

Standard Rectifier Module

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

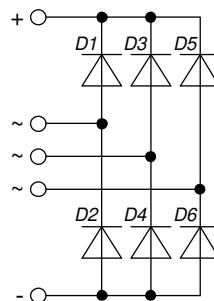
3~ Rectifier Bridge

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

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

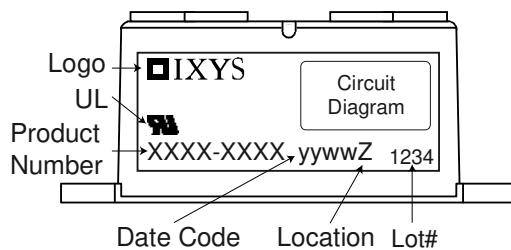
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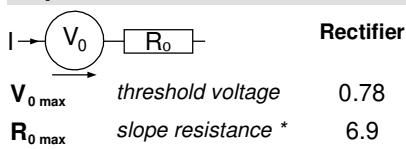
Rectifier

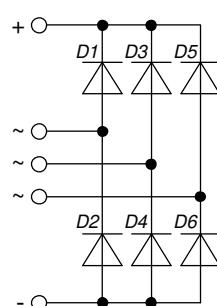
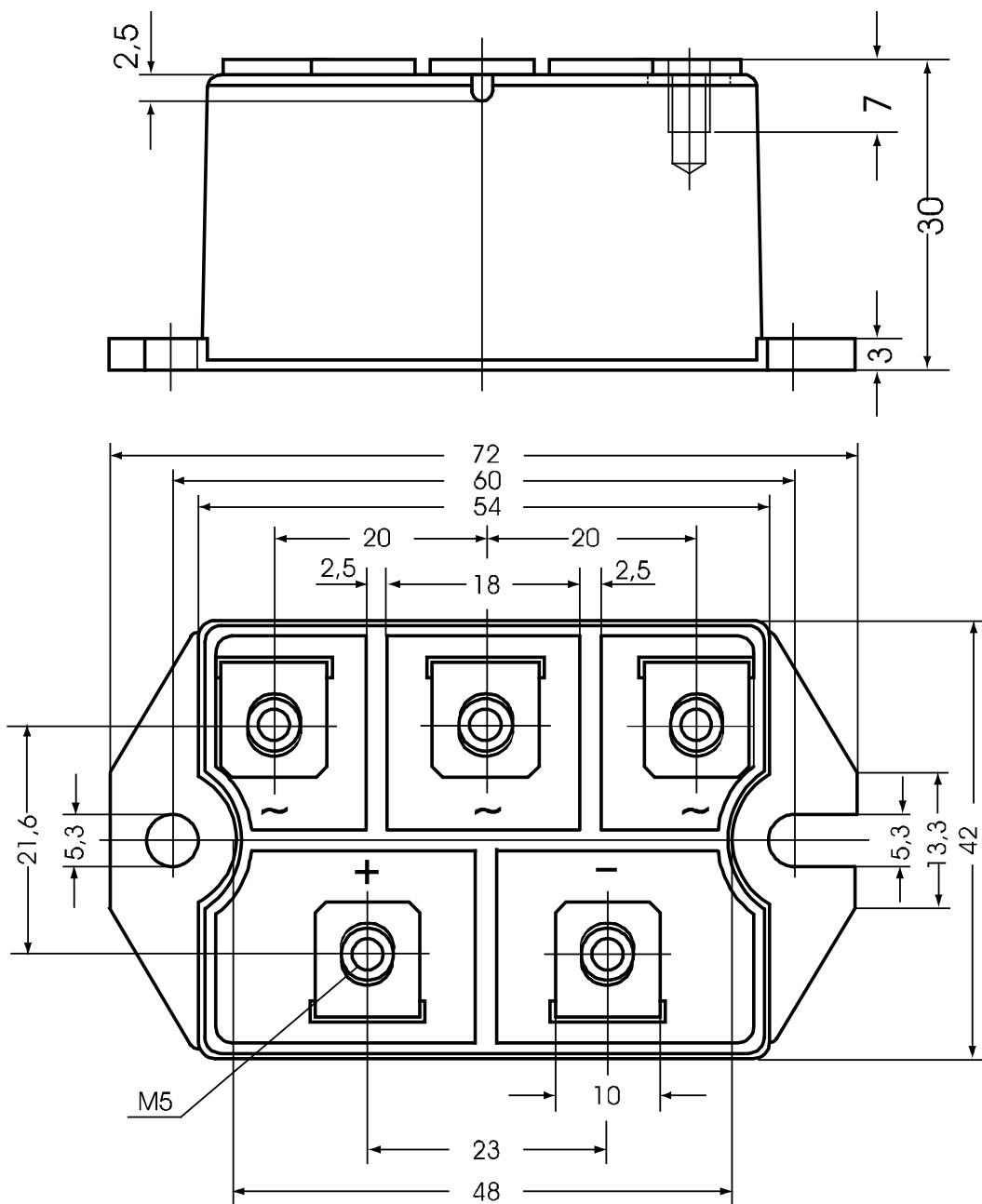
Symbol	Definition	Conditions	Ratings			
			min.	typ.	max.	
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^\circ C$			1900	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^\circ C$			1800	V
I_R	reverse current	$V_R = 1800 \text{ V}$ $V_R = 1800 \text{ V}$	$T_{VJ} = 25^\circ C$ $T_{VJ} = 150^\circ C$		40 1.5	μA mA
V_F	forward voltage drop	$I_F = 20 \text{ A}$ $I_F = 60 \text{ A}$ $I_F = 20 \text{ A}$ $I_F = 60 \text{ A}$	$T_{VJ} = 25^\circ C$ $T_{VJ} = 125^\circ C$		1.07 1.30 0.96 1.27	V V
I_{DAV}	bridge output current	$T_C = 120^\circ C$ rectangular $d = 1/3$	$T_{VJ} = 150^\circ C$		60	A
V_{F0} r_F	threshold voltage slope resistance } for power loss calculation only		$T_{VJ} = 150^\circ C$		0.78 8.1	V $m\Omega$
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		$T_C = 25^\circ C$		110	W
I_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{sine}$ $t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{sine}$ $t = 10 \text{ ms}; (50 \text{ Hz}), \text{sine}$ $t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{sine}$	$T_{VJ} = 45^\circ C$ $V_R = 0 \text{ V}$ $T_{VJ} = 150^\circ C$ $V_R = 0 \text{ V}$		550 595 470 505	A
I^2t	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{sine}$ $t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{sine}$ $t = 10 \text{ ms}; (50 \text{ Hz}), \text{sine}$ $t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{sine}$	$T_{VJ} = 45^\circ C$ $V_R = 0 \text{ V}$ $T_{VJ} = 150^\circ C$ $V_R = 0 \text{ V}$		1.52 1.48 1.11 1.06	kA ² s kA ² s kA ² s kA ² s
C_J	junction capacitance	$V_R = 400 \text{ V}; f = 1 \text{ MHz}$	$T_{VJ} = 25^\circ C$	19		pF

