

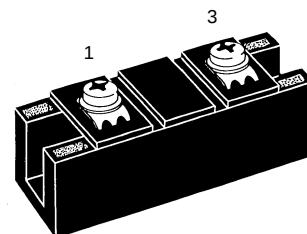
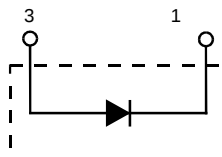
Fast Recovery Epitaxial Diode (FRED) Module

MEO 500-06 DA

$V_{RRM} = 600 \text{ V}$
 $I_{FAVM} = 514 \text{ A}$
 $t_{rr} = 250 \text{ ns}$

Preliminary data

V_{RSM} V	V_{RRM} V	Type
600	600	MEO 500-06DA



Symbol	Test Conditions	Maximum Ratings
I_{FRMS} I_{FAVM} I_{FRM} ①	$T_C = 75^\circ\text{C}$ $T_C = 75^\circ\text{C}$; rectangular, d = 0.5 $t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	726 A 514 A 2680 A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine $T_{VJ} = 150^\circ\text{C}$; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	4800 A 5280 A 4320 A 4750 A
I^2t	$T_{VJ} = 45^\circ\text{C}$; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine $T_{VJ} = 150^\circ\text{C}$; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	115200 A ² s 117100 A ² s 93300 A ² s 94800 A ² s
T_{VJ} T_{stg} T_{Smax}		-40...+150 °C -40...+125 °C 110 °C
P_{tot}	$T_C = 25^\circ\text{C}$	1750 W
V_{ISOL}	50/60 Hz, RMS t = 1 min $I_{ISOL} \leq 1 \text{ mA}$ t = 1 s	3000 V~ 3600 V~
M_d	Mounting torque (M6) Terminal connection torque (M6)	2.25-2.75/20-25 Nm/lb.in. 4.50-5.50/40-48 Nm/lb.in.
d_s d_A a	Creeping distance on surface Strike distance through air Maximum allowable acceleration	12.7 mm 9.6 mm 50 m/s ²
Weight		150 g

Symbol	Test Conditions	Characteristic Values (per diode)
		typ. max.
I_R	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$ $T_{VJ} = 125^\circ\text{C}$ $V_R = 0.8 \cdot V_{RRM}$	24 mA 6 mA 160 mA
V_F	$I_F = 300 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$ $I_F = 520 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	1.17 V 1.36 V 1.41 V 1.52 V
V_{T0} r_T	For power-loss calculations only	0.85 V 1.09 mΩ
R_{thJH} R_{thJC}	DC current DC current	0.114 K/W 0.071 K/W
t_{rr} I_{RM}	$I_F = 600 \text{ A}$ $V_R = 300 \text{ V}$ $-di/dt = 800 \text{ A}/\mu\text{s}$ $T_{VJ} = 100^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 100^\circ\text{C}$	250 ns 300 ns 88 A 132 A

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

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

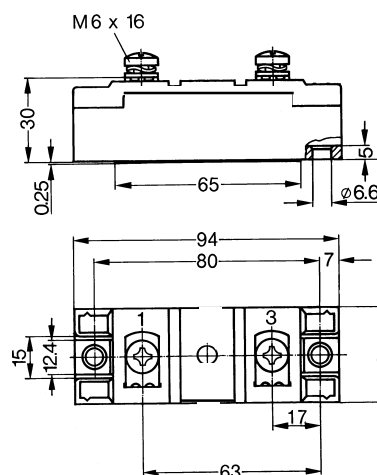
Applications

- 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")



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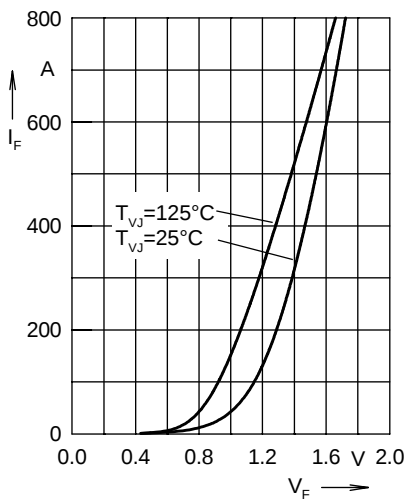


