Standard Rectifier Module

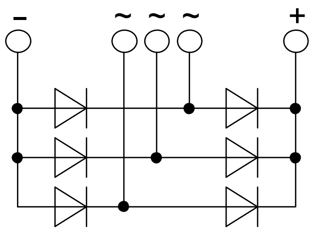
3~ Rectifier		
V_{RRM}	=	1800 V
I_{DAV}	=	60 A
I_{FSM}	=	550 A

3~ Rectifier Bridge

Part number

VUO62-18NO7

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:

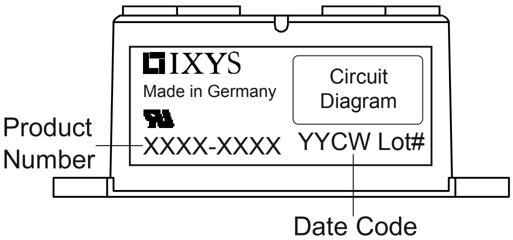
- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: PWS-D

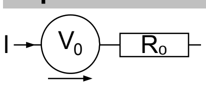
- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			1900	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1800	V
I_R	*reverse current*	V_R = 1800 V	T_{VJ} = 25°C			40	µA
		V_R = 1800 V	T_{VJ} = 150°C			1.5	mA
V_F	*forward voltage drop*	I_F = 20 A	T_{VJ} = 25°C			1.07	V
		I_F = 60 A				1.30	V
		I_F = 20 A	T_{VJ} = 125 °C			0.96	V
		I_F = 60 A				1.27	V
I_{DAV}	*bridge output current*	T_C = 120°C rectangular d = ⅓	T_{VJ} = 150°C			60	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.78	V
r_F	*slope resistance*					8.1	mΩ
R_{thJC}	*thermal resistance junction to case*					1.1	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.4		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			110	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			550	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			595	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			470	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			505	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			1.52	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			1.48	kA²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			1.11	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			1.06	kA²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		19		pF

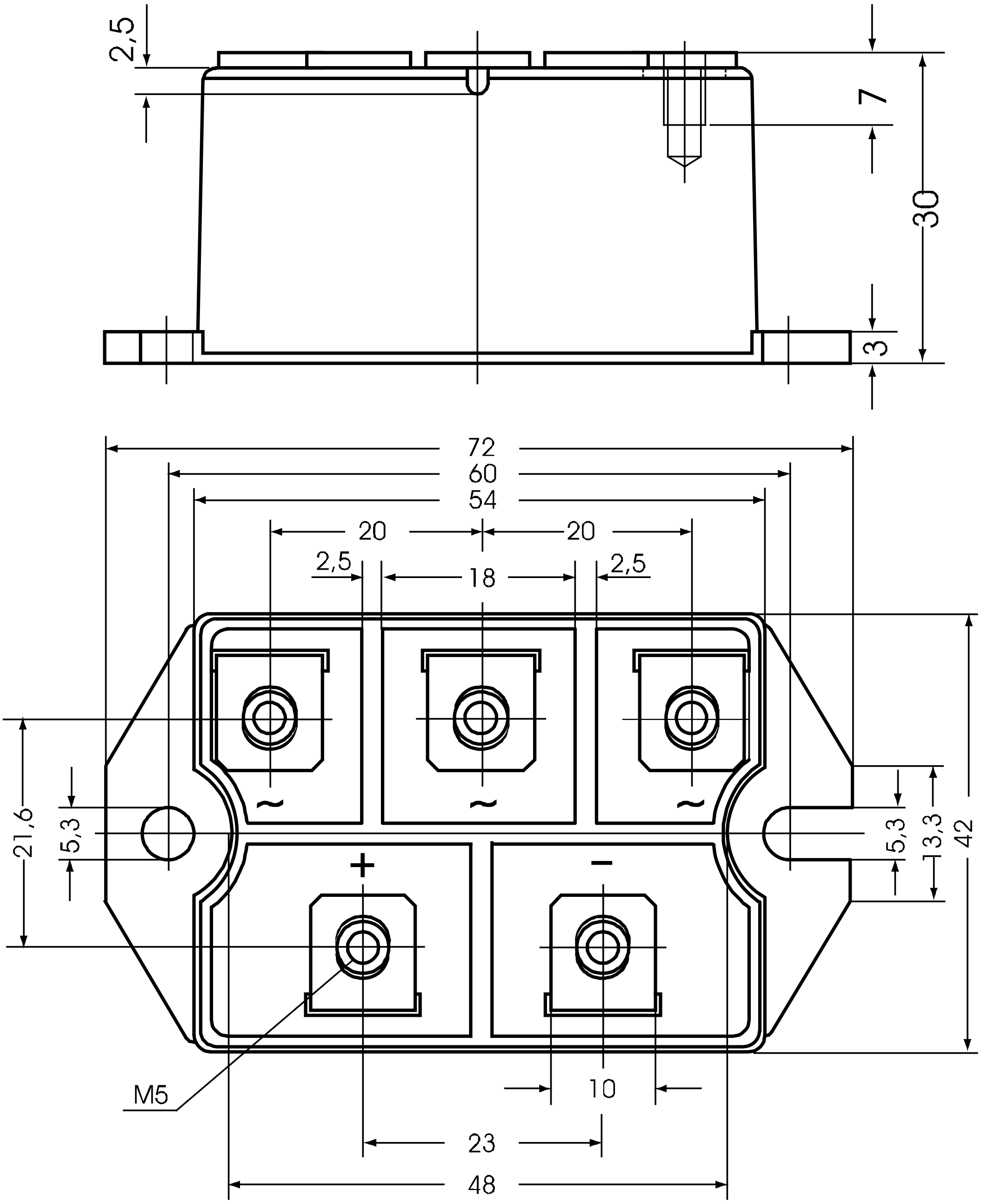
Package PWS-D				Ratings		
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal			150	A
T_{stg}	*storage temperature*		-40		125	°C
T_{VJ}	*virtual junction temperature*		-40		150	°C
Weight				159		g
M_D	*mounting torque*		4.25		5.75	Nm
M_T	*terminal torque*		4.25		5.75	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*	*terminal to terminal*	9.5			mm
$d_{Spb/Apb}$		*terminal to backside*	26.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second; 50/60 Hz, RMS; $I_{ISOL} \le 1$ mA	3000			V
		t = 1 minute	2500			V

