

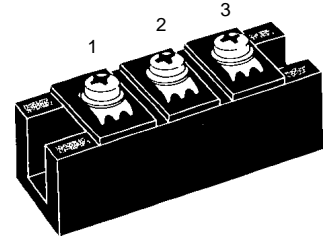
Fast Recovery Epitaxial Diode (FRED) Module

MEA 250-12 DA
MEK 250-12 DA
MEE 250-12 DA

V_{RRM} = 1200 V
I_{FAVM} = 260 A
t_{rr} = 450 ns

Preliminary data

V _{RSM} V	V _{RRM} V	Type	MEA 250-12DA	MEK 250-12DA	MEE 250-012DA
1200	1200				



Symbol	Test Conditions	Maximum Ratings
I _{FRMS}	T _C = 75°C	367 A
I _{FAVM} ①	T _C = 75°C; rectangular, d = 0.5	260 A
I _{FRM}	t _p < 10 μs; rep. rating, pulse width limited by T _{VJM}	1480 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 ² t	T _{VJ} = 45°C; t = 10 ms (50 Hz), sine	28800 A ² s
	t = 8.3 ms (60 Hz), sine	29300 A ² s
	T _{VJ} = 150°C; t = 10 ms (50 Hz), sine	23300 A ² s
	t = 8.3 ms (60 Hz), sine	23800 A ² s
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

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

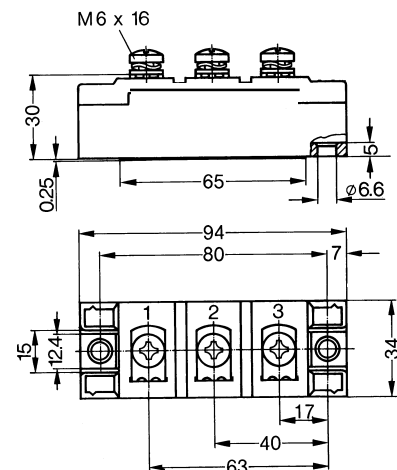
Advantages

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses

Symbol	Test Conditions	Characteristic Values (per diode)			
		typ.	max.		
I _R	T _{VJ} = 25°C V _R = V _{RRM}	12	mA		
	T _{VJ} = 25°C V _R = 0.8 • V _{RRM}	3	mA		
	T _{VJ} = 125°C V _R = 0.8 • V _{RRM}	60	mA		
V _F	I _F = 150 A; T _{VJ} = 125°C	1.38	V		
	T _{VJ} = 25°C	1.69	V		
	I _F = 260 A; T _{VJ} = 125°C	1.54	V		
	T _{VJ} = 25°C	1.80	V		
V _{T0}	For power-loss calculations only	1.16	V		
r _T		1.46	mΩ		
R _{thJH}	DC current	0.228	K/W		
R _{thJC}	DC current	0.143	K/W		
t _{rr}	I _F = 300 A V _R = 600 V -di/dt = 400 A/μs	450	T _{VJ} = 100°C	500	ns
I _{RRM}			T _{VJ} = 25°C	55	A
			T _{VJ} = 100°C	83	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

Dimensions in mm (1 mm = 0.0394")