Package PWS-D			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			150	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		125	°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		9.5			mm
$d_{Spb/Apb}$	terminal to terminal terminal to backside		26.0			mm
V_{ISOL}	isolation voltage	t = 1 second t = 1 minute	3000 50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500		V V



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

Equivalent Circuits for Simulation
* on die level
 $T_{VJ} = 150^\circ\text{C}$


Outlines PWS-D


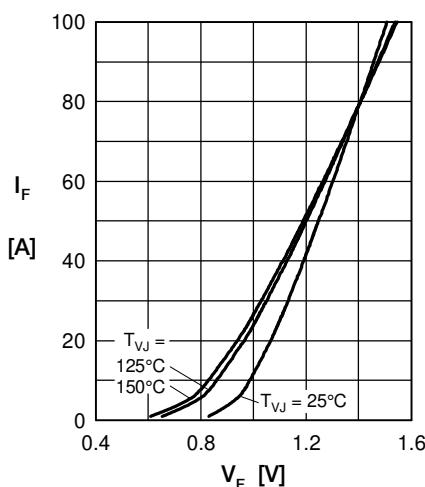
Rectifier


Fig. 1 Forward current vs.
voltage drop per diode

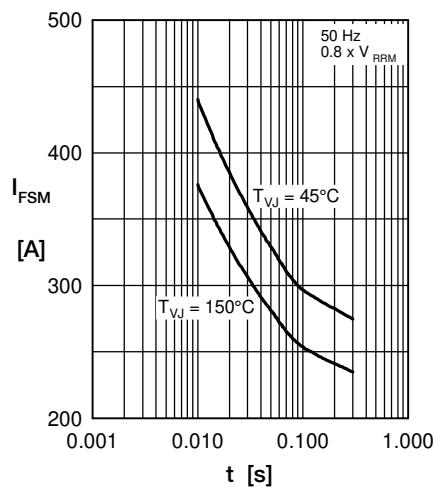


Fig. 2 Surge overload current
vs. time per diode

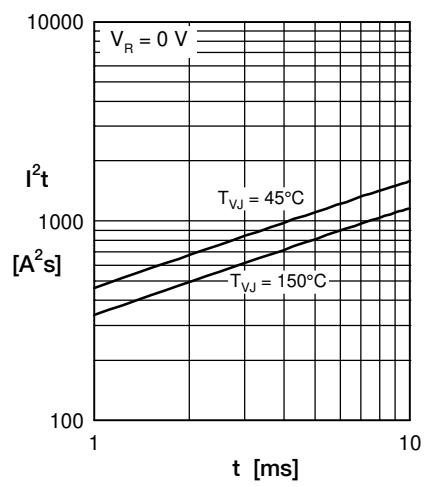


Fig. 3 I^2t vs. time per diode

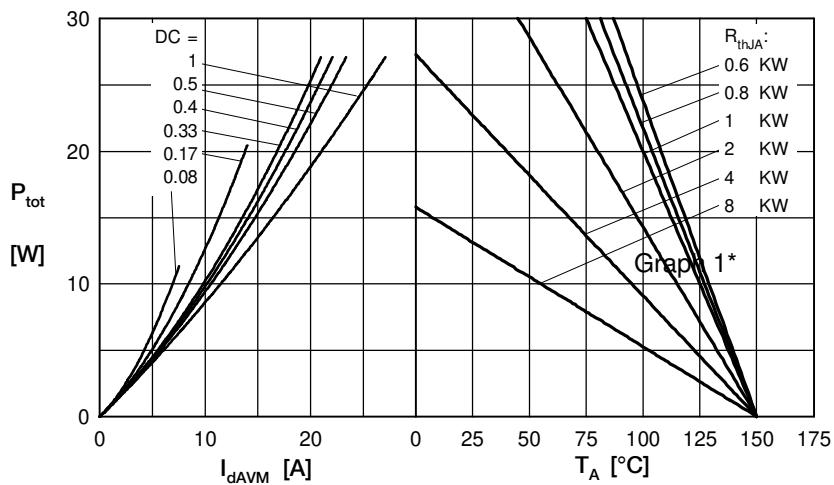


Fig. 4 Power dissipation vs. forward current
and ambient temperature per diode

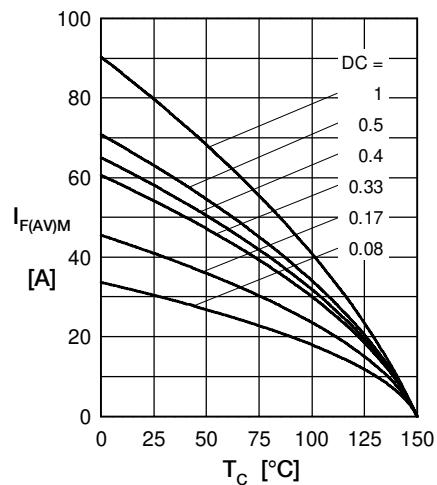


Fig. 5 Max. forward current vs.
case temperature per diode

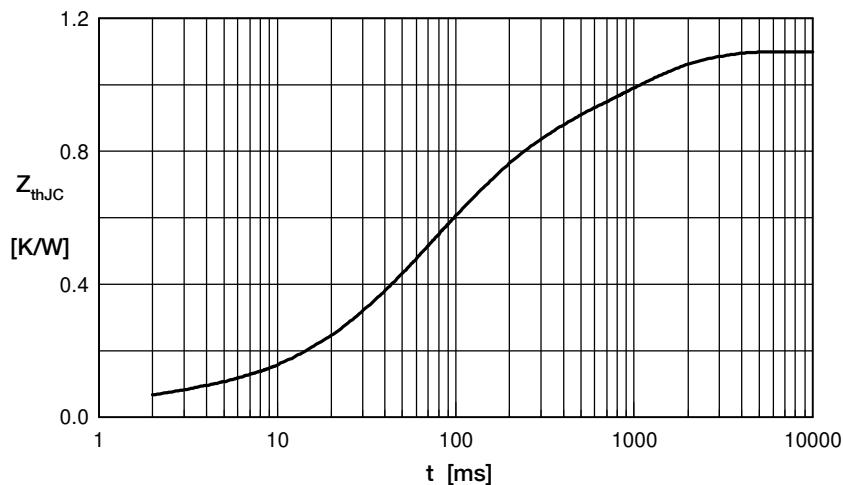


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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