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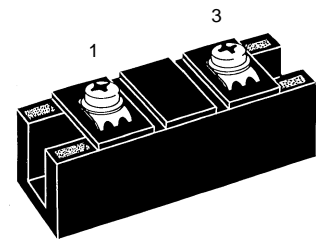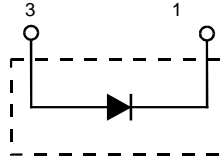## Fast Recovery Epitaxial Diode (FRED) Module

MEO 550-02 DA

V_{RRM} = 200 V
I_{FAVM} = 582 A
t_{rr} = 150 ns

| V_{RSM} | V_{RRM} | Type |
V	V	
200	200	MEO 550-02DA

Symbol	Test Conditions	Maximum Ratings	
I_{FRMS}	T_C = 75°C	822	A
I_{FAVM} ①	T_C = 75°C; rectangular, d = 0.5	582	A
I_{FRM}	t_P < 10 μs; rep. rating, pulse width limited by T_{VJM}	2880	A
I_{FSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	4800	A
	t = 8.3 ms (60 Hz), sine	5280	A
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	4320	A
	t = 8.3 ms (60 Hz), sine	4750	A
I^2t	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	115200	A²s
	t = 8.3 ms (60 Hz), sine	117100	A²s
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	93300	A²s
	t = 8.3 ms (60 Hz), sine	94800	A²s
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
T_{Smax}		110	°C
P_{tot}	T_C = 25°C	1750	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	Creep distance on surface	12.7	mm
d_A	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	50	m/s²
Weight		150	g

| Symbol | Test Conditions | Characteristic Values (per diode) | | |
		typ.	max.	
I_R	T_{VJ} = 25°C V_R = V_{RRM}		5	mA
	T_{VJ} = 25°C V_R = 0.8 • V_{RRM}		4	mA
	T_{VJ} = 125°C V_R = 0.8 • V_{RRM}		160	mA
V_F	I_F = 300 A; T_{VJ} = 125°C		0.84	V
	T_{VJ} = 25°C		1.10	V
	I_F = 520 A; T_{VJ} = 125°C		1.08	V
	T_{VJ} = 25°C		1.25	V
V_{T0}	For power-loss calculations only		0.52	V
r_T			1.06	mΩ
R_{thJH}	DC current		0.114	K/W
R_{thJC}	DC current		0.071	K/W
t_{rr}	I_F =500 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)
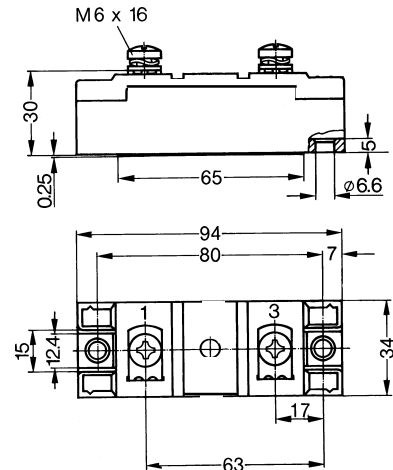- Ultrasonic cleaners and welders

Advantages

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

Dimensions in mm (1 mm = 0.0394")
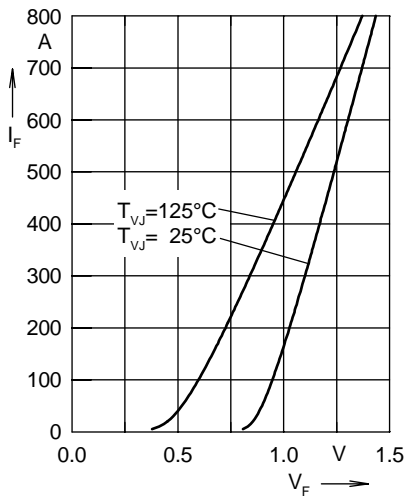
M 6 x 16

911

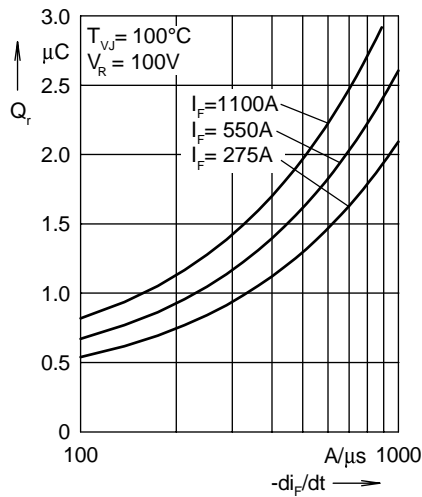Fig. 1 Forward current I_F versus max. voltage drop V_F per leg

