preliminary

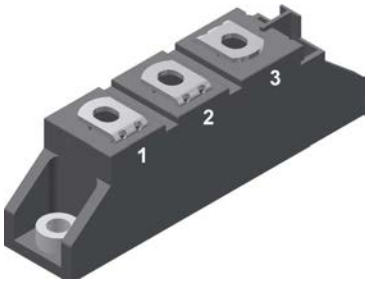
HiPerFRED Module

V_{RRM}	=	600 V
I_{FAV}	= 2x	95 A
t_{rr}	=	35 ns

Common Anode

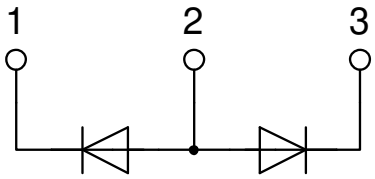
Part number

MPK95-06DA



Backside: isolated

E72873



Features / Advantages:

- Planar passivated chips
- Very 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: TO-240AA

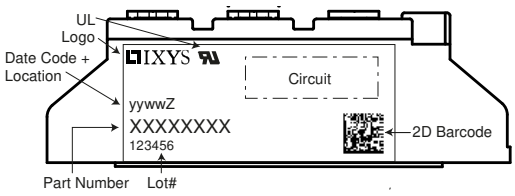
- Isolation Voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Height: 30 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Fast Diode

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			600	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			600	V
I_R	*reverse current, drain current*	V_R = 600 V	T_{VJ} = 25°C			1,3	mA
		V_R = 600 V	T_{VJ} = 125°C			5	mA
V_F	*forward voltage drop*	I_F = 50 A	T_{VJ} = 25°C			1,73	V
		I_F = 100 A				1,89	V
		I_F = 50 A	T_{VJ} = 125°C			1,22	V
		I_F = 100 A				1,40	V
I_{FAV}	*average forward current*	T_C = 110°C	T_{VJ} = 150°C			95	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0,98	V
r_F	*slope resistance* }					2,3	mΩ
R_{thJC}	*thermal resistance junction to case*					0,58	K/W
R_{thCH}	*thermal resistance case to heatsink*				0,10		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			215	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 = 600 V f = 1 MHz	T_{VJ} = 25°C		70		pF
I_{RM}	*max. reverse recovery current* }		T_{VJ} = 25°C		4		A
		I_F = 130 A; V_R = 100 V	T_{VJ} = 100°C		5,5		A
t_{rr}	*reverse recovery time* }	$-di_F/dt$ = 300 A/µs	T_{VJ} = 25°C		35		ns
			T_{VJ} = 100°C		tbd		ns

preliminary

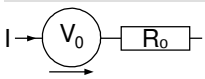
Package TO-240AA					Ratings			
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal					200	A
T_{VJ}	*virtual junction temperature*				-40		150	°C
T_{op}	*operation temperature*				-40		125	°C
T_{stg}	*storage temperature*				-40		125	°C
Weight						76		g
M_D	*mounting 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
$d_{Spb/Apb}$			*terminal to backside*	16,0	16,0			mm
V_{ISOL}	*isolation voltage*	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	MPK95-06DA	MPK95-06DA	Box	36	501058

Equivalent Circuits for Simulation

** on die level* T_{VJ} = 150°C



Fast Diode

$V_{0\ max}$	*threshold voltage*	0,98	V
$R_{0\ max}$	*slope resistance **		mΩ

Outlines TO-240AA