



**MIXYS
VUO160-16NO7
Standard
Rectifier Module**



MIXYS VUO160-16NO7 Standard Rectifier Module Instruction Manual

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MIXYS VUO160-16NO7 Standard Rectifier Module



Specifications

- Part Number: VUO160-16NO7
- Rectifier Type: 3~ Rectifier Bridge
- Maximum Voltage Rating (VRRM): 1600 V
- Maximum Current Rating (IDAV): 175 A
- Maximum Surge Current (IFSM): 1800 A
- Package Type: PWS-E
- Isolation Voltage: 3000 V~

Frequently Asked Questions

Q: What is the maximum reverse blocking voltage of the rectifier?

A: The maximum non-repetitive reverse blocking voltage is 1600 V.

Q: How should I mount the rectifier?

A: Use two screws to securely mount the rectifier following the specified torque values.

Q: What are the applications of this rectifier?

A: This rectifier can be used for main rectification, in three-phase bridge configurations, DC power supplies, PWM inverters, battery supplies, and field supply for DC motors.

Q: What is the isolation voltage of the rectifier?

A: The rectifier has an isolation voltage of 3000 V~.

Q: How do I ensure proper product selection for my application?

A: Independently evaluate the suitability of the product for your specific application and test it accordingly.

3~ Rectifier Bridge

3~ Rectifier

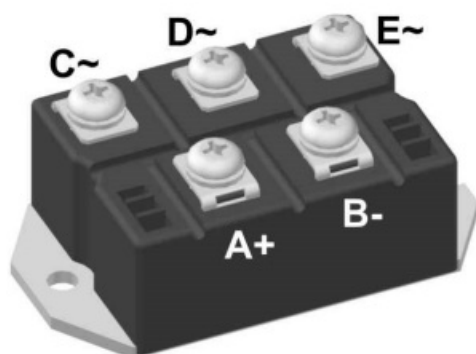
$V_{RRM} = 1600 \text{ V}$

$I_{DAV} = 175 \text{ A}$

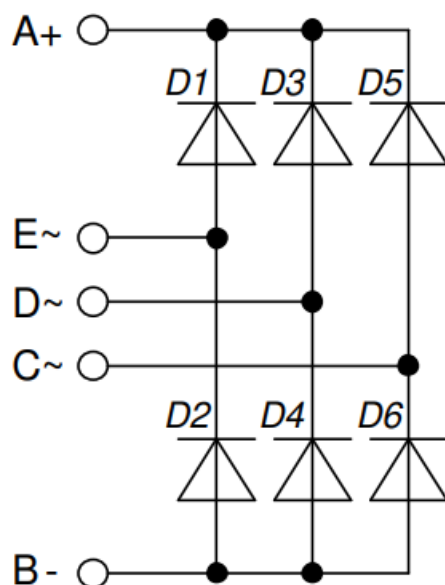
$I_{FSM} = 1800 \text{ A}$

Part number

VUO160-16NO7



 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

PWS-E

- Isolation Voltage: 3 0 0 0 V~
- Industry-standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Disclaimer Notice

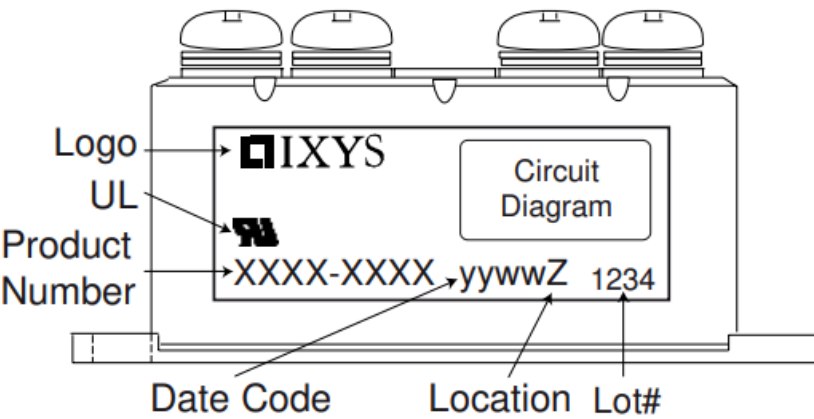
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Rectifier

