |
| $V_{ISOL}$   | 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 - 2.0                   | Nm               |
|              |  | 14 - 18                     | lb.in.           |
| Weight       |  | 24                          | g                |

### 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

| Symbol     | Conditions  | Characteristic Values (per diode) |                  |
|------------|---|-----------------------------------|------------------|
|            |   | typ.                              | max.             |
| $I_R$      | $T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$   |                                   | 3 mA             |
|            | $T_{VJ} = 25^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$   |                                   | 1 mA             |
|            | $T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$  |                                   | 20 mA            |
| $V_F$      | $I_F = 100 \text{ A}$ ; $T_{VJ} = 150^\circ\text{C}$<br>$T_{VJ} = 25^\circ\text{C}$   |                                   | 1.17 V           |
|            |   |                                   | 1.25 V           |
| $V_{T0}$   | For power-loss calculations only  |                                   | 0.7 V            |
| $r_T$      | $T_{VJ} = T_{VJM}$  |                                   | 4.7 m $\Omega$   |
| $R_{thJC}$ |   |                                   | 0.5 K/W          |
| $R_{thCK}$ | 0.05  |                                   | K/W              |
| $t_{rr}$   | $I_F = 1 \text{ A}$ ; $-di/dt = 400 \text{ A}/\mu\text{s}$<br>$V_R = 30 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$                                  | 40                                | 60 ns            |
|            |   |                                   |                  |
| $I_{RM}$   | $V_R = 100 \text{ V}$ ; $I_F = 80 \text{ A}$ ; $-di_F/dt = 200 \text{ A}/\mu\text{s}$<br>$L \leq 0.05 \mu\text{H}$ ; $T_{VJ} = 100^\circ\text{C}$ | 19                                | 24 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/s <sup>2</sup> |

