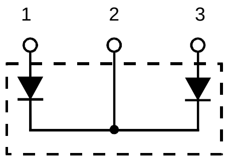
IXYS

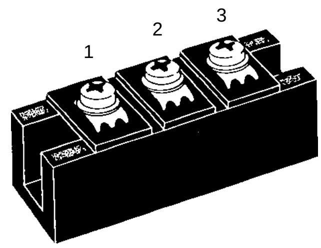
Fast Recovery Epitaxial Diode (FRED) Module

MEK 350-02 DA

V_{RRM} = 200 V
I_{FAVM} = 356 A
t_{rr} = 150 ns

V_{RSM} V	V_{RRM} V	Type
200	200	MEK 350-02DA





Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}	T_C = 75°C		503	A
I_{FAVM} ①	T_C = 75°C; rectangular, d = 0.5		356	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}		1800	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	2400	A
		t = 8.3 ms (60 Hz), sine	2640	A
	T_{VJ} = 150°C;	t = 10 ms (50 Hz), sine	2160	A
		t = 8.3 ms (60 Hz), sine	2380	A
I^2t	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	28800	A^2s
		t = 8.3 ms (60 Hz), sine	29300	A^2s
	T_{VJ} = 150°C;	t = 10 ms (50 Hz), sine	23300	A^2s
		t = 8.3 ms (60 Hz), sine	23800	A^2s
T_{VJ}			-40...+150	°C
T_{stg}			-40...+125	°C
T_{Smax}			110	°C
P_{tot}	T_C = 25°C		875	W
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	I_{ISOL} ≤ 1 mA	t = 1 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

Symbol	Test Conditions		Characteristic Values (per diode) typ.	max.	
I_R	T_{VJ} = 25°C	V_R = V_{RRM}		3	mA
	T_{VJ} = 25°C	V_R = 0.8 • V_{RRM}		2	mA
	T_{VJ} = 125°C	V_R = 0.8 • V_{RRM}		80	mA
V_F	I_F = 150 A;	T_{VJ} = 125°C		0.80	V
		T_{VJ} = 25°C		0.98	V
	I_F = 260 A;	T_{VJ} = 125°C		0.92	V
		T_{VJ} = 25°C		1.07	V
V_{T0}	For power-loss calculations only			0.53	V
r_T				1.29	mΩ
R_{thJH}	DC current			0.228	K/W
R_{thJC}	DC current			0.143	K/W
t_{rr}	I_F = 300 A	T_{VJ} = 100°C	150	200	ns
I_{RM}	V_R = 100 V	T_{VJ} = 25°C		9	A
	-di/dt = 200 A/µs	T_{VJ} = 100°C		15	A

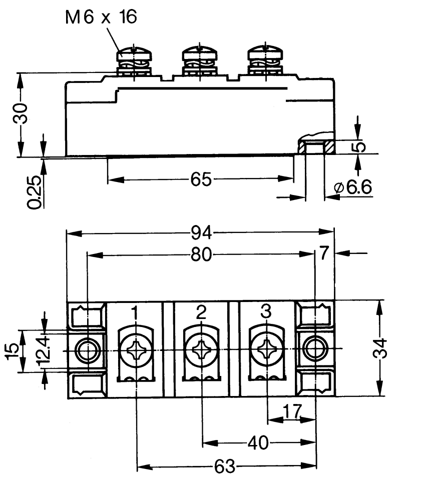
① I_{FAVM} rating includes reverse blocking losses at T_{VJM}, V_R = 0.6 V_{RRM}, duty cycle d = 0.5
Data according to IEC 60747
IXYS reserves the right to change limits, test conditions and dimensions

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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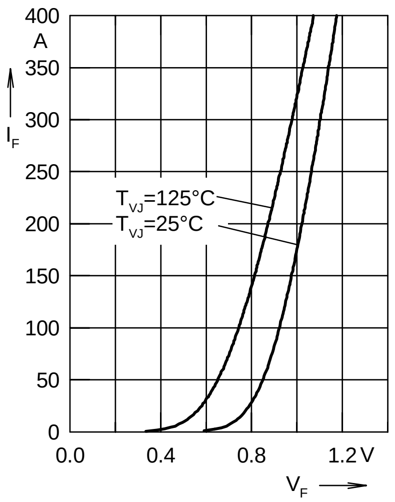

