

HiPerFRED™ Epitaxial Diode

with common cathode and soft recovery

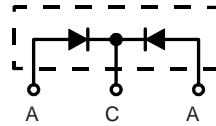
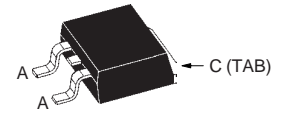
$$I_{FAV} = 2 \times 10 \text{ A}$$

$$V_{RRM} = 400 \text{ V}$$

$$t_{rr} = 30 \text{ ns}$$

Preliminary Data

| V_{RSM} | V_{RRM} | Type |
|-----------|-----------|--------------|
| V | V | |
| 400 | 400 | DSEC 16-04AS |


TO-263 AB


| Symbol | Conditions | Maximum Ratings | |
|---------------|--|-----------------|------------------|
| I_{FRMS} | | 35 | A |
| I_{FAVM} | $T_C = 140^\circ\text{C}$; rectangular, $d = 0.5$ | 10 | A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine | 60 | A |
| E_{AS} | $T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = 2 \text{ A}$; $L = 180 \mu\text{H}$ | 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 |
| 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

Dimensions see IXYS Databook 2001

| Symbol | Conditions | Characteristic Values | |
|------------|---|-----------------------|---------------|
| | | typ. | max. |
| I_R ① | $T_{VJ} = 25^\circ\text{C}$; $V_R = V_{RRM}$ $T_{VJ} = 150^\circ\text{C}$; $V_R = V_{RRM}$ | 60 | μA |
| V_F ② | $I_F = 10 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$ | 1.12 | V |
| | | 1.53 | V |
| R_{thJC} | | 2.5 | K/W |
| t_{rr} | $I_F = 1 \text{ A}$; $-di/dt = 100 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ | 30 | ns |
| I_{RM} | $V_R = 100 \text{ V}$; $I_F = 25 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$ $T_{VJ} = 100^\circ\text{C}$ | 2 | 2.4 A |

IXYS reserves the right to change limits, Conditions and dimensions.

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