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

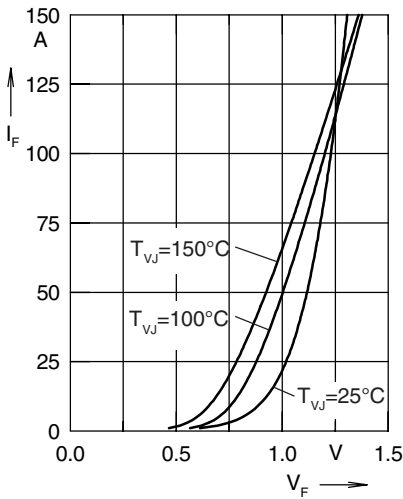


Fig. 1 Forward current  $I_F$  versus  $V_F$

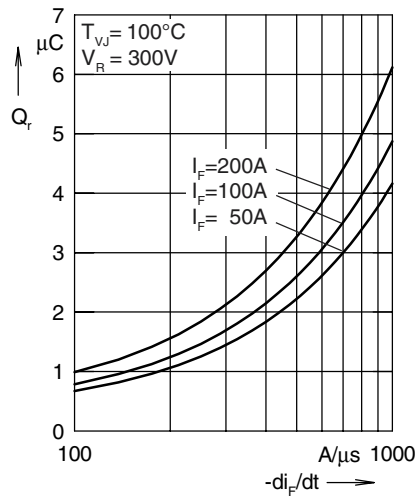


Fig. 2 Reverse recovery charge  $Q_r$  versus  $-di_F/dt$

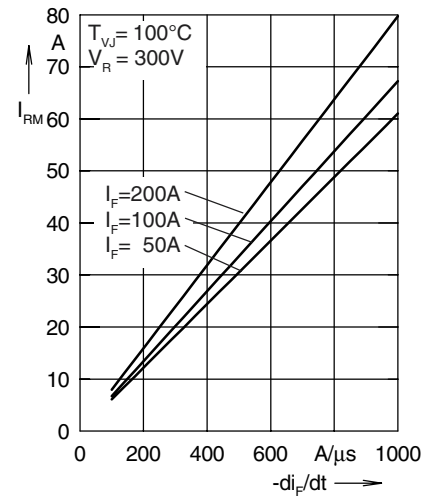


Fig. 3 Peak reverse current  $I_{RM}$  versus  $-di_F/dt$

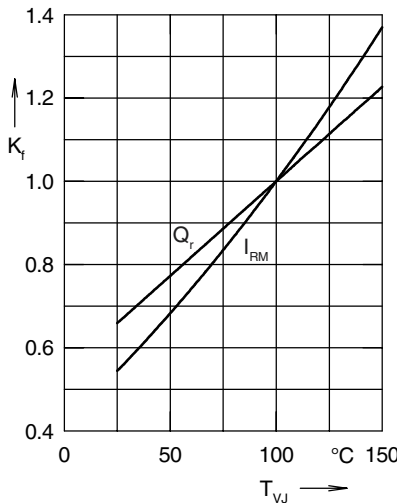


Fig. 4 Dynamic parameters  $Q_r$ ,  $I_{RM}$  versus  $T_{VJ}$

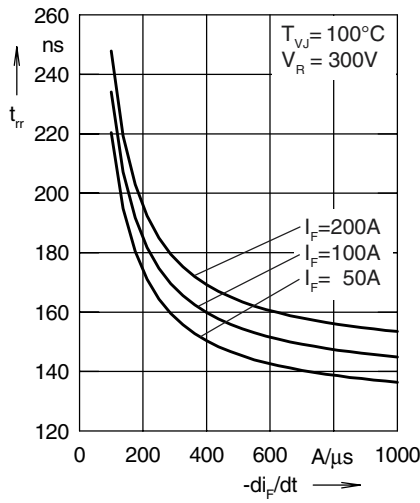


Fig. 5 Recovery time  $t_{rr}$  versus  $-di_F/dt$

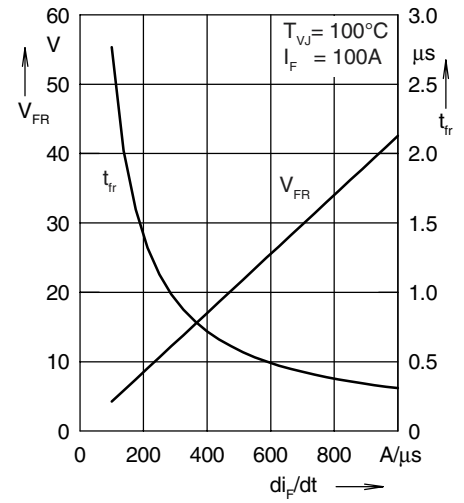


Fig. 6 Peak forward voltage  $V_{FR}$  and  $t_{rr}$  versus  $di_F/dt$

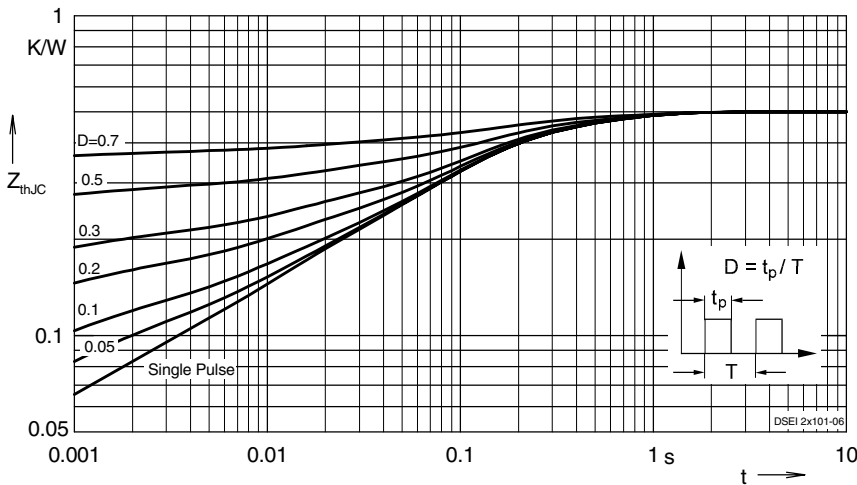
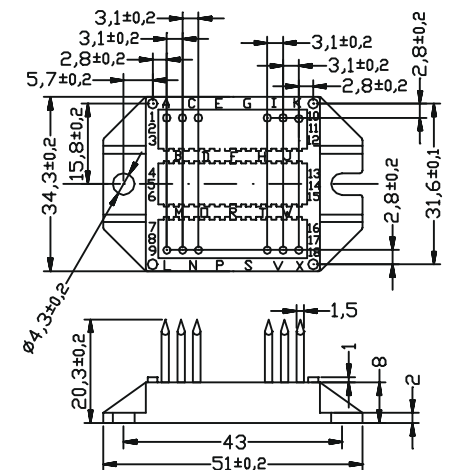


Fig. 7 Transient thermal impedance junction to case at various duty cycles

Dimensions in mm (1mm = 0.0394")



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[IXYS:](#)

[DSEI2x101-06P](#)