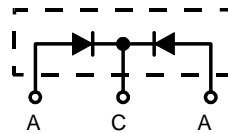
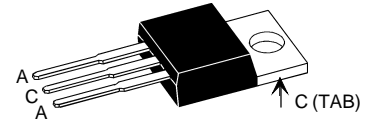


# HiPerFRED™ Epitaxial Diode

## with common cathode and soft recovery

$I_{FAV} = 2 \times 5 \text{ A}$   
 $V_{RRM} = 200 \text{ V}$   
 $t_{rr} = 25 \text{ ns}$

| $V_{RSM}$ | $V_{RRM}$ | Type        |
|-----------|-----------|-------------|
| V         | V         |             |
| 200       | 200       | DSEC 10-02A |


**TO-220 AB**


A = Anode, C = Cathode, TAB = Cathode

| Symbol     | Conditions   | Maximum Ratings |                  |
|------------|--|-----------------|------------------|
| $I_{FRMS}$ |  | 35              | A                |
| $I_{FAVM}$ | $T_C = 160^\circ\text{C}$ ; rectangular, $d = 0.5$   | 5               | A                |
| $I_{FRM}$  | $t_p < 10 \mu\text{s}$ ; rep. rating, pulse width limited by $T_{VJM}$                         | tbd             | A                |
| $I_{FSM}$  | $T_{VJ} = 45^\circ\text{C}$ ; $t_p = 10 \text{ ms}$ (50 Hz), sine                              | 80              | A                |
| $E_{AS}$   | $T_{VJ} = 25^\circ\text{C}$ ; non-repetitive<br>$I_{AS} = 2 \text{ A}$ ; $L = 180 \mu\text{H}$ | 0.5             | mJ               |
| $I_{AR}$   | $V_A = 1.5 \cdot V_R$ typ.; $f = 10 \text{ kHz}$ ; repetitive                                  | 0.2             | A                |
| $T_{VJ}$   |  | -55...+175      | $^\circ\text{C}$ |
| $T_{VJM}$  |  | 175             | $^\circ\text{C}$ |
| $T_{stg}$  |  | -55...+150      | $^\circ\text{C}$ |
| $P_{tot}$  | $T_C = 25^\circ\text{C}$   | 60              | W                |
| $M_d$      | mounting torque  | 0.4...0.6       | Nm               |
| Weight     | typical  | 2               | g                |

### Features

- International standard package
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low  $I_{RM}$ -values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

### Applications

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

### Advantages

- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low  $I_{RM}$  reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

| Symbol     | Conditions  | Characteristic Values |                            |
|------------|---|-----------------------|----------------------------|
|            |   | typ.                  | max.                       |
| $I_R$ ①    | $T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$<br>$T_{VJ} = 150^\circ\text{C}$ $V_R = V_{RRM}$                           |                       | 50 $\mu\text{A}$<br>0.2 mA |
| $V_F$ ②    | $I_F = 5 \text{ A}$ ; $T_{VJ} = 150^\circ\text{C}$<br>$T_{VJ} = 25^\circ\text{C}$                                     |                       | 0.81 V<br>1.23 V           |
| $R_{thJC}$ |   |                       | 2.5 K/W                    |
| $R_{thCH}$ |   | 0.5                   | K/W                        |
| $t_{rr}$   | $I_F = 1 \text{ A}$ ; $-di/dt = 50 \text{ A}/\mu\text{s}$ ;<br>$V_R = 30 \text{ V}$ ; $T_{VJ} = 25^\circ\text{C}$     | 25                    | ns                         |
| $I_{RM}$   | $V_R = 100 \text{ V}$ ; $I_F = 10 \text{ A}$ ; $-di_F/dt = 100 \text{ A}/\mu\text{s}$<br>$T_{VJ} = 100^\circ\text{C}$ |                       | 2.0 A                      |

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0 %  
 ② Pulse Width = 300  $\mu\text{s}$ , Duty Cycle < 2.0 %

Data according to IEC 60747 and per diode unless otherwise specified

IXYS reserves the right to change limits, test conditions and dimensions.

Dimensions see outlines.pdf