

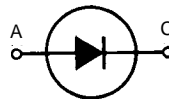
Fast Recovery Epitaxial Diode (FRED)

DSEI 60

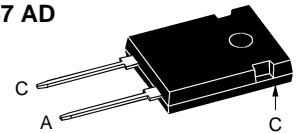
$I_{FAVM} = 52 \text{ A}$
 $V_{RRM} = 1200 \text{ V}$
 $t_{rr} = 40 \text{ ns}$



| V_{RSM} | V_{RRM} | Type |
|-----------|-----------|-------------|
| V | V | |
| 1200 | 1200 | DSEI 60-12A |



TO-247 AD



A = Anode, C = Cathode

| Symbol | Test Conditions | Maximum Ratings | |
|--------------|--|-----------------|----------------------|
| I_{FRMS} | $T_{VJ} = T_{VJM}$ | 100 | A |
| I_{FAVM} ① | $T_C = 60^\circ\text{C}$; rectangular, $d = 0.5$ | 52 | A |
| I_{FRM} | $t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM} | 800 | A |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine | 500 | A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 540 | A |
| | $T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine | 450 | A |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 480 | A |
| I^2t | $T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine | 1250 | A^2s |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 1200 | A^2s |
| | $T_{VJ} = 150^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine | 1000 | A^2s |
| | $t = 8.3 \text{ ms}$ (60 Hz), sine | 950 | A^2s |
| T_{VJ} | | -40...+150 | $^\circ\text{C}$ |
| T_{VJM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -40...+150 | $^\circ\text{C}$ |
| P_{tot} | $T_C = 25^\circ\text{C}$ | 189 | W |
| M_d | Mounting torque | 0.8...1.2 | Nm |
| Weight | | 6 | g |

Features

- International standard package JEDEC TO-247 AD
- 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
- 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

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses
- Operating at lower temperature or space saving by reduced cooling

| Symbol | Test Conditions | Characteristic Values | |
|------------|---|---------------------------|----------------------|
| | | typ. | max. |
| I_R | $T_{VJ} = 25^\circ\text{C}$ | $V_R = V_{RRM}$ | 2.2 mA |
| | $T_{VJ} = 25^\circ\text{C}$ | $V_R = 0.8 \cdot V_{RRM}$ | 0.5 mA |
| | $T_{VJ} = 125^\circ\text{C}$ | $V_R = 0.8 \cdot V_{RRM}$ | 14 mA |
| V_F | $I_F = 60 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$ | | 2.0 V |
| | $T_{VJ} = 25^\circ\text{C}$ | | 2.55 V |
| V_{T0} | For power-loss calculations only | | 1.65 V |
| r_T | $T_{VJ} = T_{VJM}$ | | 8.3 $\text{m}\Omega$ |
| R_{thJC} | 0.25 | | 0.66 K/W |
| R_{thCK} | | | K/W |
| R_{thJA} | | | 35 K/W |
| t_{rr} | $I_F = 1 \text{ A}$; $-di/dt = 200 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$ | 40 | 60 ns |
| I_{RM} | $V_R = 540 \text{ V}$; $I_F = 60 \text{ A}$; $-di_F/dt = 480 \text{ A}/\mu\text{s}$ $L \leq 0.05 \mu\text{H}$; $T_{VJ} = 100^\circ\text{C}$ | 32 | 36 A |

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

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