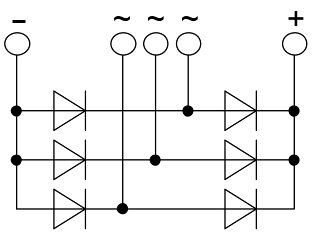


Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO62-18NO7	VUO62-18NO7	Box	10	460486

Equivalent Circuits for Simulation	** on die level*		$T_{VJ} = 150\,°C$
	**Rectifier**		
$V_{0\,max}$	*threshold voltage*	0.78	V
$R_{0\,max}$	*slope resistance **	6.9	mΩ

Outlines PWS-D





Rectifier

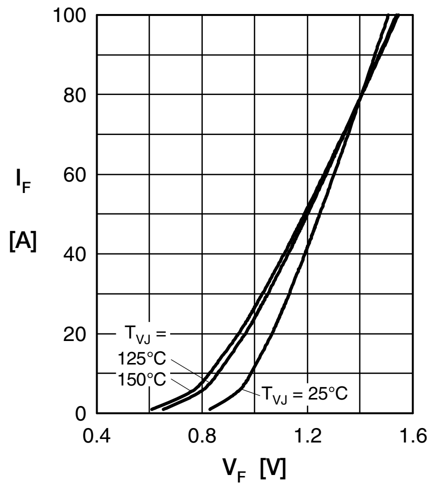


Fig. 1 Forward current vs. voltage drop per diode

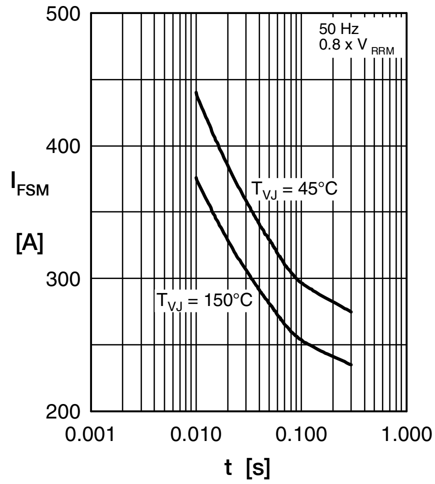


