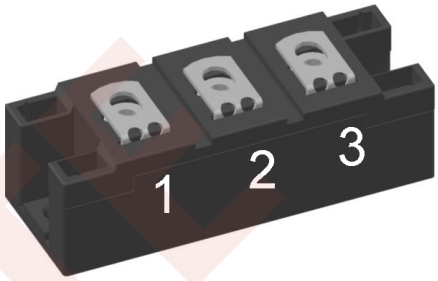
HiPerFRED Module

V_{RRM} = 400 V
I_{FAV} = 2x 300 A
t_{rr} = 60 ns

Common Cathode

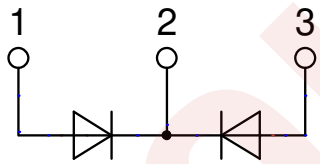
Part number

MEK600-04DA



Backside: isolated

E72873



Features / Advantages:

- Planar passivated chips
- Low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm 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: Y4

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- Height: 30 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

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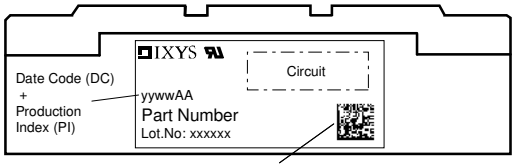
Fast Diode

Symbol	Definition	Conditions		Ratings 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			6	mA
		V_R = 400 V	T_{VJ} = 125°C			18	mA
V_F	*forward voltage drop*	I_F = 300 A	T_{VJ} = 25°C			1.36	V
		I_F = 600 A				1.79	V
		I_F = 300 A	T_{VJ} = 125°C			1.20	V
		I_F = 600 A				1.68	V
I_{FAV}	*average forward current*	T_C = 95°C	T_{VJ} = 150°C			300	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.74	V
r_F	*slope resistance* }					1.42	mΩ
R_{thJC}	*thermal resistance junction to case*					0.11	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.08		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			1100	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			3.00	kA
C_J	*junction capacitance*	V_R = 200 V f = 1 MHz	T_{VJ} = 25°C		935		pF
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		29		A
		I_F = 300 A; V_R = 200 V	T_{VJ} = 125°C		58		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 400 A/µs	T_{VJ} = 25°C		60		ns
			T_{VJ} = 125°C		255		ns

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Package Y4					Ratings			
Symbol	**Definition**	**Conditions**			**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal					300	A
T_{VJ}	*virtual junction temperature*				-40		150	°C
T_{op}	*operation temperature*				-40		125	°C
T_{stg}	*storage temperature*				-40		125	°C
Weight						150		g
M_D	*mounting torque*				2.25		2.75	Nm
M_T	*terminal torque*				4.5		5.5	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*		*terminal to terminal*	14.0	10.0			mm
$d_{Spb/Apb}$			*terminal to backside*	16.0	16.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS; I_{ISOL} ≤ 1 mA		3600			V
		t = 1 minute			3000			V

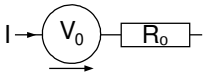


Data Matrix: *part no.* (1-19), DC + *PI* (20-25), *lot.no.#* (26-31), *blank* (32), *serial no.#* (33-36)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MEK600-04DA	MEK600-04DA	Box	6	485365