Rectifier				Ratings			
Sym bol	Definition	Conditions		mi n.	ty p.	ma x.	U ni t
V_{RS} M	<i>max. non-repetitive reverse blocking voltage</i>	TVJ	= 25 °C			17 00	V
V_{RR} M	<i>max. repetitive reverse blocking voltage</i>	TVJ	= 25 °C			16 00	V
I_R	<i>reverse current</i>	TVJ	= 25 °C			20 0	μ A
	V _R = 1600 V	TVJ	= 15 0°C			2	m A

VF		<i>forward voltage drop</i>	$I_F = 60\text{ A}$ $= 25^\circ\text{C}$		T_{VJ}			1.1 0	V
			$I_F = 180\text{ A}$					1.4 0	V
			$I_F = 60\text{ A}$ $= 125\text{ }^\circ\text{C}$		T_{VJ}			1.0 0	V
			$I_F = 180\text{ A}$					1.3 9	V
I DA V	<i>bridge output current</i> rectangular $d = \frac{1}{3}$		$T_C = 110^\circ\text{C}$		T_{VJ}	$= 15$ 0°C		17 5	A
VF0 r_F	<i>threshold voltage</i> <i>for power loss calculation only</i> <i>slope resistance</i>				T_{VJ}	$= 15$ 0°C		0.7 7 3.4	V m Ω
RthJ C	<i>thermal resistance junction to case</i>							0.5	K/ W
Rth CH	<i>thermal resistance case to heatsink</i>						0. 2		K/ W
Ptot	<i>total power dissipation</i>				T_C	$= 25$ $^\circ\text{C}$		25 0	W
IFSM <i>current</i>		<i>max. forward surge</i>	$t = 10\text{ ms; (50 Hz), sine}$ 5°C		$T_{VJ} = 4$			1.8 0	k A
			$t = 8,3\text{ ms; (60 Hz), sine}$ V		$V_R = 0$			1.9 5	k A
			$t = 10\text{ ms; (50 Hz), sine}$ 50°C		$T_{VJ} = 1$			1.5 3	k A
			$t = 8,3\text{ ms; (60 Hz), sine}$ V		$V_R = 0$			1.6 5	k A
I²t		<i>value for fusing</i>	$t = 10\text{ ms; (50 Hz), sine}$ 5°C		$T_{VJ} = 4$			16. 2	k A ² s
			$t = 8,3\text{ ms; (60 Hz), sine}$ V		$V_R = 0$			15. 7	k A ² s
			$t = 10\text{ ms; (50 Hz), sine}$ 50°C		$T_{VJ} = 1$			11. 7	k A ² s
			$t = 8,3\text{ ms; (60 Hz), sine}$ V		$V_R = 0$			11. 3	k A ² s
C_J	<i>junction capacitance</i>		$V_R = 400\text{ V; } f = 1\text{ MHz}$		T_{VJ}	$= 25$ $^\circ\text{C}$	35		p F

Package PWS-E			Ratings			
Symbol	Definition	Conditions	min .	typ.	max .	Un it
I RMS	RMS current	per terminal			200	A
T _{vJ}	virtual junction temperature		-40		150	°C
Top	operation temperature		-40		125	°C
T _{stg}	storage temperature		-40		125	°C
Weight				284		g
M _D	mounting torque		4.2 5		5.75	N m
M	terminal torque		4.2 5		5.75	N m
dSpp/App						
	terminal to terminal		12. 0			m m
	creepage distance on surface / striking distance through air		26. 0			m m
dSpb/Apb						
	terminal to backside					
V	isolation voltage	t = 1 second	300 0			V
ISOL		50/60 Hz, R	250 0			V
MS; IISOL ≤ 1 mA						
t = 1 minute						

