Standard Rectifier Module

3~ Rectifier		
V_{RRM} =	1600	V
I_{DAV} =	150	A
I_{FSM} =	1800	A

3~ Rectifier Bridge

Part number

VUO125-16NO7
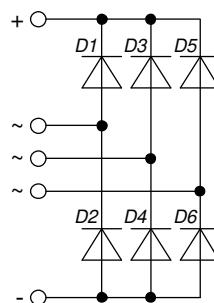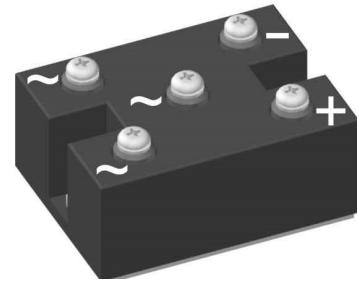
®E72873

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-C

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

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

Rectifier

Symbol	Definition	Conditions			min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage		$T_{VJ} = 25°C$				1700	V
V_{RRM}	max. repetitive reverse blocking voltage		$T_{VJ} = 25°C$				1600	V
I_R	reverse current	$V_R = 1600$ V	$T_{VJ} = 25°C$				200	μA
		$V_R = 1600$ V	$T_{VJ} = 150°C$				2	mA
V_F	forward voltage drop	$I_F = 50$ A	$T_{VJ} = 25°C$				1.07	V
		$I_F = 150$ A					1.34	V
		$I_F = 50$ A	$T_{VJ} = 125°C$				0.97	V
		$I_F = 150$ A					1.31	V
I_{DAV}	bridge output current	$T_C = 110°C$	$T_{VJ} = 150°C$				150	A
		rectangular $d = ⅓$						
V_{F0}	threshold voltage	for power loss calculation only	$T_{VJ} = 150°C$				0.76	V
r_F	slope resistance						3.6	mΩ
R_{thJC}	thermal resistance junction to case						0.6	K/W
R_{thCH}	thermal resistance case to heatsink					0.3		K/W
P_{tot}	total power dissipation		$T_C = 25°C$				205	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$				1.80	kA
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V				1.95	kA
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$				1.53	kA
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V				1.65	kA
I²t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$				16.2	kA²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V				15.7	kA²s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$				11.7	kA²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V				11.3	kA²s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz	$T_{VJ} = 25°C$			58		pF

Package **PWS-C**

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					250		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		26.0			mm
d Spb/Apb		terminal to backside		14.0			mm
V ISOL	isolation voltage	t = 1 second	50/60 Hz, RMS; I ISOL ≤ 1 mA	3000			V
		t = 1 minute		2500			V

Logo
UL
Product Number

IXYS

Circuit Diagram

XXXX-XXXX yywwZ 1234

Date Code   Location   Lot#
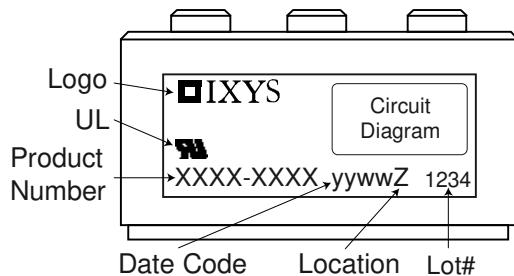
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO125-16NO7	VUO125-16NO7	Box	10	456780

Equivalent Circuits for Simulation   ** on die level* $T_{VJ} = 150°C$

I → V_0 → R_0 **Rectifier**
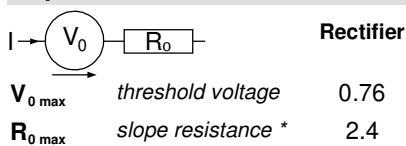
V 0 max	threshold voltage	0.76	V
R 0 max	slope resistance *	2.4	mΩ

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

![IXYS - A Littelfuse Technology]

