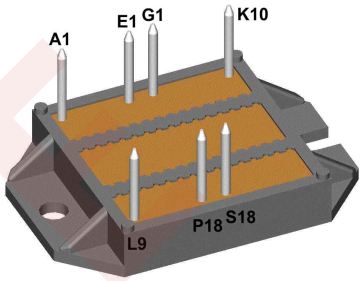
HiPerFRED Module

V_{RRM} = 600 V
I_{DAV} = 130 A
t_{rr} = 35 ns

Fast Recovery Epitaxial Diode
Low Loss and Soft Recovery
3~ Rectifier Bridge

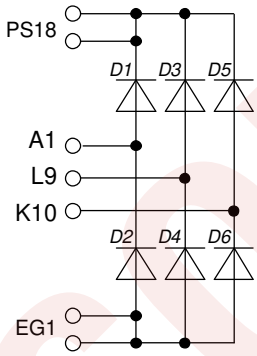
Part number

VUE130-06NO7



Backside: isolated

E72873



Features / Advantages:

- Package with DCB ceramic base plate
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
- Very low leakage current

Applications:

- Supplies for DC power equipment
- Input and output rectifiers for high frequency
- Battery DC power supplies
- Field supply for DC motors

Package: ECO-PAC2

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Height: 9 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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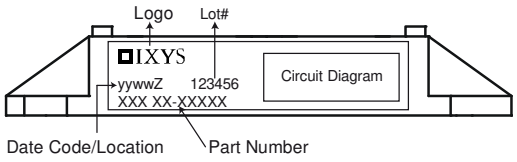
Fast Diode

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			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			100	µA
		V_R = 600 V	T_{VJ} = 150°C			2.5	mA
V_F	*forward voltage drop*	I_F = 60 A	T_{VJ} = 25°C			2.04	V
		I_F = 180 A				2.60	V
		I_F = 60 A	T_{VJ} = °C			1.35	V
		I_F = 180 A				1.95	V
I_{DAV}	*bridge output current*	T_C = 85°C	T_{VJ} = 150°C			130	A
		rectangular d = ⅓					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			1.09	V
r_F	*slope resistance* }					4.3	mΩ
R_{thJC}	*thermal resistance junction to case*					0.8	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.20		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			155	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			600	A
C_J	*junction capacitance*	V_R = 400 V f = 1 MHz	T_{VJ} = 25°C		67		pF
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25 °C		8		A
		I_F = 60 A; V_R = 300 V	T_{VJ} = 100 °C		13		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 200 A/µs	T_{VJ} = 25 °C		35		ns
			T_{VJ} = 100 °C		110		ns

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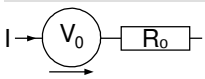
Package ECO-PAC2				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal				100	A
T_{VJ}	*virtual junction temperature*			-40		150	°C
T_{op}	*operation temperature*			-40		125	°C
T_{stg}	*storage temperature*			-40		125	°C
Weight					24		g
M_D	*mounting torque*			1.4		2	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*		*terminal to terminal*	6.0			mm
$d_{Spb/Apb}$			*terminal to backside*	10.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS; I_{ISOL} ≤ 1 mA	3600			V
		t = 1 minute		3000			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUE130-06NO7	VUE130-06NO7	Box	25	494291

