

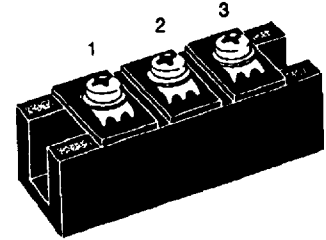
Fast Recovery Epitaxial Diode (FRED) Modules

MEA 140-12DA
MEE 140-12DA
MEK 140-12DA

$I_{FAVM} = 137 \text{ A}$
 $V_{RRM} = 1200 \text{ V}$
 $t_{rr} = 450 \text{ ns}$

Preliminary data

V_{RRM} V	V_{FRM} V	Type	MEA 140-12DA	MEE 140-12DA	MEK 140-012DA
1200	1200		1 2 3	2 1 3	1 2 3



Symbol	Test Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = 125^\circ\text{C}; T_S = 65^\circ\text{C}$	194	A
I_{FAVM} ①	$T_{VJ} = 125^\circ\text{C}; T_S = 65^\circ\text{C};$ rectangular, $d = 0.5$	137	A
I_{FM}	$T_{VJ} = 125^\circ\text{C}; T_S = 65^\circ\text{C}$	550	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$	1200	A
	$t = 8.3 \text{ ms (60 Hz), sine}$	1280	A
	$T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$	1080	A
	$t = 8.3 \text{ ms (60 Hz), sine}$	1190	A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$	7200	A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$	6800	A ² s
	$T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$	5800	A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$	5900	A ² s
T_{VJ}		-40...+150	°C
T_{avg}		-40...+125	°C
T_{Smag}		110	°C
P_{tot}	$T_S = 25^\circ\text{C}; T_{VJ} = 150^\circ\text{C}$	550	W
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$	3000	V~
	$I_{ISOL} \leq 1 \text{ mA} \quad t = 1 \text{ s}$	3600	V~
M_d	Mounting torque (M6)	2.25-2.75/20-25	Nm/lb.in.
	Terminal connection torque (M6)	4.5-5.5/40-48	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	
		typ.	max.
I_R	$T_{VJ} = 25^\circ\text{C} \quad V_R = V_{FRM}$		12 mA
	$T_{VJ} = 25^\circ\text{C} \quad V_R = 0.8 \cdot V_{FRM}$		3 mA
	$T_{VJ} = 125^\circ\text{C} \quad V_R = 0.8 \cdot V_{FRM}$		60 mA
V_F	$I_F = 150 \text{ A}; T_{VJ} = 125^\circ\text{C}$		1.53 V
	$T_{VJ} = 25^\circ\text{C}$		1.81 V
	$I_F = 260 \text{ A}; T_{VJ} = 125^\circ\text{C}$		1.15 V
	$T_{VJ} = 25^\circ\text{C}$		2.01 V
V_{TO}	For power-loss calculations only		1.15 V
r_T	$T_{VJ} = 125^\circ\text{C}; I_{F1} = 150 \text{ A}; I_{F2} = 260 \text{ A}$		2.34 mΩ
R_{thJS}			0.228 K/W
t_{rr}	$I_F = 150 \text{ A} \quad \left\{ \begin{array}{l} T_{VJ} = 100^\circ\text{C} \\ T_{VJ} = 25^\circ\text{C} \\ T_{VJ} = 100^\circ\text{C} \end{array} \right.$	450	500 ns
			45 A
			68 A
I_{RM}	$V_R = 600 \text{ V} \quad -di/dt = 400 \text{ A}/\mu\text{s}$		

① I_{FAVM} rating includes reverse blocking losses at T_{VM} , $V_R = 0.6 V_{FRM}$, duty cycle $d = 0.5$
Data according to DIN/IEC 747
IXYS reserves the right to change limits, test conditions and dimensions

Dimensions in mm (1 mm = 0.0394")