Equivalent Circuits for Simulation

** on die level* T_{VJ} = 150 °C

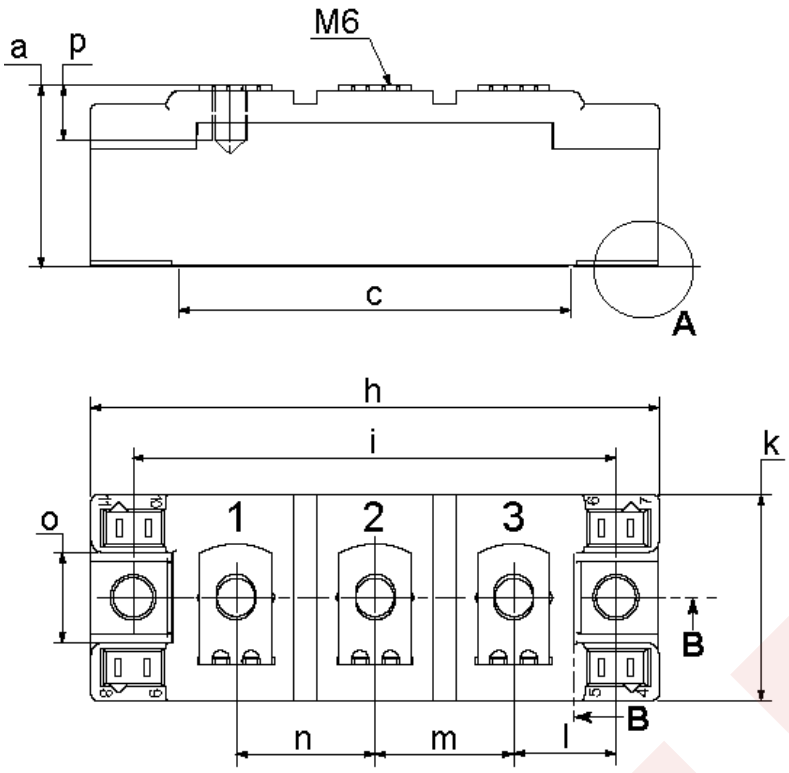


		Fast Diode	
$V_{0\,max}$	*threshold voltage*	0.74	V
$R_{0\,max}$	*slope resistance **	0.17	mΩ

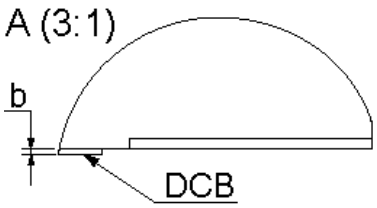
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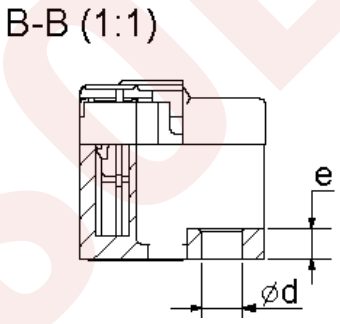
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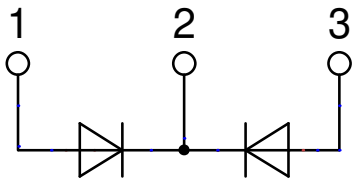
Outlines Y4



Dim.	MIN [mm]	MAX [mm]	MIN [inch]	MAX [inch]
a	30.0	30.6	1.181	1.205
b	typ. 0.25		typ. 0.010	
c	64.0	65.0	2.520	2.559
d	6.5	7.0	0.256	0.275
e	4.9	5.1	0.193	0.201
h	93.5	94.5	3.681	3.720
i	79.5	80.5	3.130	3.169
k	33.4	34.0	1.315	1.339
l	16.7	17.3	0.657	0.681
m	22.7	23.3	0.894	0.917
n	22.7	23.3	0.894	0.917
o	14.0	15.0	0.551	0.591
p	typ. 10.5		typ. 0.413	







