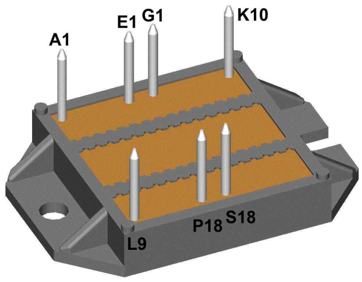
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	1600 V
I_{DAV}	=	125 A
I_{FSM}	=	1000 A

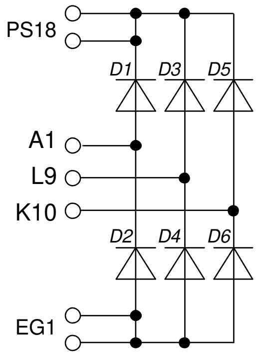
3~ Rectifier Bridge

Part number

VUO122-16NO7



E72873



Features / Advantages:

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

Applications:

- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: ECO-PAC2

- Isolation Voltage: 3000 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

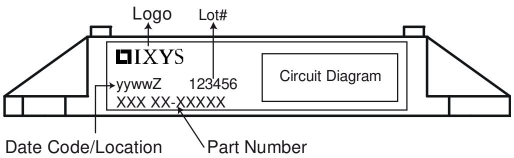
Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice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

© 2019 IXYS all rights reserved

Rectifier						Ratings		
Symbol	**Definition**	**Conditions**			**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	*max. non-repetitive reverse blocking voltage*			T_{VJ} = 25°C			1700	V
V_{RRM}	*max. repetitive reverse blocking voltage*			T_{VJ} = 25°C			1600	V
I_R	*reverse current*	V_R = 1600 V		T_{VJ} = 25°C			100	µA
		V_R = 1600 V		T_{VJ} = 150°C			2	mA
V_F	*forward voltage drop*	I_F = 50 A		T_{VJ} = 25°C			1.13	V
		I_F = 150 A					1.47	V
		I_F = 50 A		T_{VJ} = 125°C			1.05	V
		I_F = 150 A					1.49	V
I_{DAV}	*bridge output current*	T_C = 115°C		T_{VJ} = 150°C			125	A
		rectangular	d = ⅓					
V_{F0}	*threshold voltage*	*for power loss calculation only*		T_{VJ} = 150°C			0.80	V
r_F	*slope resistance*						4.6	mΩ
R_{thJC}	*thermal resistance junction to case*						0.6	K/W
R_{thCH}	*thermal resistance case to heatsink*					0.3		K/W
P_{tot}	*total power dissipation*			T_C = 25°C			205	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine		T_{VJ} = 45°C			1.00	kA
		t = 8,3 ms; (60 Hz), sine		V_R = 0 V			1.08	kA
		t = 10 ms; (50 Hz), sine		T_{VJ} = 150°C			850	A
		t = 8,3 ms; (60 Hz), sine		V_R = 0 V			920	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine		T_{VJ} = 45°C			5.00	kA^2s
		t = 8,3 ms; (60 Hz), sine		V_R = 0 V			4.85	kA^2s
		t = 10 ms; (50 Hz), sine		T_{VJ} = 150°C			3.62	kA^2s
		t = 8,3 ms; (60 Hz), sine		V_R = 0 V			3.52	kA^2s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz		T_{VJ} = 25°C		35		pF

© 2019 IXYS all rights reserved

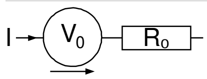
Package ECO-PAC2				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal				100	A
T_{VJ}	*virtual junction temperature*			-40		150	°C
T_{op}	*operation temperature*			-40		125	°C
T_{stg}	*storage temperature*			-40		125	°C
Weight					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	3000			V
		t = 1 minute		2500			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO122-16NO7	VUO122-16NO7	Box	25	494453