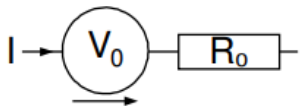


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO160-16NO7	VUO160-16NO7	Box	5	462462

Equivalent Circuits for Simulation

Equivalent Circuits for Simulation

* on die level

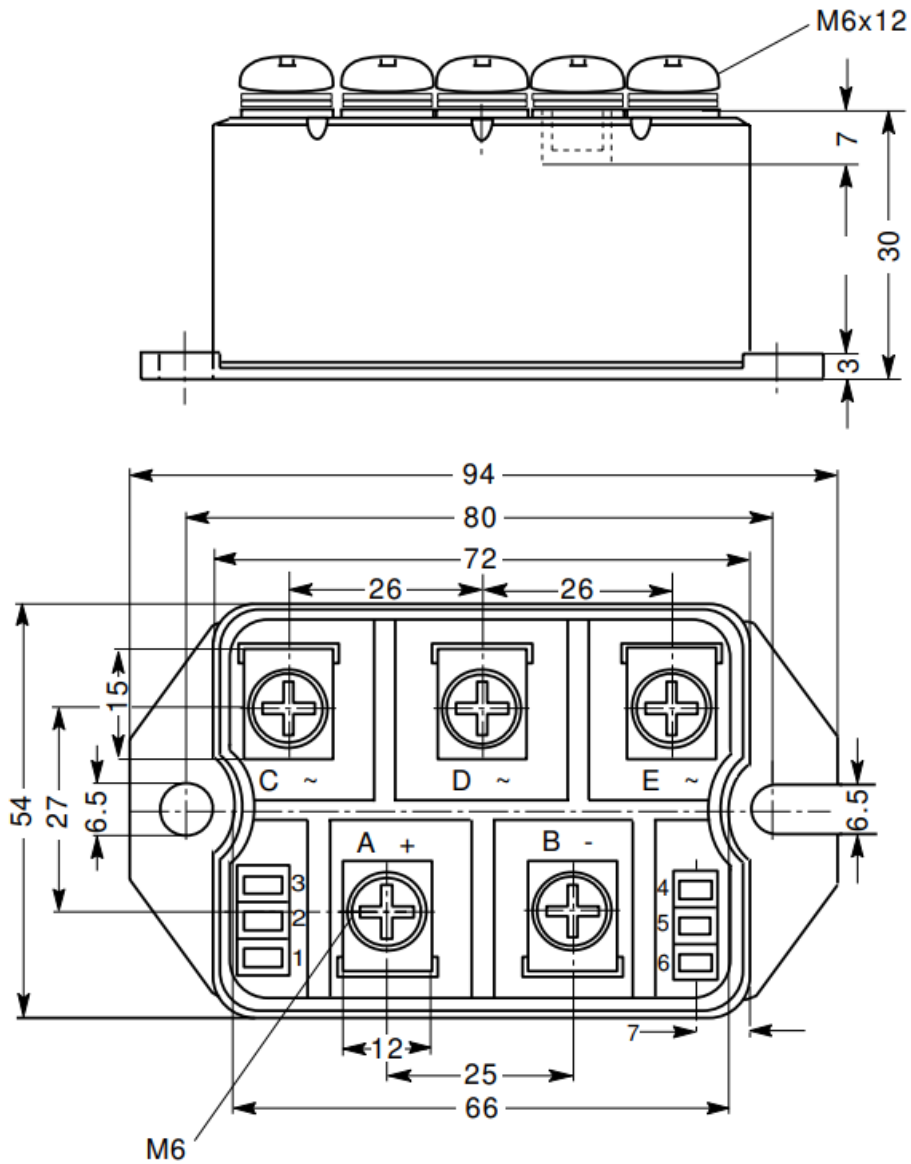
$$T_{VJ} = 150^{\circ}\text{C}$$


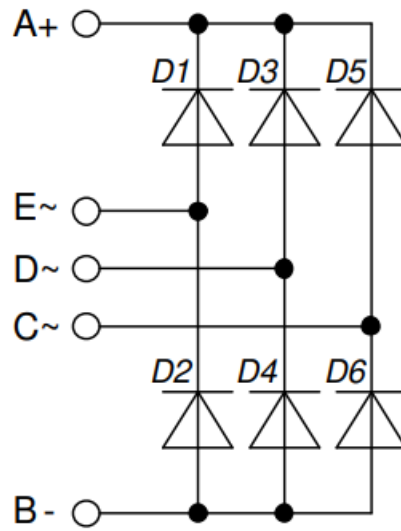
Rectifier

$V_{0 \max}$ threshold voltage 0.77

V

R_{0 max}	<i>slope resistance</i> *	2.2
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 $m\Omega$ 



