

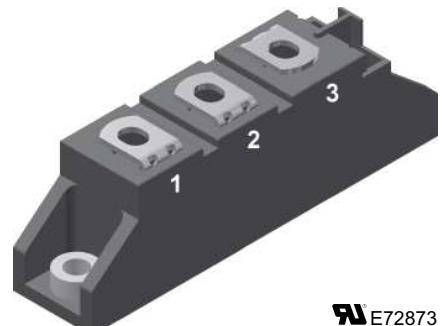
FRED Module

$V_{RRM} = 1200 \text{ V}$
 $I_{FAV} = 75 \text{ A}$
 $t_{rr} = 230 \text{ ns}$

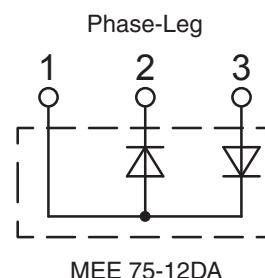
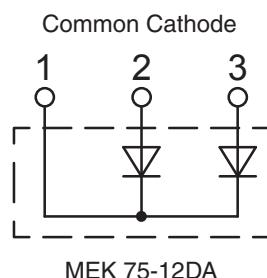
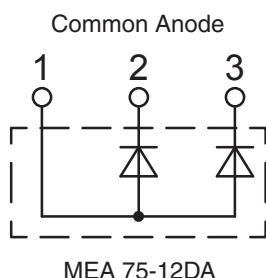
Fast Recovery Epitaxial Diode

Part number

MEA 75-12DA
MEK 75-12DA
MEE 75-12DA



 E72873
Backside: isolated



Features / Advantages:

- Planar passivated chips
- Low switching losses
- Soft recovery behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses

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

Package: TO-240AA

- Isolation voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Height: 30 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Disclaimer Notice

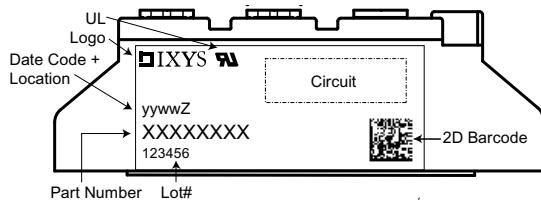
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Diode