Equivalent Circuits for Simulation

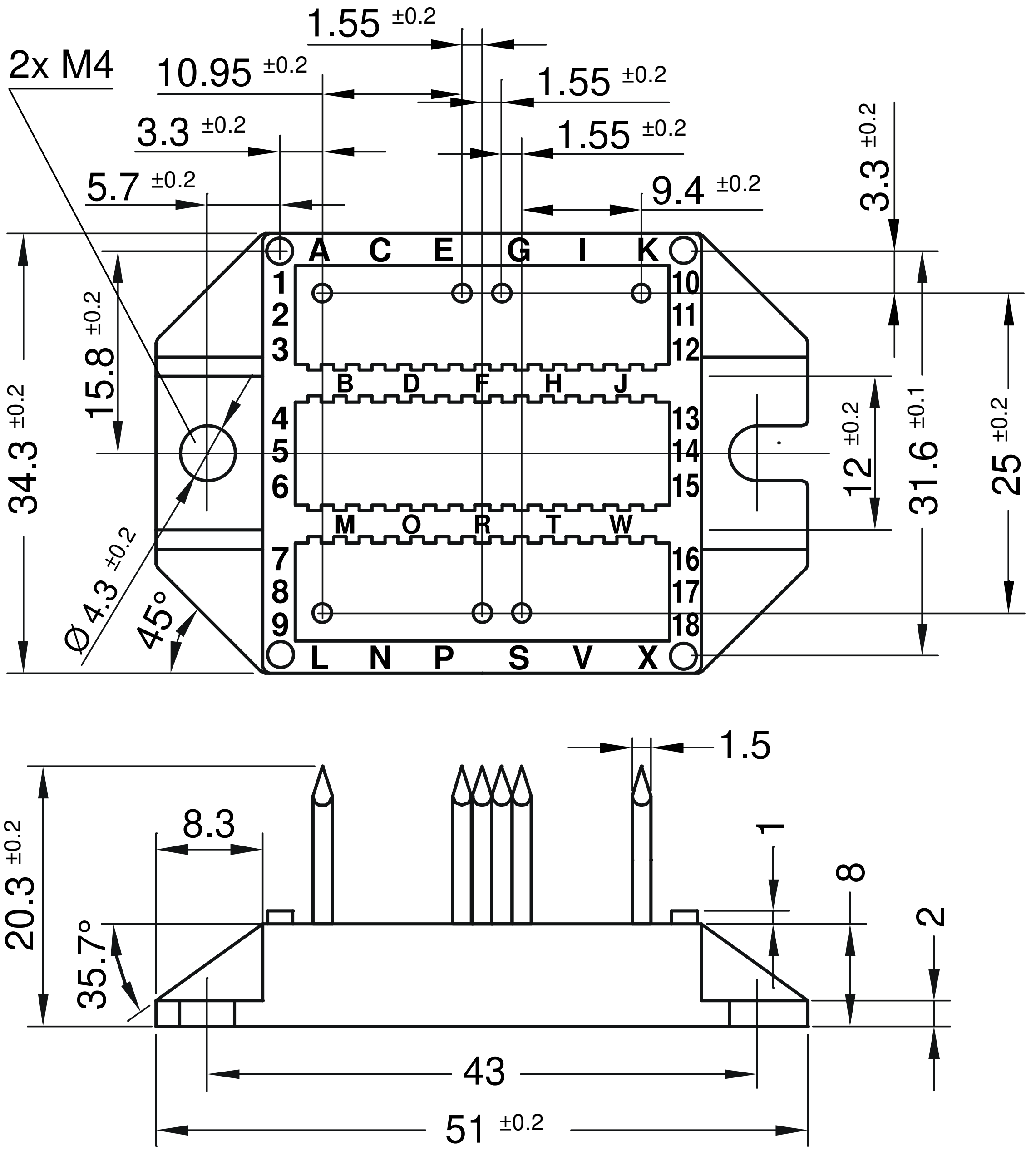
* *on die level* $T_{VJ} = 150°C$

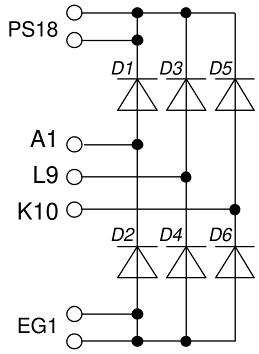


		Rectifier	
$V_{0\,max}$	*threshold voltage*	0.8	V
$R_{0\,max}$	*slope resistance **	3.4	mΩ