Equivalent Circuits for Simulation

** on die level* T_{VJ} = 150°C

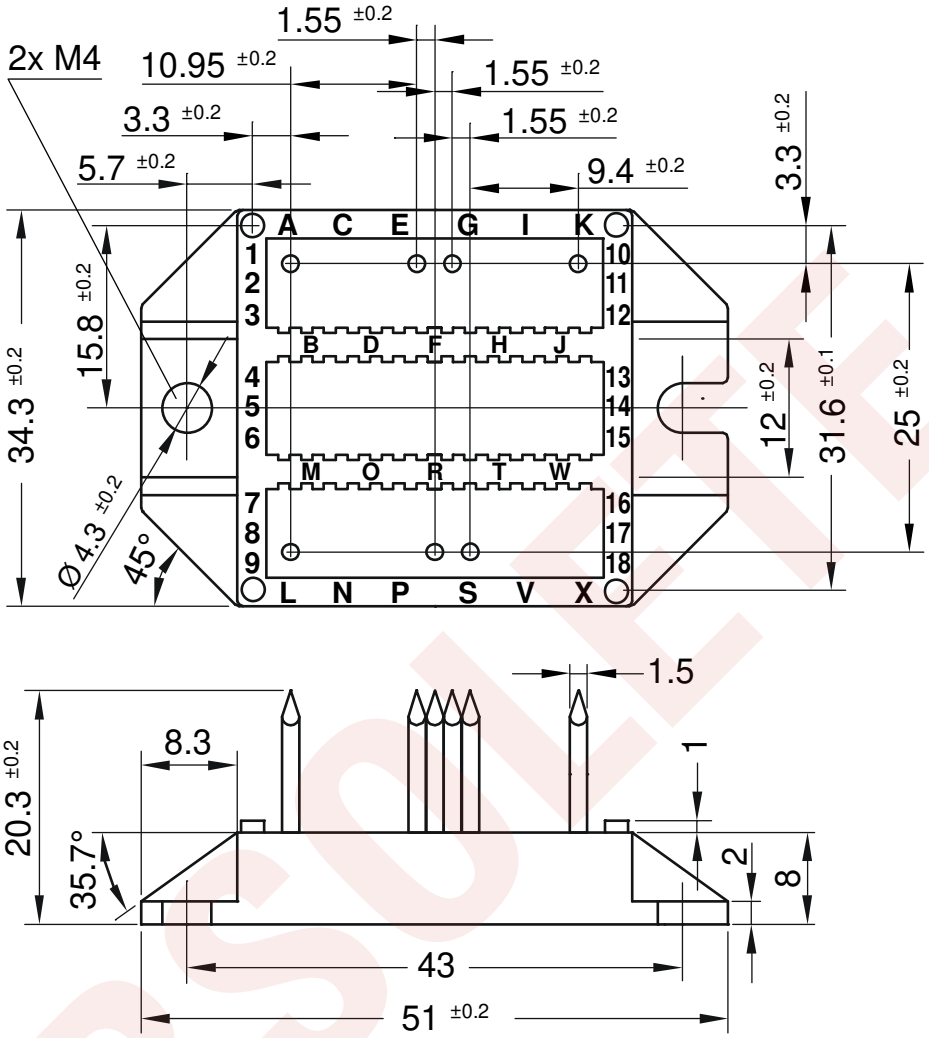


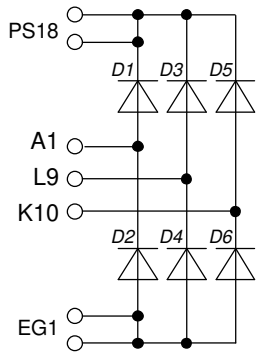
		Fast Diode	
$V_{0\ max}$	*threshold voltage*	1.09	V
$R_{0\ max}$	*slope resistance **	2.3	mΩ

