

Standard Rectifier Module

3~ Rectifier	
V_{RRM}	= 800 V
I_{DAV}	= 90 A
I_{FSM}	= 750 A

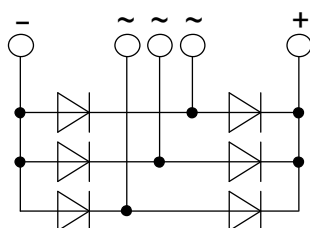
3~ Rectifier Bridge

Part number

VUO82-08NO7



 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:

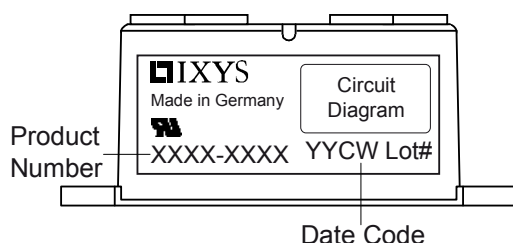
- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

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	$T_{VJ} = 25^{\circ}\text{C}$				900	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				800	V
I_R	reverse current	$V_R = 800\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			100	μA
		$V_R = 800\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			1.5	mA
V_F	forward voltage drop	$I_F = 30\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.08	V
		$I_F = 90\text{ A}$				1.35	V
		$I_F = 30\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0.99	V
		$I_F = 90\text{ A}$				1.33	V
I_{DAV}	bridge output current	$T_C = 115^{\circ}\text{C}$	$T_{VJ} = 150^{\circ}\text{C}$			90	A
		rectangular $d = \frac{1}{3}$					
V_{FO}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}\text{C}$		0.78	V
r_F	slope resistance					6	m Ω
R_{thJC}	thermal resistance junction to case					0.9	K/W
R_{thCH}	thermal resistance case to heatsink				0.4		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				135	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			750	A
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			810	A
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			640	A
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			690	A
I^2t	value for fusing	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			2.82	kA ² s
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			2.73	kA ² s
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			2.05	kA ² s
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			1.98	kA ² s
C_J	junction capacitance	$V_R = 400\text{ V}; f = 1\text{ MHz}$			27		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	3000			V
		t = 1 minute	2500			V

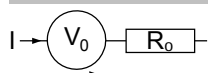


Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO82-08NO7	VUO82-08NO7	Box	10	460400

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^\circ\text{C}$



Rectifier

$V_{0\max}$	threshold voltage	0.78	V
$R_{0\max}$	slope resistance *	4.8	mΩ

Technical drawing of a power supply unit, showing front, top, and side views with dimensions and a circuit diagram.

Front View Dimensions:

- Overall width: 48
- Overall height: 30
- Top flange thickness: 2,5
- Bottom flange thickness: 3
- Internal width (between mounting holes): 60
- Internal height (between mounting holes): 7

Top View Dimensions:

- Overall width: 72
- Overall height: 42
- Mounting hole diameter: 5,3
- Distance between mounting holes (center-to-center): 20
- Distance between mounting holes (edge-to-edge): 18
- Distance from mounting hole to center of terminal block: 2,5
- Distance from mounting hole to center of terminal block (edge-to-edge): 10
- Distance from mounting hole to center of terminal block (edge-to-edge): 23
- Distance from mounting hole to center of terminal block (edge-to-edge): 48
- Distance from mounting hole to center of terminal block (edge-to-edge): 54
- Distance from mounting hole to center of terminal block (edge-to-edge): 60
- Distance from mounting hole to center of terminal block (edge-to-edge): 72

Circuit Diagram:

The circuit diagram shows a full-bridge rectifier circuit. It consists of four diodes connected in a bridge configuration. The input terminals are labeled with a minus sign (-) and a plus sign (+). The output terminals are labeled with a minus sign (-) and a plus sign (+). The diodes are connected to the input and output terminals as follows:

- The top-left diode is connected to the input minus terminal and the output minus terminal.
- The top-right diode is connected to the input plus terminal and the output minus terminal.
- The bottom-left diode is connected to the input minus terminal and the output plus terminal.
- The bottom-right diode is connected to the input plus terminal and the output plus terminal.