Fig. 1 Forward current I_F versus max. voltage drop V_F per leg

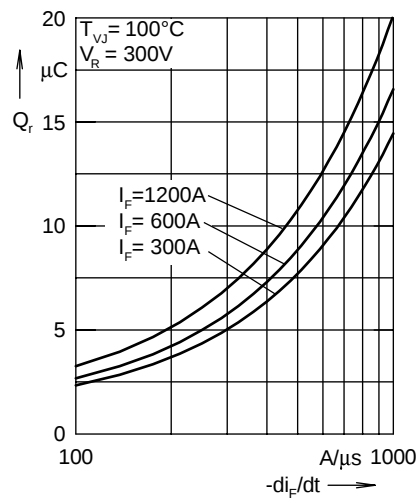


Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

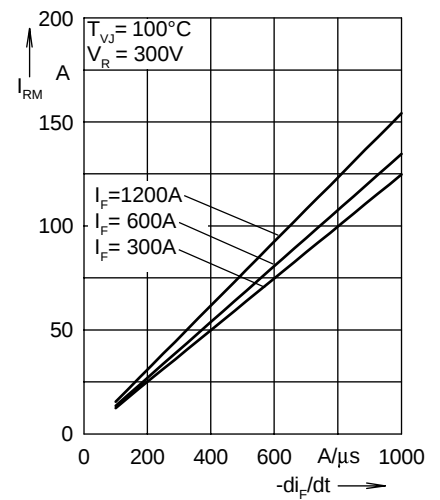


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

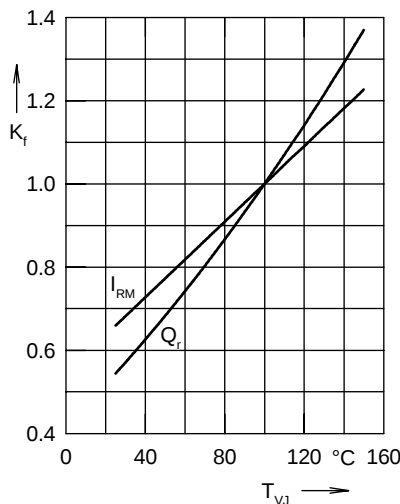


Fig. 4 Dynamic parameters Q_r , I_{RM} versus junction temperature T_{VJ}

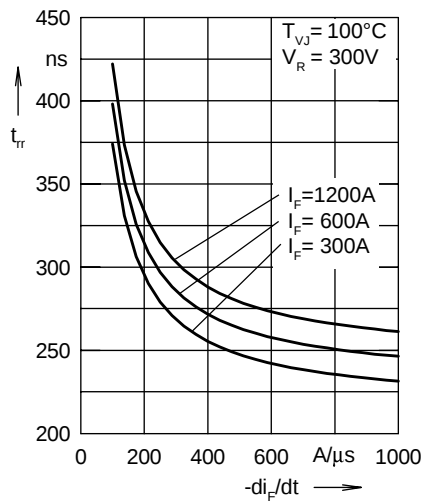


Fig. 5 Typ. recovery time t_{tr} versus $-di_F/dt$

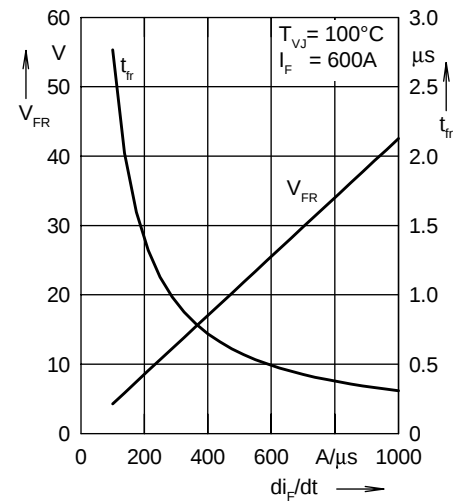


Fig. 6 Typ. peak forward voltage V_{FR} and t_{tr} versus di_F/dt

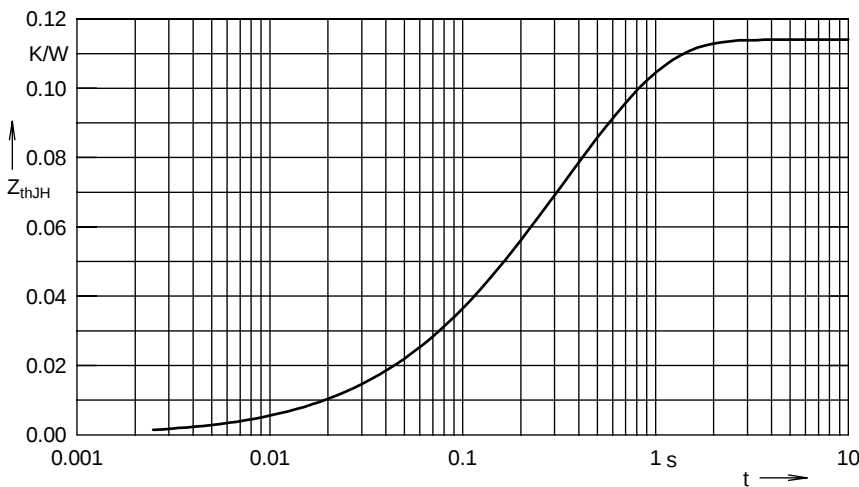


Fig. 7 Transient thermal impedance junction to heatsink

Constants for Z_{thJS} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.001	0.08
2	0.004	0.024
3	0.027	0.112
4	0.082	0.464