

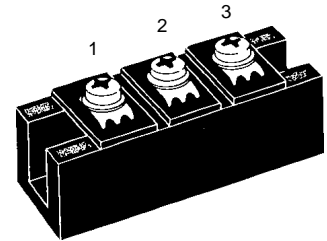
Fast Recovery Epitaxial Diode (FRED) Module

MEA 300-06 DA
MEK 300-06 DA
MEE 300-06 DA

$V_{RRM} = 600\text{ V}$
 $I_{FAVM} = 304\text{ A}$
 $t_{rr} = 250\text{ ns}$

Preliminary data

| V_{RSM} V | V_{RRM} V | Type |
|----------------|----------------|--|
| 600 | 600 | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>MEA 300-06DA</p> </div> <div style="text-align: center;"> <p>MEK 300-06DA</p> </div> <div style="text-align: center;"> <p>MEE 300-06DA</p> </div> </div> |



| Symbol | Test Conditions | Maximum Ratings |
|---------------|---|-----------------------------|
| I_{FRMS} | $T_C = 75\text{ }^\circ\text{C}$ | 430 A |
| I_{FAVM} ① | $T_C = 75\text{ }^\circ\text{C}$; rectangular, $d = 0.5$ | 304 A |
| I_{FRM} | $t_p < 10\text{ }\mu\text{s}$; rep. rating, pulse width limited by T_{VJM} | 1640 A |
| I_{FSM} | $T_{VJ} = 45\text{ }^\circ\text{C}$; $t = 10\text{ ms}$ (50 Hz), sine | 2400 A |
| | $t = 8.3\text{ ms}$ (60 Hz), sine | 2640 A |
| | $T_{VJ} = 150\text{ }^\circ\text{C}$; $t = 10\text{ ms}$ (50 Hz), sine | 2160 A |
| | $t = 8.3\text{ ms}$ (60 Hz), sine | 2380 A |
| I^2t | $T_{VJ} = 45\text{ }^\circ\text{C}$; $t = 10\text{ ms}$ (50 Hz), sine | 28800 A ² s |
| | $t = 8.3\text{ ms}$ (60 Hz), sine | 29300 A ² s |
| | $T_{VJ} = 150\text{ }^\circ\text{C}$; $t = 10\text{ ms}$ (50 Hz), sine | 23300 A ² s |
| | $t = 8.3\text{ ms}$ (60 Hz), sine | 23800 A ² s |
| T_{VJ} | | -40...+150 $^\circ\text{C}$ |
| T_{stg} | | -40...+125 $^\circ\text{C}$ |
| T_{Smax} | | 110 $^\circ\text{C}$ |
| P_{tot} | $T_C = 25\text{ }^\circ\text{C}$ | 875 W |
| V_{ISOL} | 50/60 Hz, RMS $t = 1\text{ min}$ | 3000 V~ |
| | $I_{ISOL} \leq 1\text{ mA}$ $t = 1\text{ s}$ | 3600 V~ |
| M_d | Mounting torque (M6) | 2.25-2.75/20-25 Nm/lb.in. |
| | Terminal connection torque (M6) | 4.50-5.50/40-48 Nm/lb.in. |
| d_s | Creeping distance on surface | 12.7 mm |
| d_A | Strike distance through air | 9.6 mm |
| a | Maximum allowable acceleration | 50 m/s ² |
| Weight | | 150 g |

Features

- International standard package with DCB ceramic base plate
- Planar passivated chips
- Short recovery time
- Low switching losses
- Soft recovery behaviour
- Isolation voltage 3600 V~
- UL registered E 72873

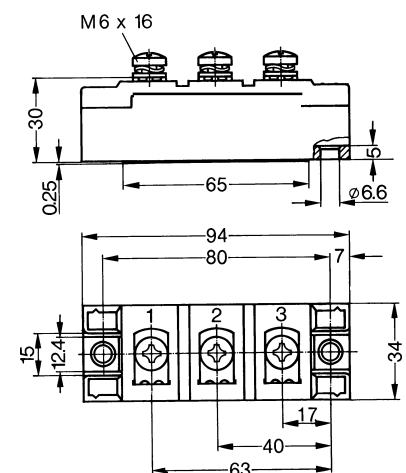
Applications

- Antiparallel diode for high frequency switching devices
- Free wheeling diode in converters and motor control circuits
- 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

Dimensions in mm (1 mm = 0.0394")



① I_{FAVM} rating includes reverse blocking losses at T_{VJM} , $V_R = 0.6 V_{RRM}$, duty cycle $d = 0.5$
Data according to IEC 60747