© 2019 IXYS all rights reserved

Outlines ECO-PAC2





© 2019 IXYS all rights reserved

Rectifier

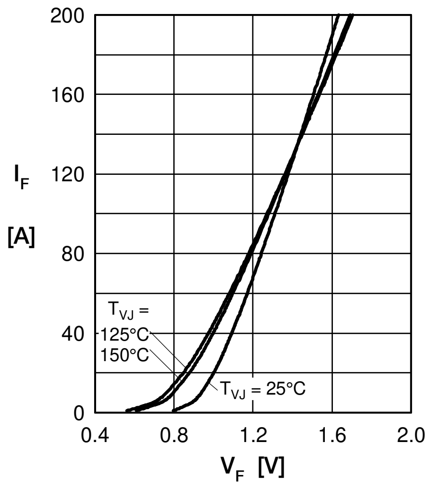


Fig. 1 Forward current vs. voltage drop per diode

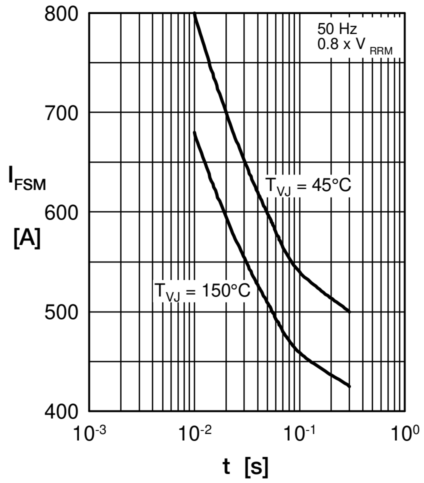


Fig. 2 Surge overload current vs. time per diode

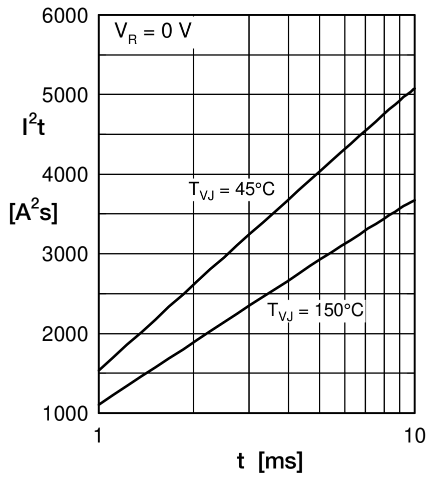


Fig. 3 I^2t vs. time per diode

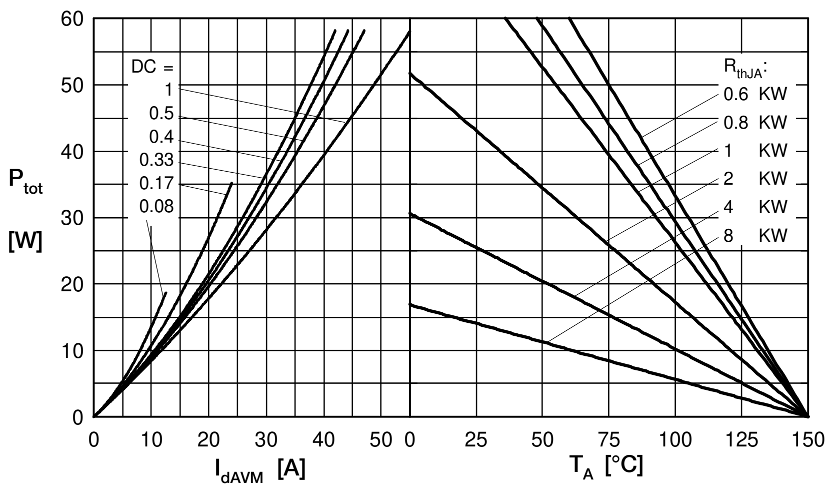


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

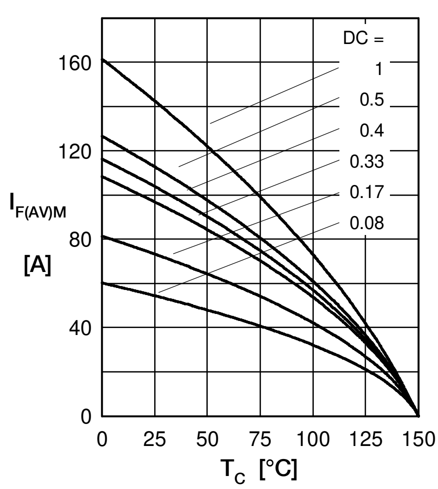


Fig. 5 Max. forward current vs. case temperature per diode

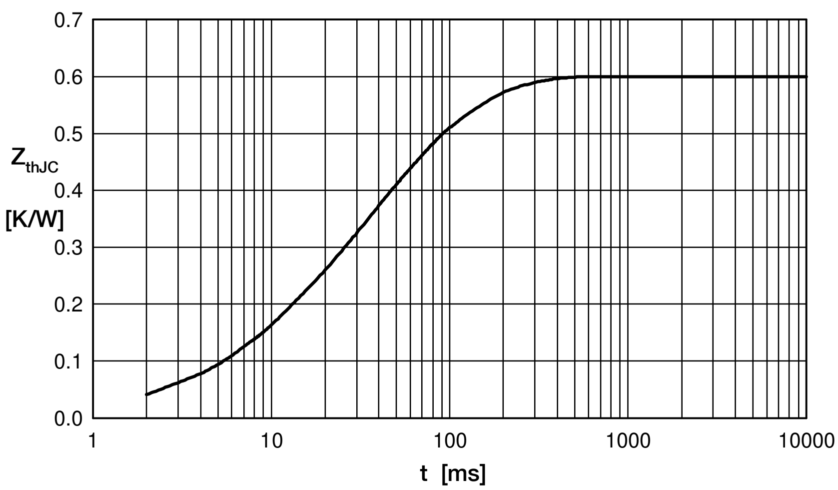


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.08	0.012
2	0.04	0.007
3	0.29	0.036
4	0.19	0.102

© 2019 IXYS all rights reserved