

HiPerFRED Module

$$V_{RRM} = 400\text{ V}$$

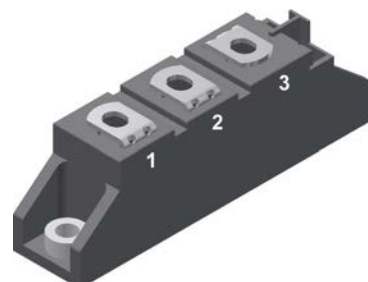
$$I_{FAV} = 2 \times 150\text{ A}$$

$$t_{rr} = 40\text{ ns}$$

Common Cathode

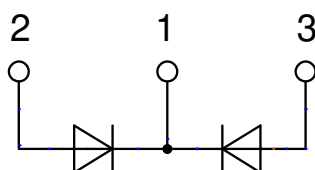
Part number

MEK150-04DA



Backside: isolated

 E72873



Features / Advantages:

- Planar passivated chips
- Low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm} -values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{rm} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package: TO-240AA

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

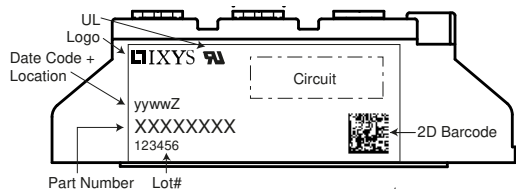
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Fast Diode				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				400	V	
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				400	V	
I _R	reverse current, drain current	V _R = 400 V	T _{VJ} = 25°C			2	mA	
		V _R = 400 V	T _{VJ} = 150°C			8,5	mA	
V _F	forward voltage drop	I _F = 150 A	T _{VJ} = 25°C			1,35	V	
		I _F = 300 A				1,63	V	
		I _F = 150 A	T _{VJ} = 150°C			1,09	V	
		I _F = 300 A				1,41	V	
I _{FAV}	average forward current	T _C = 100°C rectangular d = 0.5	T _{VJ} = 175°C			150	A	
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0,73	V	
r _F	slope resistance					2	mΩ	
R _{thJC}	thermal resistance junction to case					0,35	K/W	
R _{thCH}	thermal resistance case to heatsink				0,08		K/W	
P _{tot}	total power dissipation		T _C = 25°C			430	W	
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		1,20	kA	
C _J	junction capacitance	V _R = 400 V f = 1 MHz		T _{VJ} = 25°C	220		pF	
I _{RM}	max. reverse recovery current	} I _F = 200 A; V _R = 200 V -di _F /dt = 600 A/μs		T _{VJ} = 25°C	30		A	
				T _{VJ} = 100°C	60		A	
t _{rr}	reverse recovery time			T _{VJ} = 25°C	40		ns	
				T _{VJ} = 100°C	90		ns	



Package TO-240AA				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I _{RMS}	<i>RMS current</i>	per terminal				200	A
T _{VJ}	<i>virtual junction temperature</i>			-40		175	°C
T _{op}	<i>operation temperature</i>			-40		150	°C
T _{stg}	<i>storage temperature</i>			-40		125	°C
Weight					76		g
M _D	<i>mounting torque</i>			2,5		4	Nm
M _T	<i>terminal torque</i>			2,5		4	Nm
d _{Spp/App}	<i>creepage distance on surface striking distance through air</i>	<i>terminal to terminal</i>	13,0	9,7			mm
d _{Spb/Apb}		<i>terminal to backside</i>	16,0	16,0			mm
V _{ISOL}	<i>isolation voltage</i>	t = 1 second	50/60 Hz, RMS; I _{ISOL} ≤ 1 mA	4800			V
		t = 1 minute		4000			V

