



IXYS VUO82-16NO7 Standard Rectifier Module Owner’s Manual

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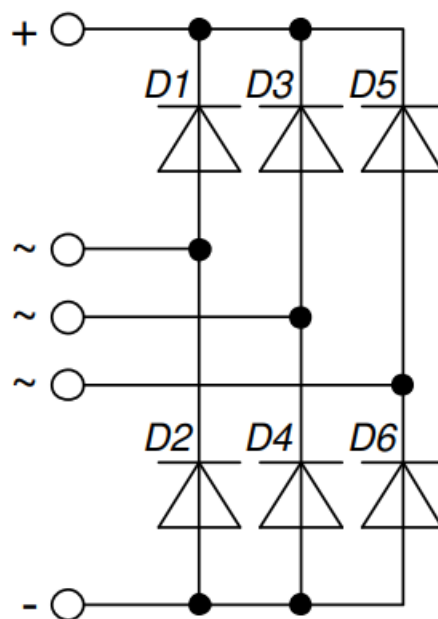


VUO82-16NO7
Standard Rectifier Module
3~ Rectifier Bridge
Part number
VUO82-16NO7

3~ Rectifier	
V_{RRM}	= 1600 V
I_{DAV}	= 90 A
I_{FSM}	= 750 A



RL E72873



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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

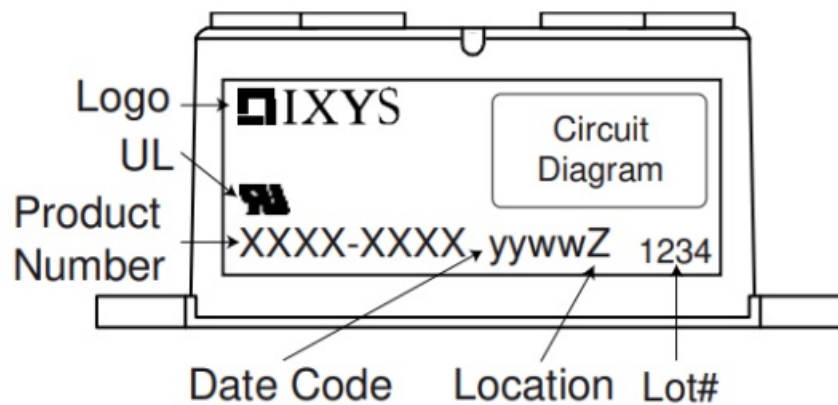
- Isolation Voltage: V~ 3000
- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

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Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RRM}	max. non-repetitive reverse blocking voltage		$T_{VJ} = 25^{\circ}\text{C}$			1700	V
V_{RSM}	max. repetitive reverse blocking voltage		$T_{VJ} = 25^{\circ}\text{C}$			1600	V
I_R	reverse current	$V_R = 1600\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			100	μA
		$V_R = 1600\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			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	$T_C = 115^{\circ}\text{C}$ rectangular $d = 1/2$	$T_{VJ} = 150^{\circ}\text{C}$			90	A
V_{FS}	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_{SM}	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	$V_R = 400\text{ V}; f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		27		pF