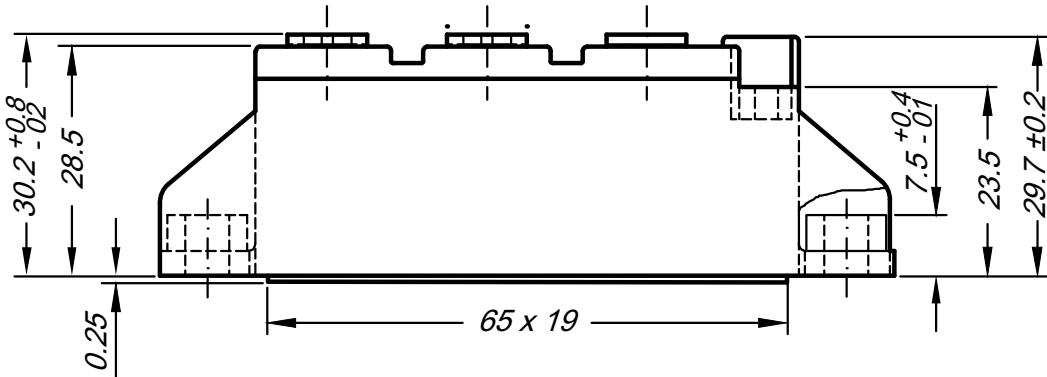
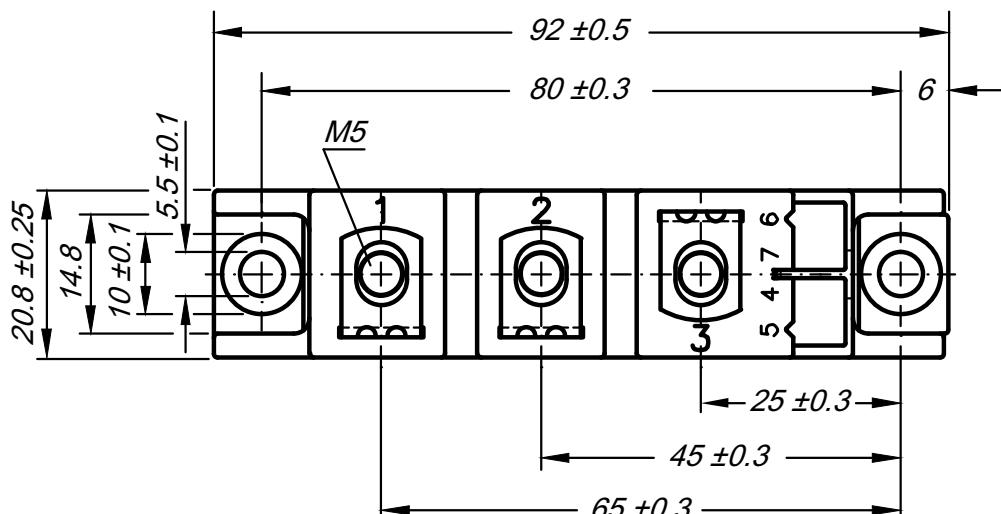
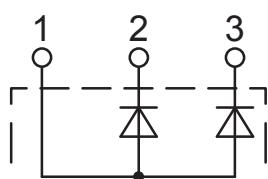
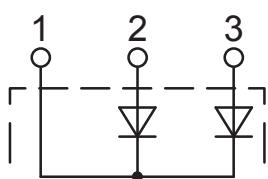
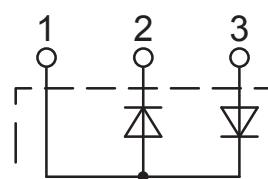
Symbol	Definitions	Conditions	min.	typ.	max.	Ratings
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^\circ C$			1200	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^\circ C$			1200	V
I_R	reverse current	$V_R = V_{RRM}$ $V_R = 0.8 \cdot V_{RRM}$ $V_R = 0.8 \cdot V_{RRM}$	$T_{VJ} = 25^\circ C$ $T_{VJ} = 25^\circ C$ $T_{VJ} = 125^\circ C$		2 0.5 34	mA mA mA
V_F	forward voltage	$I_F = 100 A$ $I_F = 300 A$	$T_{VJ} = 25^\circ C$ $T_{VJ} = 125^\circ C$ $T_{VJ} = 25^\circ C$ $T_{VJ} = 125^\circ C$		2.17 1.85 2.64 2.58	V V V V
I_{FRMS}	RMS forward current		$T_C = 75^\circ C$		107	A
I_{FAV} ①	average forward current	$T_C = 75^\circ C$ rectangular, d = 0.5	$T_{VJ} = 150^\circ C$		75	A
V_{TO} r_T	threshold voltage slope resistance	for power-loss calculations only	$T_{VJ} = T_{VJM}$		1.48 3.65	V mΩ
R_{thJC} R_{thCH}	thermal resistance junction to case thermal resistance junction to heatsink				0.45 0.10	K/W K/W
P_{tot}			$T_C = 25^\circ C$		280	W
I_{FSM}	max. surge forward current	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	$T_{VJ} = 45^\circ C$ $T_{VJ} = 150^\circ C$		1200 1300 1080 1170	A A A A
I^2t	I^2t value for fusing	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	$T_{VJ} = 45^\circ C$ $T_{VJ} = 150^\circ C$		7200 7100 5800 5700	A ² s A ² s A ² s A ² s
t_{rr}	max. reverse recovery current	$I_F = 70 A; V_R = 600 V$	$T_{VJ} = 25^\circ C$ $T_{VJ} = 100^\circ C$	140 230	200 300	ns ns
t_{RM}	reverse recovery time	-di/dt = 400 A/μs; L ≤ 0.05 μH	$T_{VJ} = 25^\circ C$ $T_{VJ} = 100^\circ C$	25 33	30 40	A A