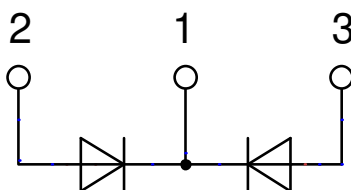
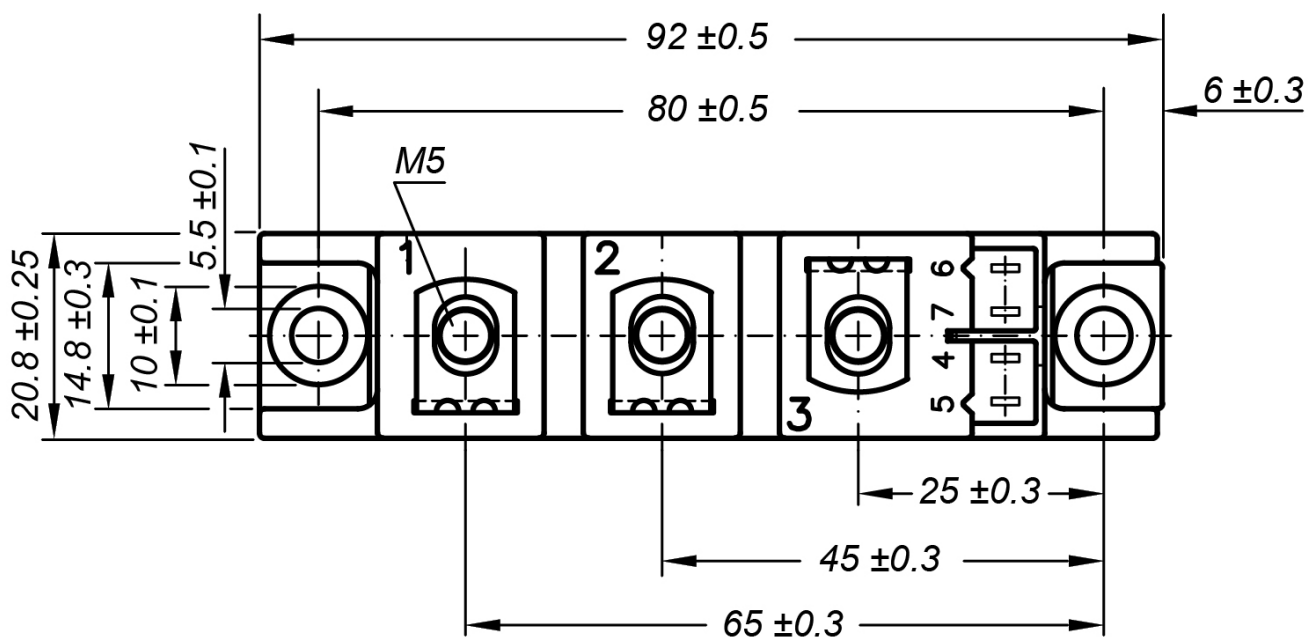


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MEK150-04DA	MEK150-04DA	Box	36	480086

Equivalent Circuits for Simulation			* on die level	$T_{VJ} = 150^{\circ}\text{C}$
	Fast Diode			
$V_{0 \text{ max}}$	<i>threshold voltage</i>	0,73		V
$R_{0 \text{ max}}$	<i>slope resistance *</i>	1,3		mΩ

Technical drawing of a rectangular box with dimensions and tolerances:

- Overall height: 30 ± 0.5
- Internal height: 28.1 ± 0.5
- Top flange height: $7.6^{+0.4}_{-0.1}$
- Bottom flange height: 23.5 ± 0.5
- Overall width: 29.7 ± 0.3
- Internal width: 64×19
- Top flange width: $typ. 9$
- Bottom flange width: $typ. 0.25$



Fast Diode

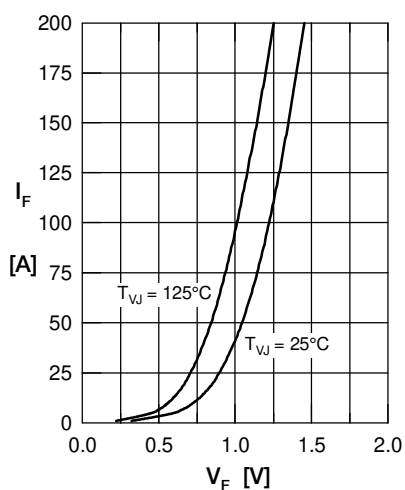


Fig. 1 Forward current I_F versus voltage drop V_F per leg