Rectifier

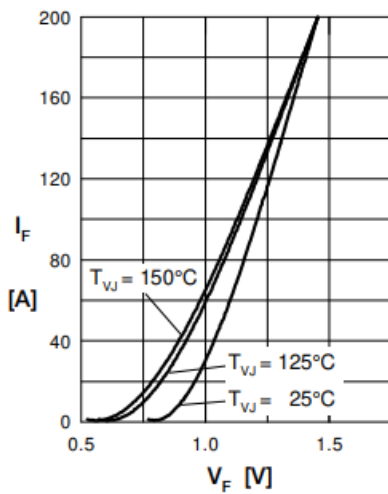


Fig. 1 Forward current vs. voltage drop per diode

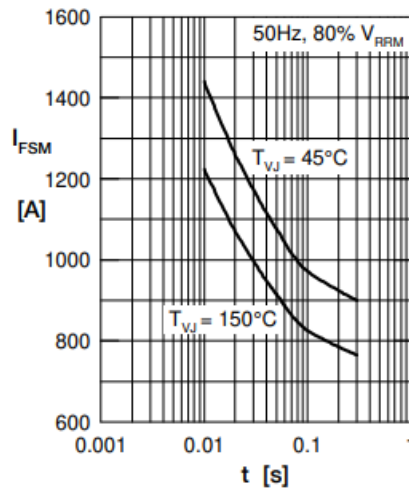


Fig. 2 Surge overload current vs. time per diode

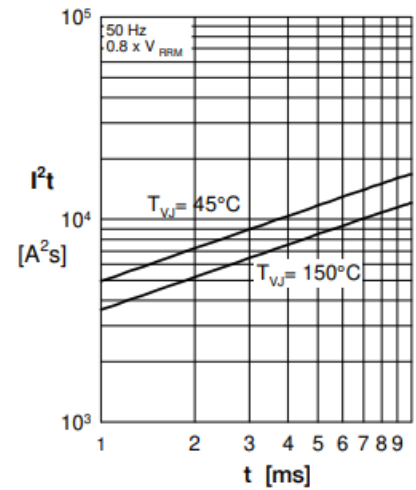


Fig. 3 I^2t vs. time per diode

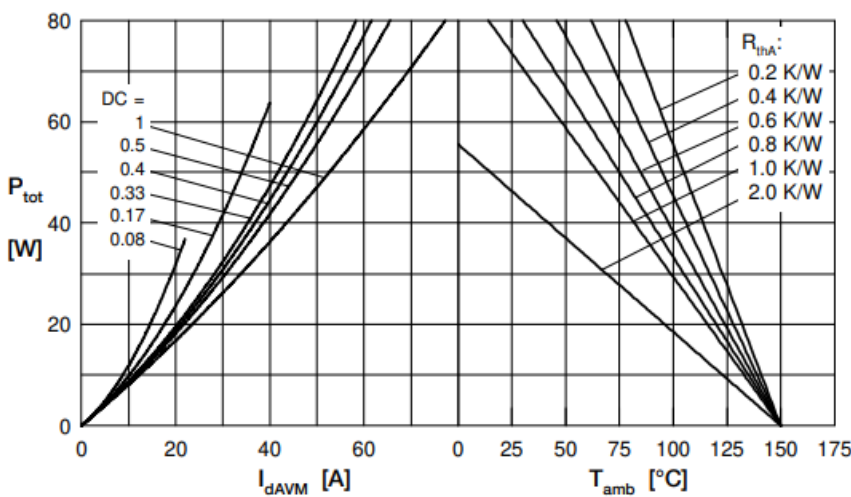


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

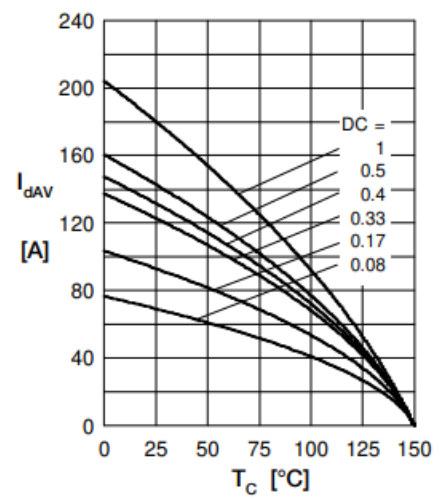


Fig. 5 Max. forward current vs. case temperature per diode