① I_{FAVM} rating includes reverse blocking losses at T_{VJM} , $V_R = 0.8 V_{RRM}$, duty cycle d = 0.5

Package TO-240AA			Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.
I_{RMS}	RMS current	per terminal			200 A
T_{vJ}	virtual junction temperature		-40		150 $^{\circ}\text{C}$
T_{op}	operation temperature		-40		125 $^{\circ}\text{C}$
T_{stg}	storage temperature		-40		125 $^{\circ}\text{C}$
Weight				76	g
M_D	mounting torque		2.5		4 Nm
M_T	terminal torque		2.5		4 Nm
$d_{Spp/App}$	creepage distance on surface striking distance through air		terminal to terminal	13.0	9.7 mm
$d_{Spb/App}$			terminal to backside	16.0	16.0 mm
V_{ISOL}	isolation voltage	$t = 1$ second $t = 1$ minute	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	4800 4000	V V



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MEA 75-12DA	MEA 75-12DA	Box	36	469130
Standard	MEK 75-12DA	MEK 75-12DA	Box	36	468541
Standard	MEE 75-12DA	MEE 75-12DA	Box	36	469297

Outlines TO-240AA

General tolerance: DIN ISO 2768 class „c“

Common Anode

MEA 75-12DA
Common Cathode

MEK 75-12DA
Phase-Leg

MEE 75-12DA

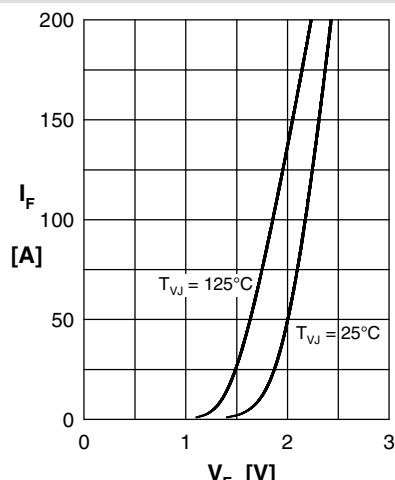
Curves


Fig. 1 Typ. forward current I_F vs. voltage drop V_F per leg

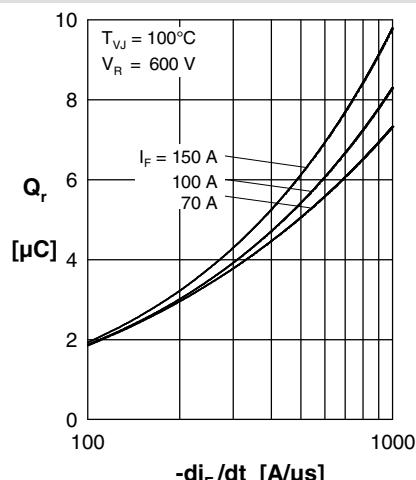


Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

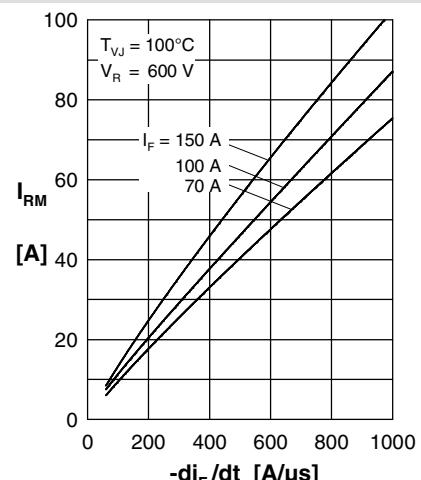


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

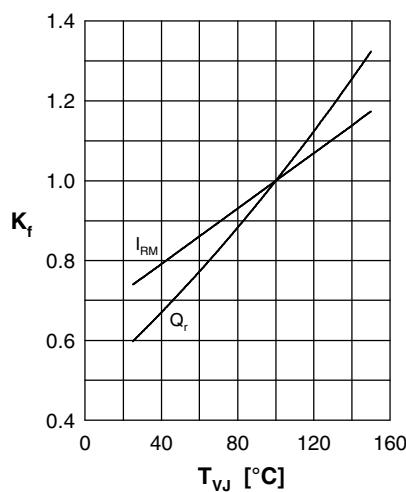


Fig. 4 Typ. dynamic parameters Q_r , I_{RM} vs. junction temperature T_{VJ}

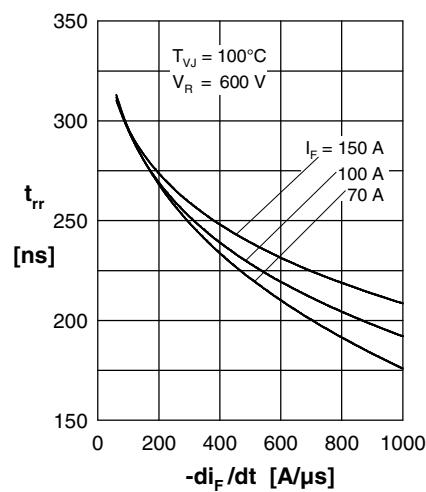


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

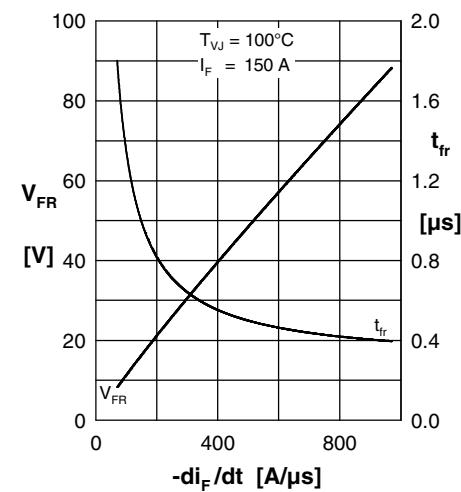


Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus $-di_F/dt$

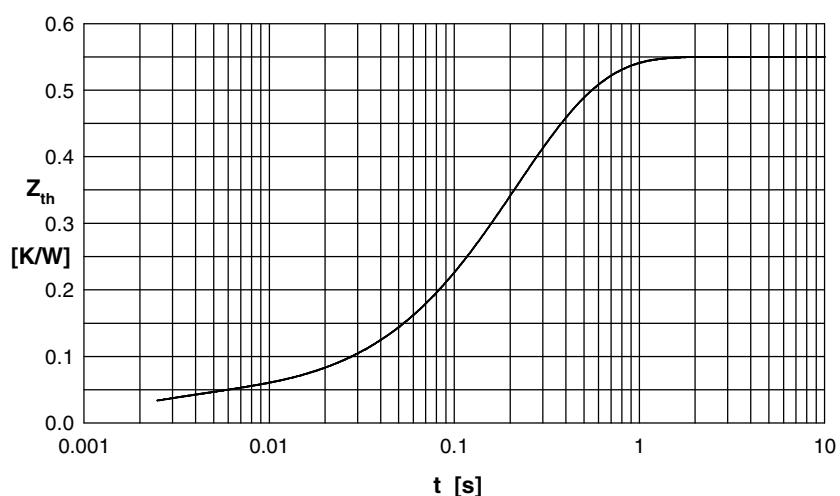


Fig. 7 Typ. transient thermal impedance junction to heatsink

IXYS reserves the right to change limits, test conditions and dimensions

20200930b

Constants for Z_{thJS} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.037	0.002
2	0.138	0.134
3	0.093	0.250
4	0.282	0.274