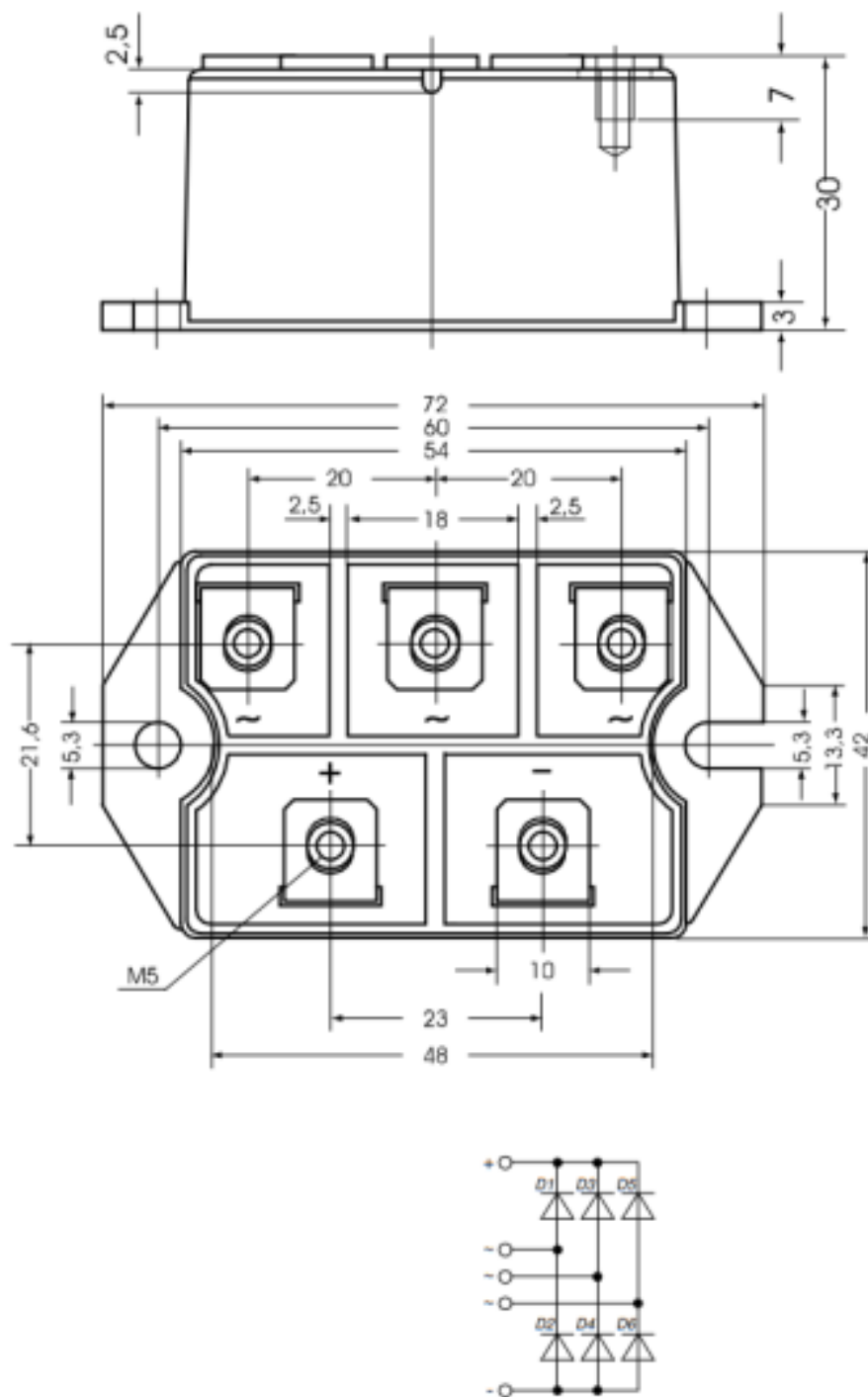
Package PWS-D			Ratings		
Symbol	Definition	Conditions	min.	typ.	max. Unit
I_{RMS}	RMS current	per terminal			150 A
T_{vj}	virtual junction temperature		-40		150 °C
T_{op}	operation temperature		-40		125 °C
T_{stg}	storage temperature		-40		125 °C
Weight				159	g
M_b	mounting torque		4.25		5.75 Nm
M_t	terminal torque		4.25		5.75 Nm
$d_{app/typ}$	creepage distance on surface / striking distance through air		terminal to terminal		9.5 mm
$d_{stg/typ}$			terminal to backside		26.0 mm
V_{ISOL}	isolation voltage	t = 1 second	3000		V
		t = 1 minute	2500		V



Ordering	Ordering Number	Marking on Product	Delivery Mod	Quantity	Code No.
Standard	VUO82-16NO7	VUO82-16NO7	Box	10	504848

Equivalent Circuits for Simulation			* on die level	$T_{vj} = 150^{\circ}\text{C}$
$I \rightarrow V_0 \rightarrow R_0$	Rectifier			
$V_{0\max}$	threshold voltage	0.78		V
$R_{0\max}$	slope resistance *	4.8		mΩ