Fig. 2 Surge overload current vs. time per diode

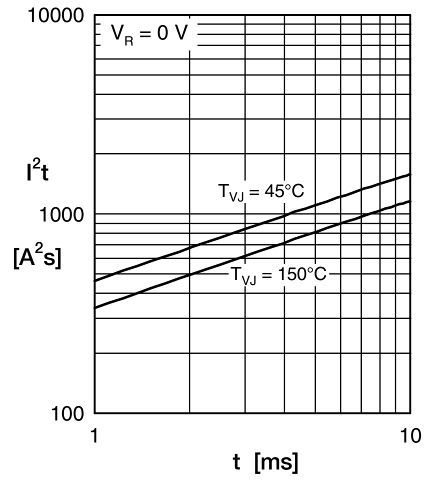


Fig. 3 I^2t vs. time per diode

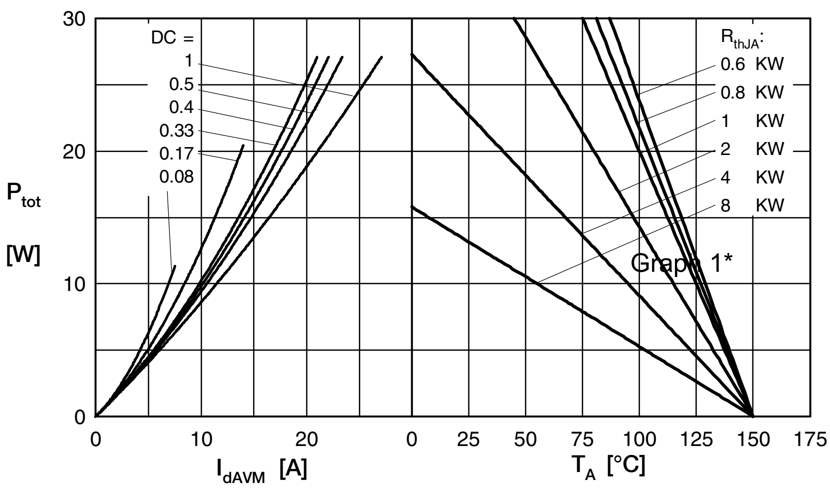


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

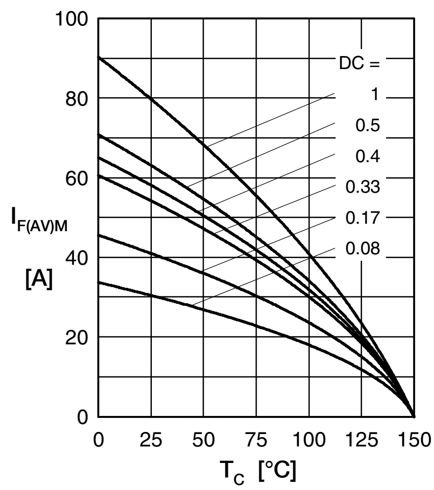


Fig. 5 Max. forward current vs. case temperature per diode

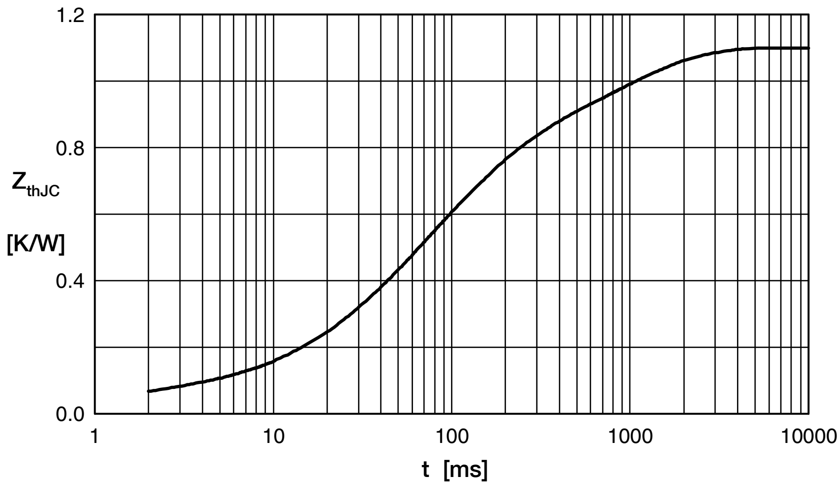


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.05	0.001
2	0.14	0.030
3	0.25	0.060
4	0.35	0.130
5	0.31	0.920