Rectifier

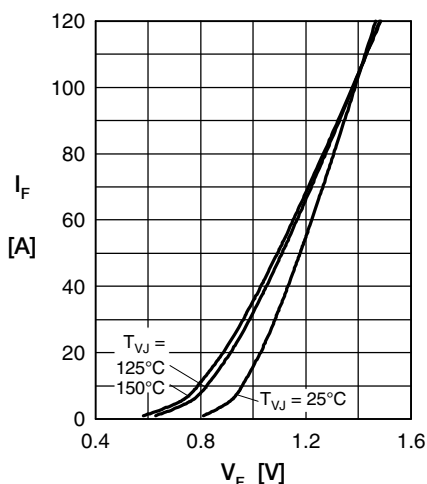


Fig. 1 Forward current versus voltage drop per diode

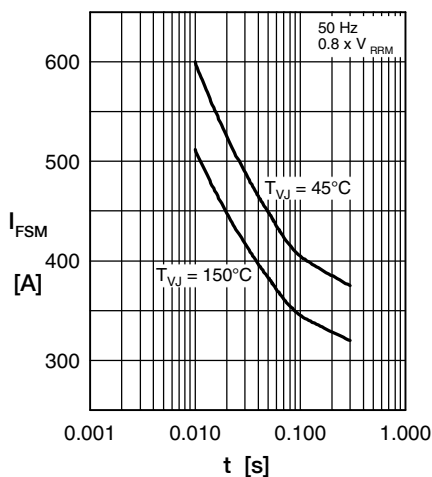


Fig. 2 Surge overload current

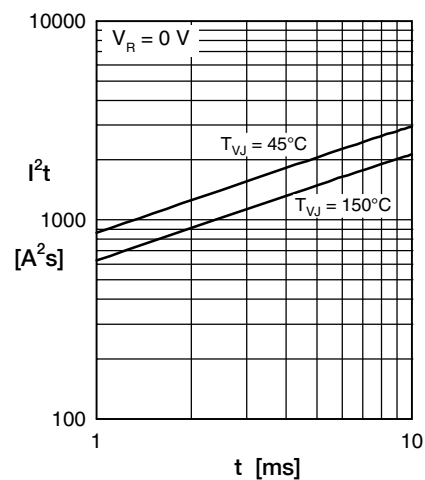


Fig. 3 I^2t versus time per diode

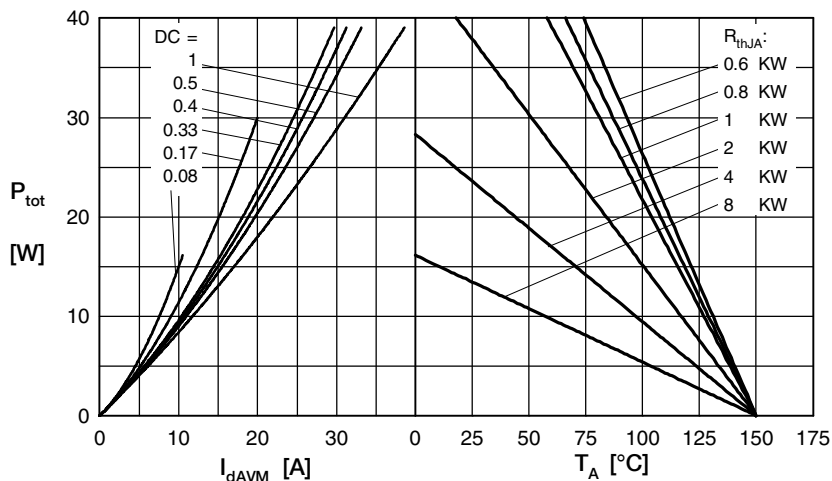


Fig. 4 Power dissipation vs. direct output current & ambient temperature

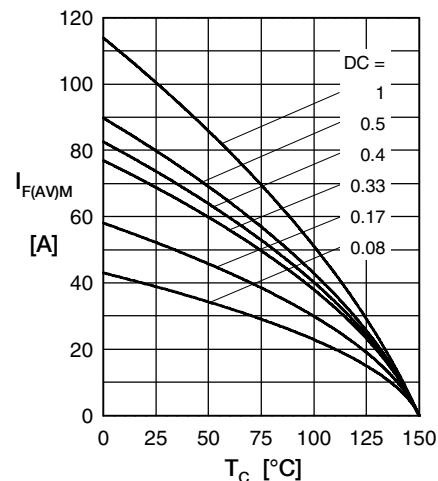


Fig. 5 Max. forward current vs. case temperature

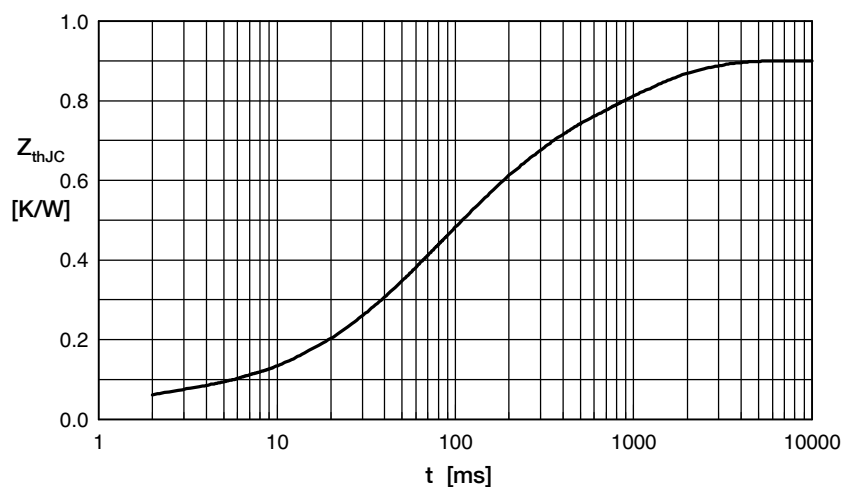


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.05	0.001
2	0.14	0.030
3	0.18	0.070
4	0.28	0.150
5	0.25	0.950

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[IXYS:](#)

[VUO82-08NO7](#)