Outlines PWS-D



Rectifier

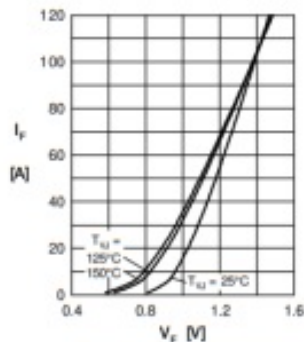


Fig. 1 Forward current versus voltage drop per diode

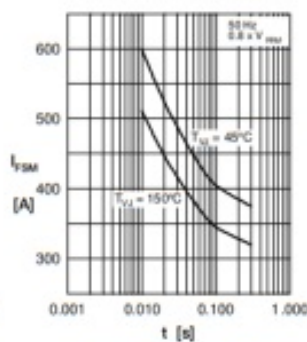


Fig. 2 Surge overload current

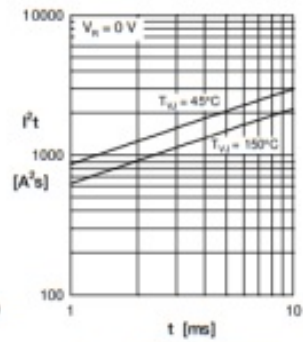


Fig. 3 I^2t versus time per diode

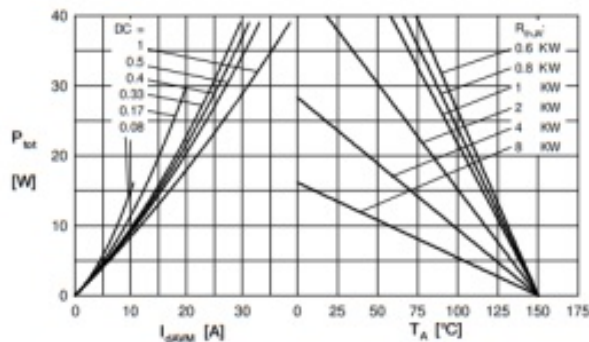


Fig. 4 Power dissipation vs. direct output current & ambient temperature

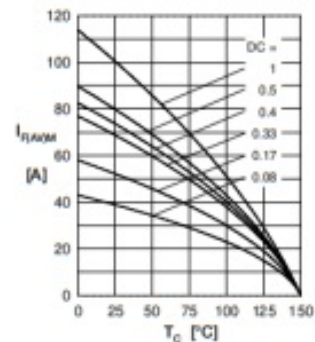


Fig. 5 Max. forward current vs. case temperature

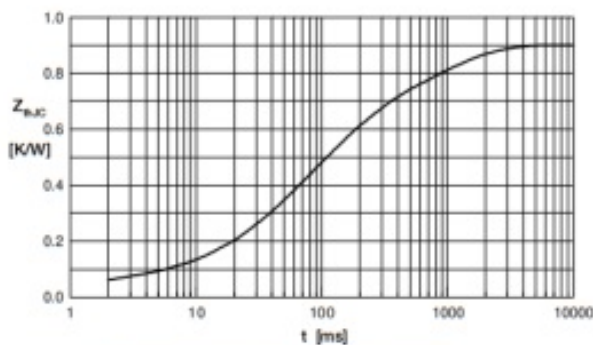


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

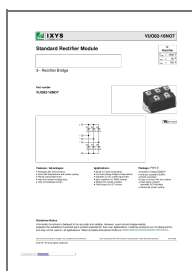
i	R_{th} (K/W)	t_i (s)
1	0.05	0.001
2	0.14	0.030
3	0.18	0.070
4	0.28	0.150
5	0.25	0.950

IXYS reserves the right to change limits, conditions and dimensions.
Data according to IEC 60747 and per semiconductor unless otherwise specified
20191220b

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Documents / Resources



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VUO82-16NO7 Standard Rectifier Module, VUO82-16NO7, Standard Rectifier Module, Rectifier Module, Module

References

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