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

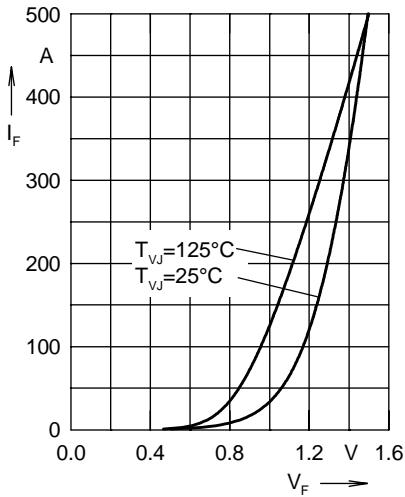


Fig. 1 Forward current I_F versus max. voltage drop V_F per leg

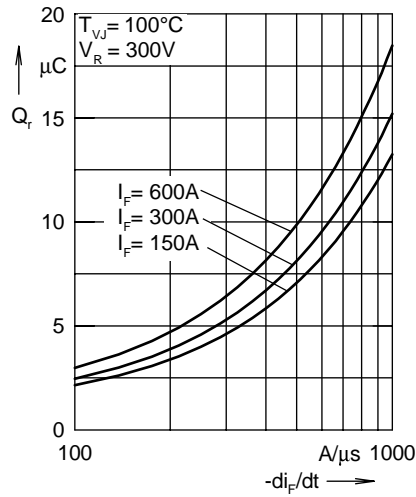


Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

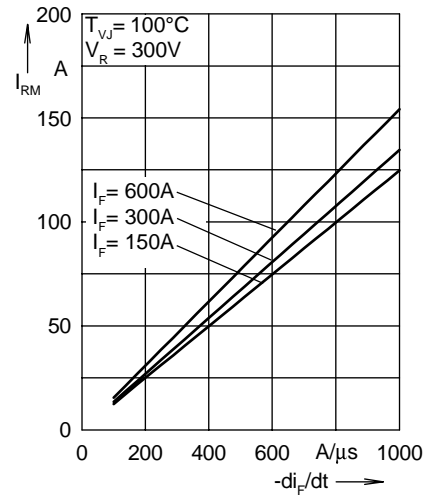


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

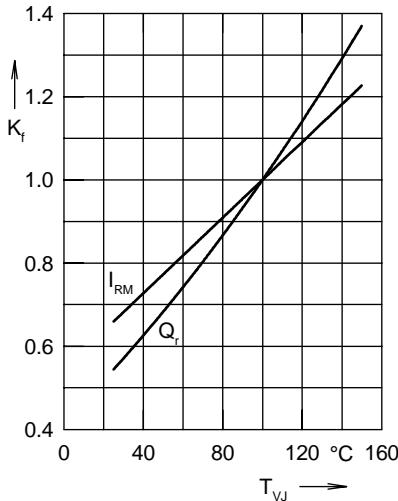


Fig. 4 Dynamic parameters Q_r , I_{RM} versus junction temperature T_{VJ}

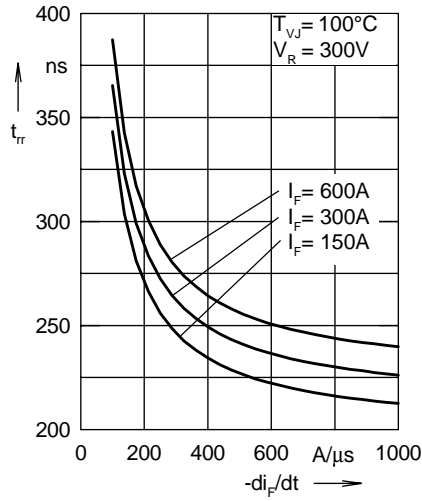


Fig. 5 Typ. recovery time t_{tr} versus $-di_F/dt$

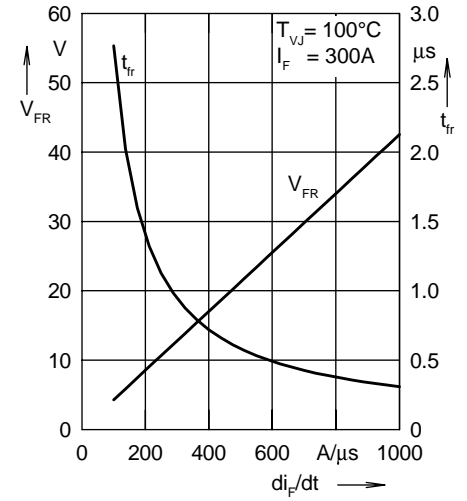


Fig. 6 Typ. peak forward voltage V_{FR} and t_{tr} versus di_F/dt

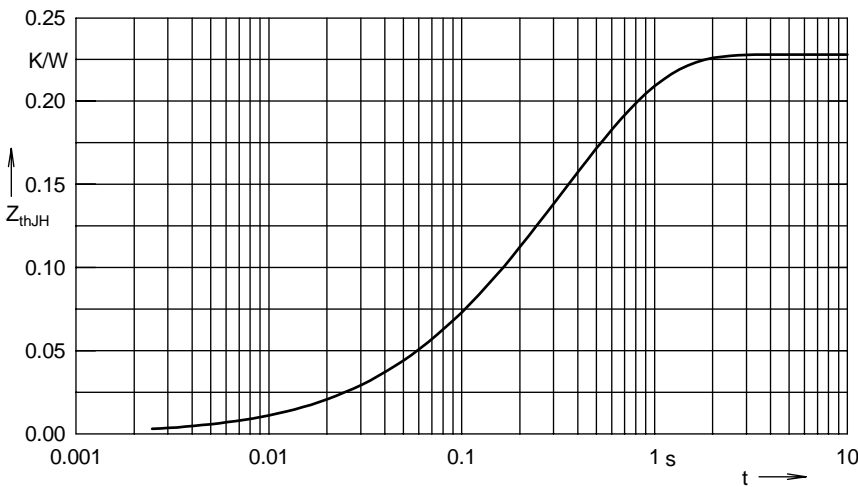


Fig. 7 Transient thermal impedance junction to heatsink

Constants for Z_{thJS} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.002 | 0.08 |
| 2 | 0.008 | 0.024 |
| 3 | 0.054 | 0.112 |
| 4 | 0.164 | 0.464 |