Fig. 1 Forward current I_F versus voltage drop V_F per leg

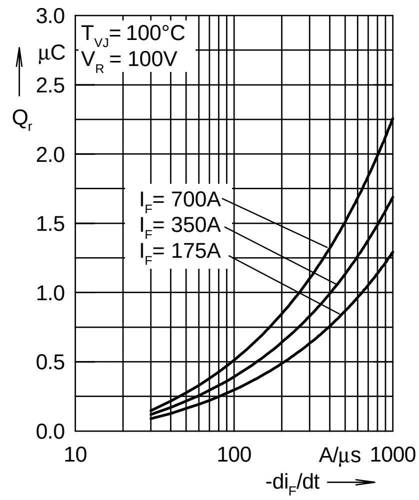

Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

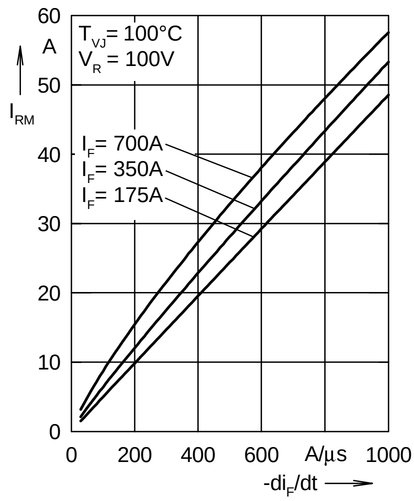

Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

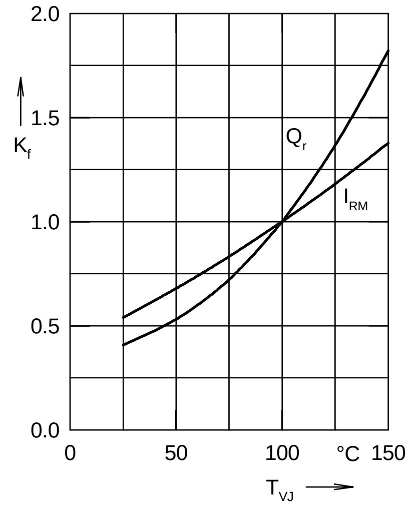

Fig. 4 Dynamic parameters Q_r, I_{RM} versus junction temperature T_{VJ}

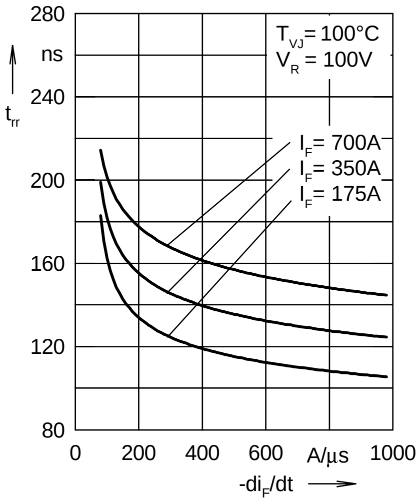

Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

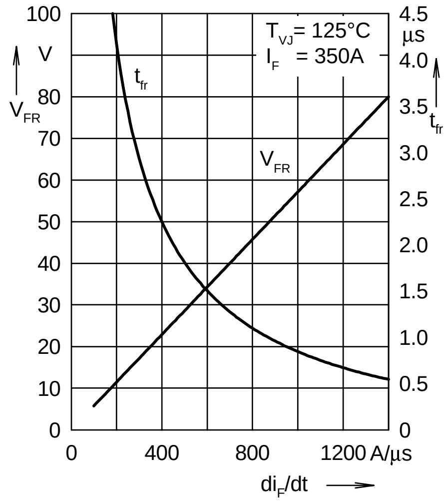

Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

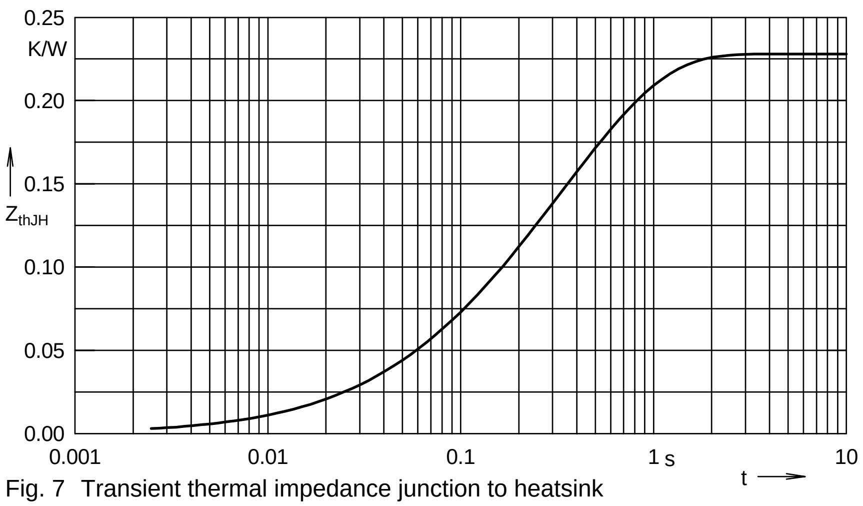

Fig. 7 Transient thermal impedance junction to heatsink

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