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Outlines ECO-PAC2





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Fast Diode

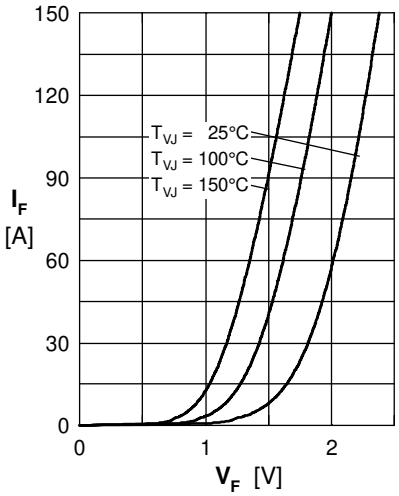


Fig. 1 Forward current I_F vs. V_F

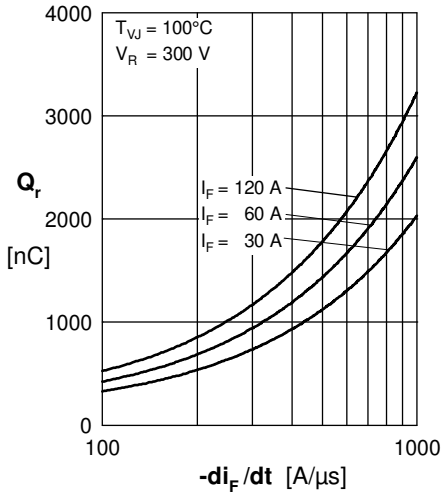


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

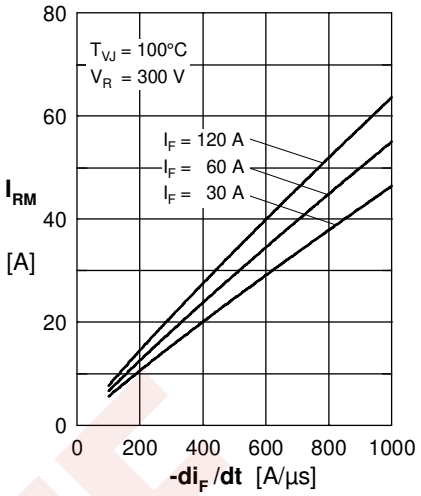


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

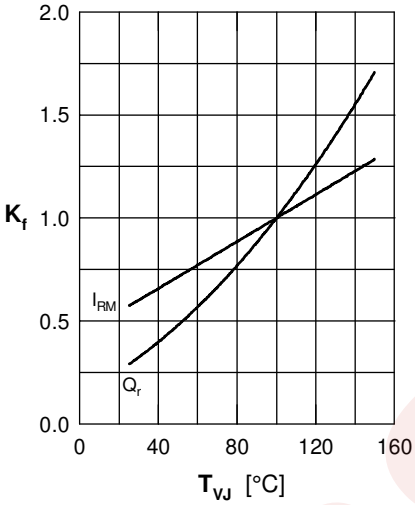


Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

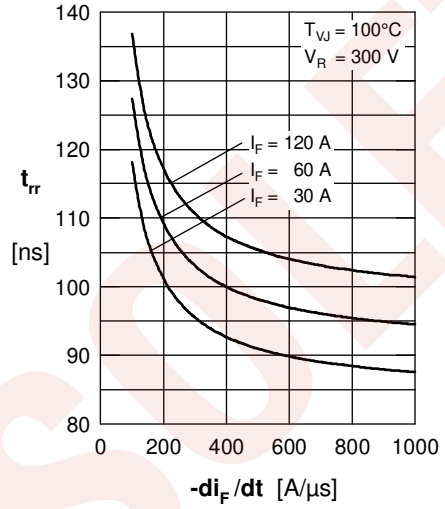


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

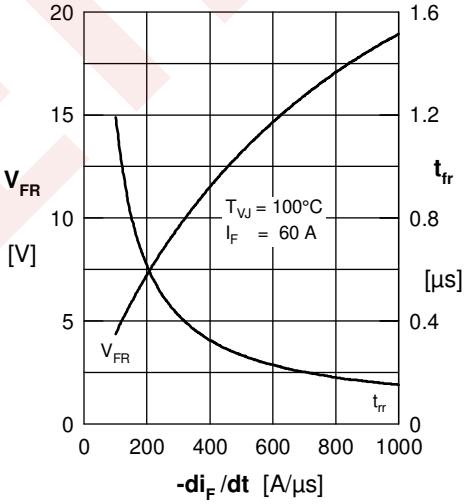


Fig. 6 Peak forward voltage V_{FR} and t_{fr} vs. $-di_F/dt$

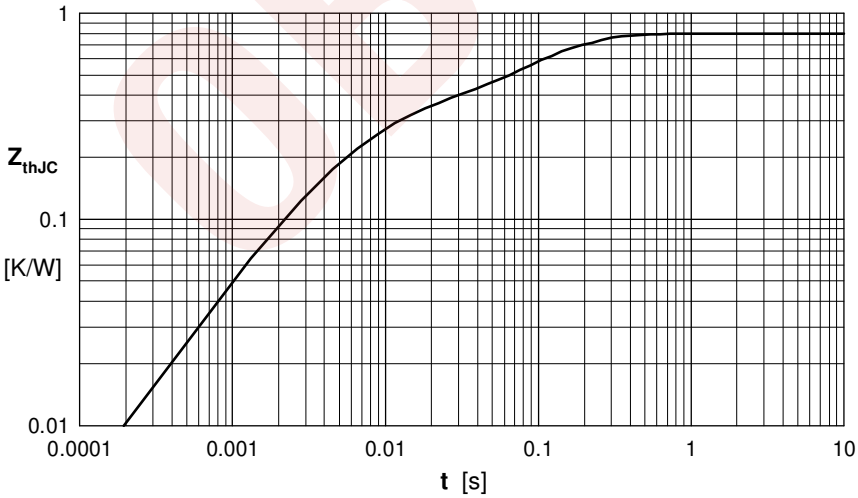


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0010	0.0010
2	0.0790	0.0300
3	0.2500	0.0050
4	0.4700	0.1200

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