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Fast Diode

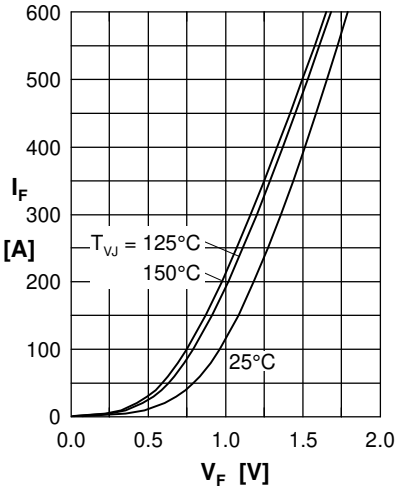


Fig. 1 Forward current I_F vs. V_F

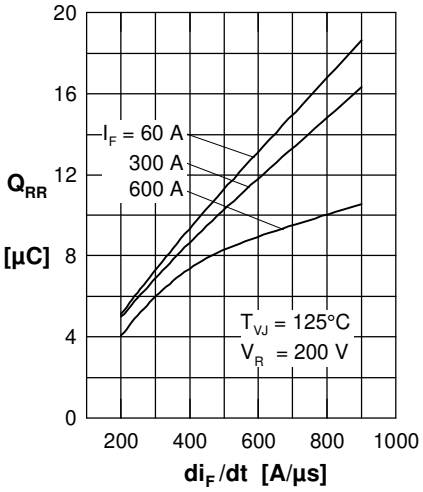


Fig. 2 Typ. reverse recovery charge Q_{RR} versus di_F/dt

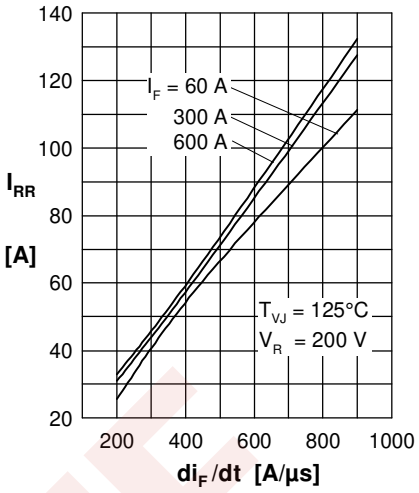


Fig. 3 Typ. reverse recovery current I_{RR} versus di_F/dt

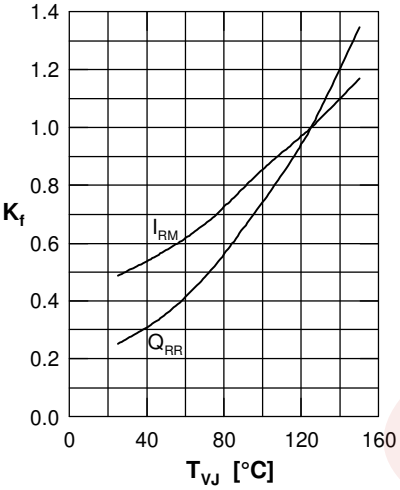


Fig. 4 Typ. dynamic parameters Q_{RR}, I_{RM} versus T_{VJ}

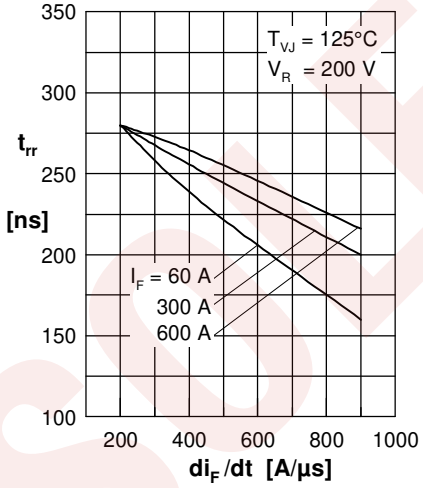


Fig. 5 Typ. reverse recovery time t_{rr} versus di_F/dt

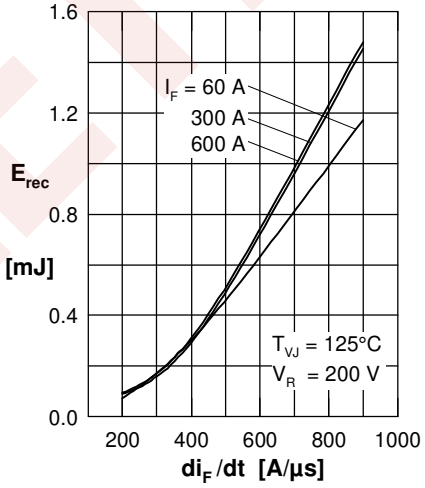


Fig. 7 Typ. recovery energy E_{rec} versus di_F/dt

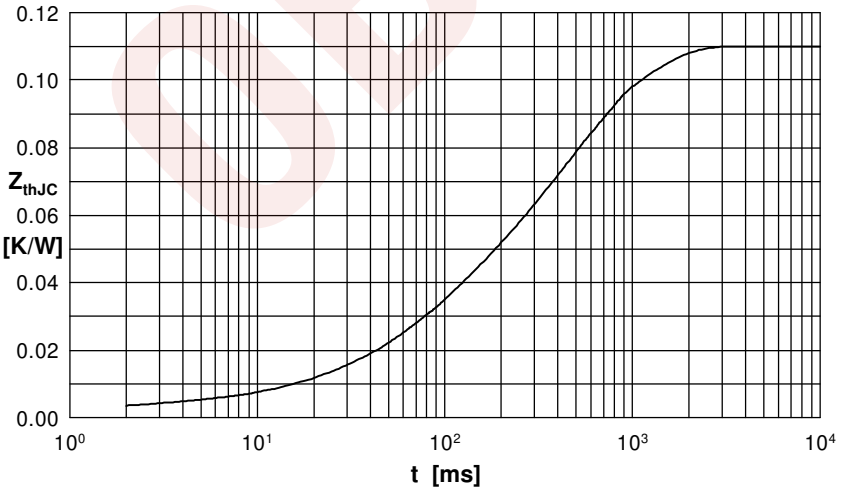


Fig. 8 Transient thermal impedance junction to case

R_{thi} [K/W]	t_i [s]
0.0030	0.001
0.0210	0.070
0.0390	0.380
0.0470	0.610

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