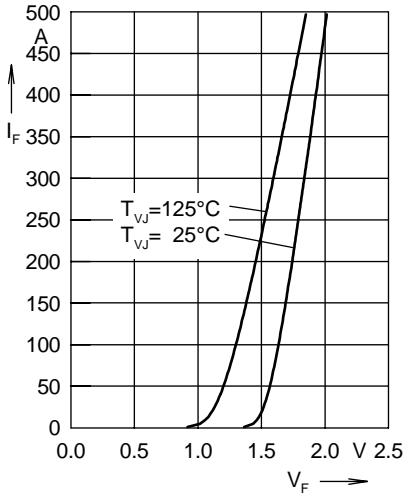


Fig. 1 Forward current I_F versus voltage drop V_F per leg

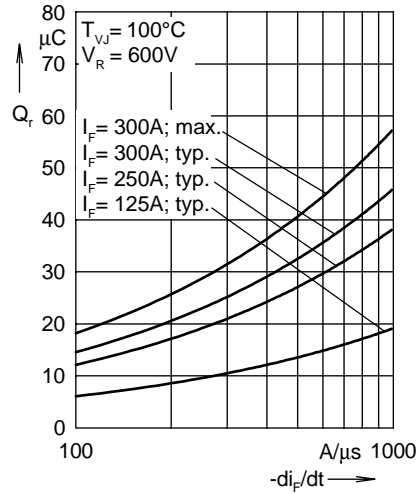


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

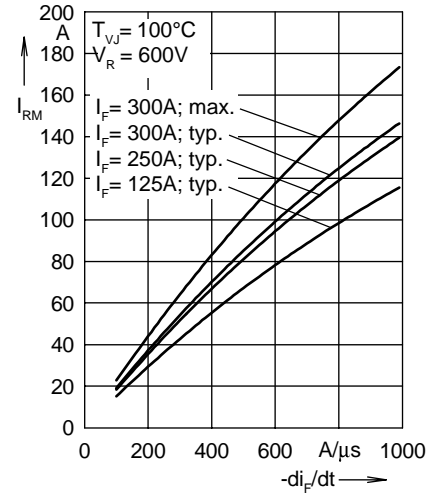


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

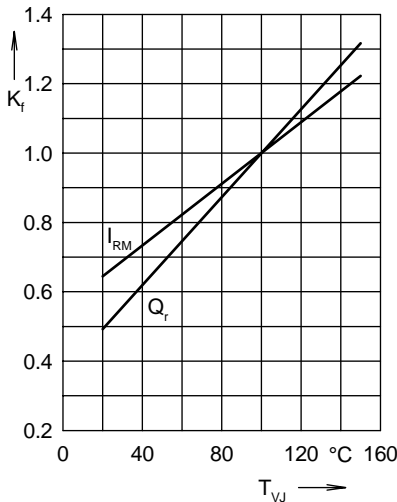


Fig. 4 Dynamic parameters Q_r , I_{RM} versus junction temperature T_{VJ}

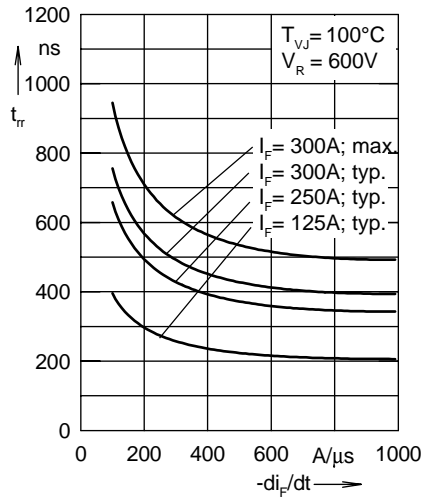


Fig. 5 Recovery time t_{tr} versus $-di_F/dt$

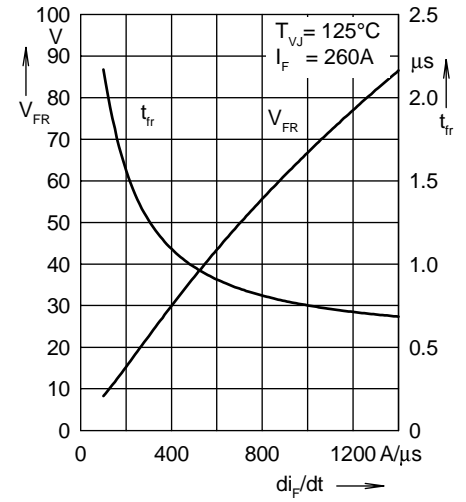


Fig. 6 Peak forward voltage V_{FR} and t_{tr} versus di_F/dt

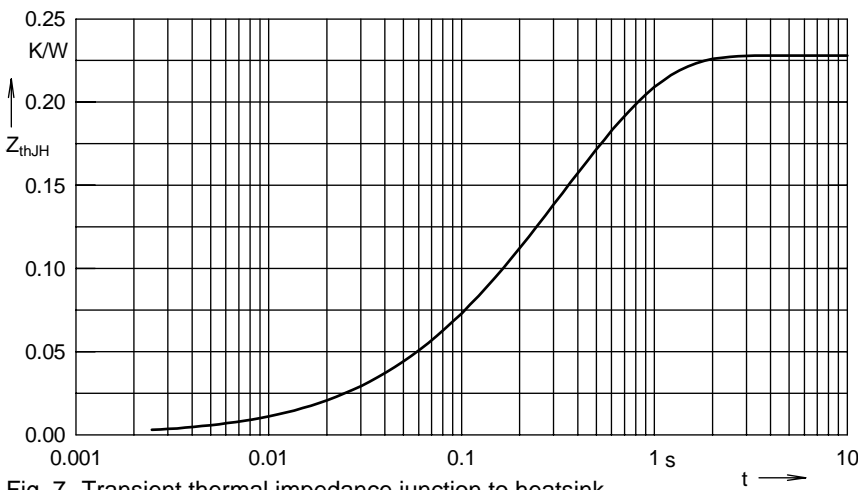


Fig. 7 Transient thermal impedance junction to heatsink

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