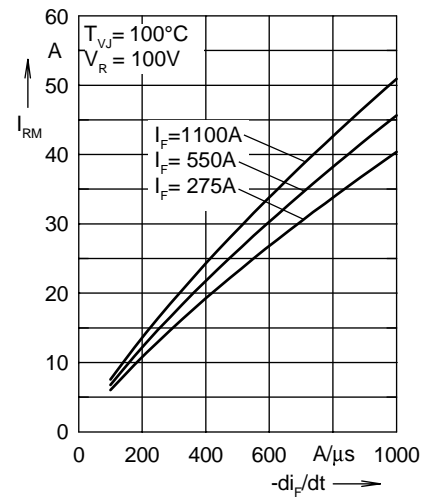Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

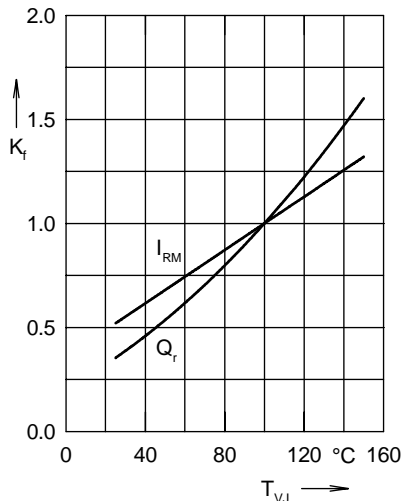Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

Fig. 4 Dynamic parameters Q_r, I_{RM} versus junction temperature T_{VJ}
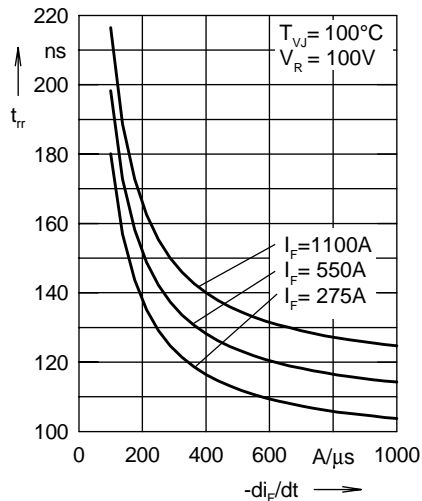
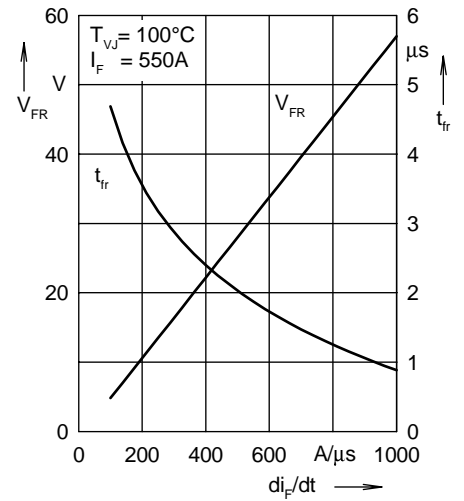Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

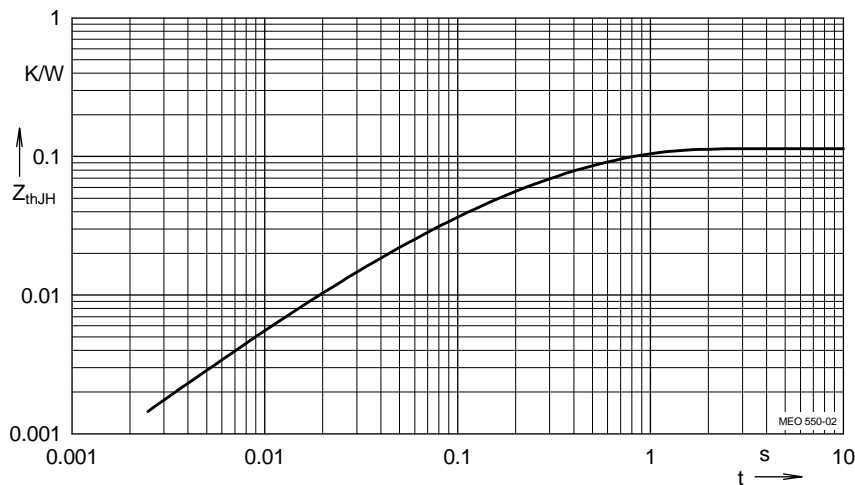Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

Fig. 7 Transient thermal impedance junction to heatsink

Constants for Z_{thJS} calculation:

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

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