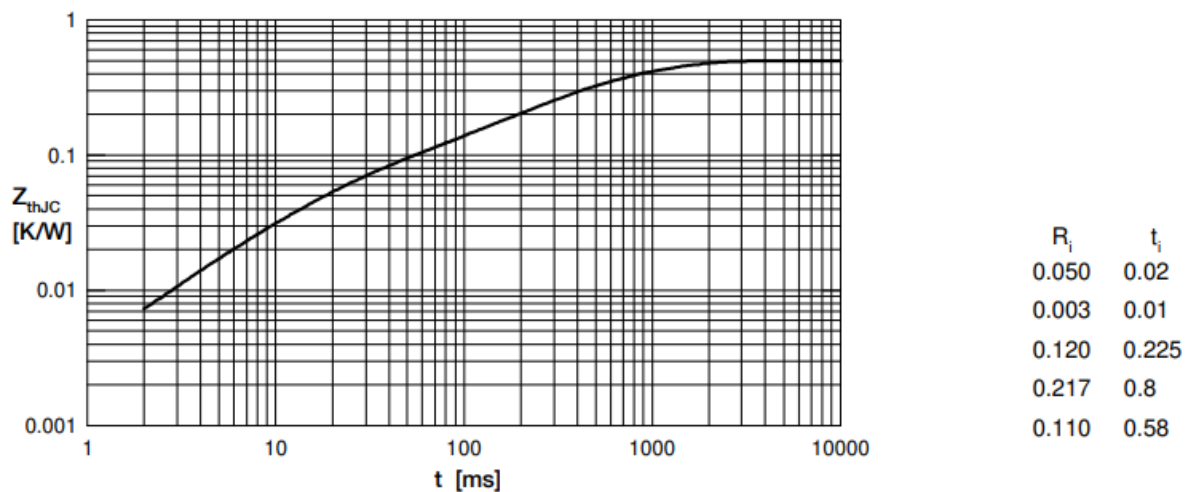
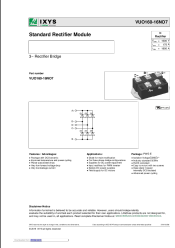


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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

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Documents / Resources



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VUO160-16NO7 Standard Rectifier Module, VUO160-16NO7, Standard Rectifier Module, Rectifier Module, Module

References

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