Outlines   PWS-C

IXYS
A **Littelfuse** Technology
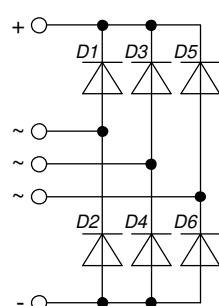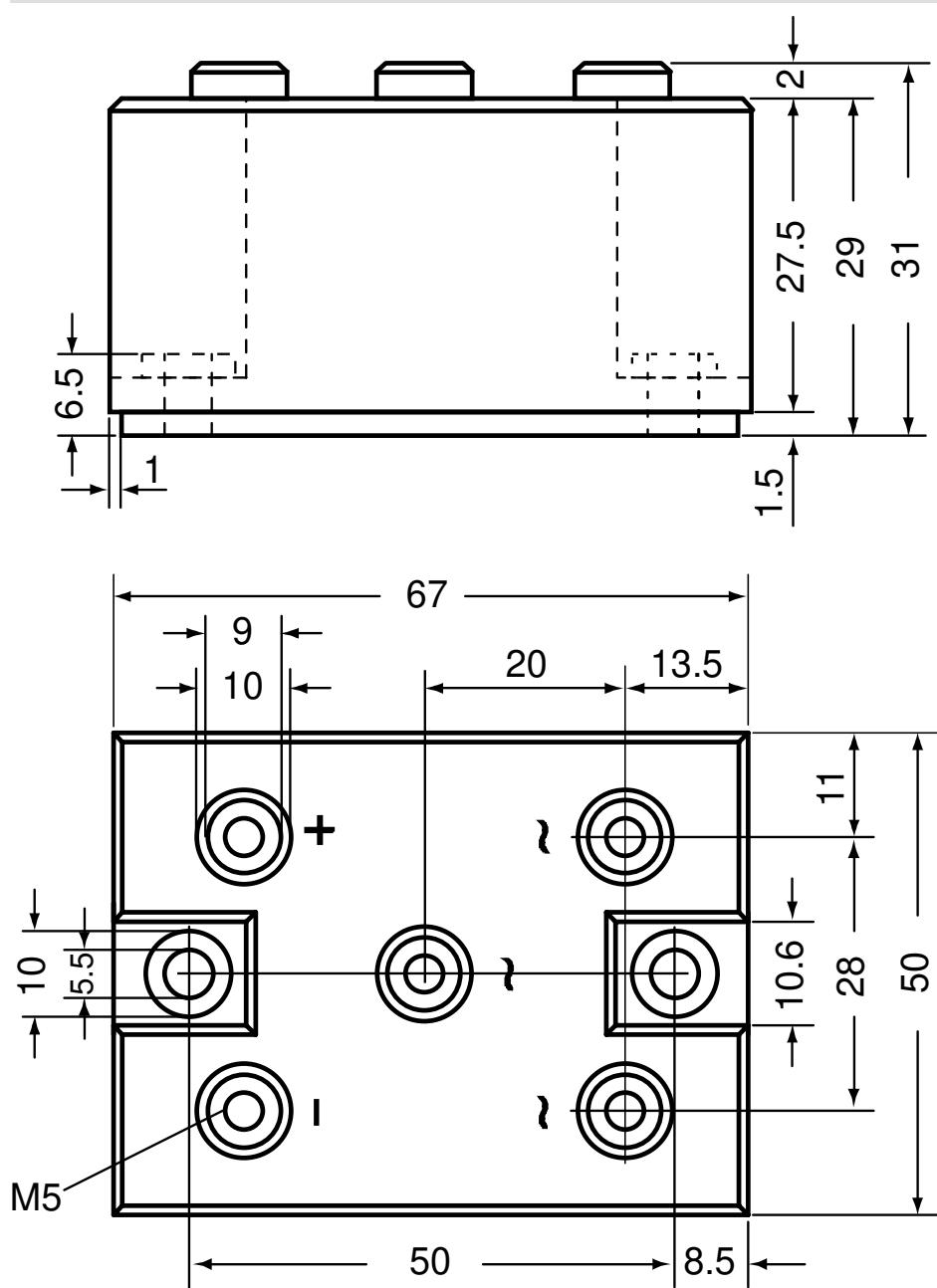
Rectifier
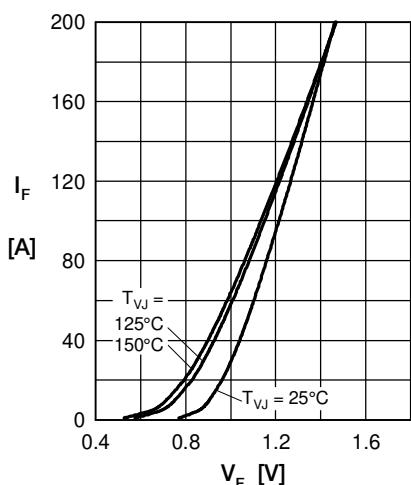
Fig. 1 Forward current versus
voltage drop per diode
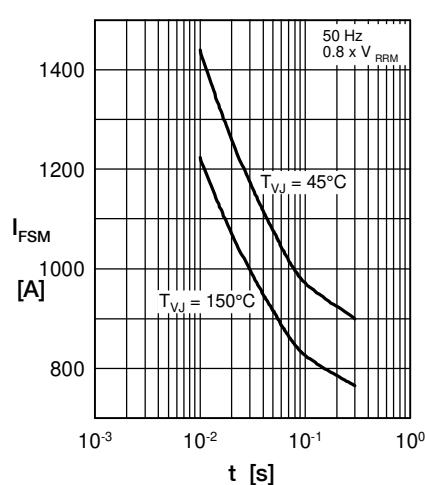
Fig. 2 Surge overload current
vs. time per diode
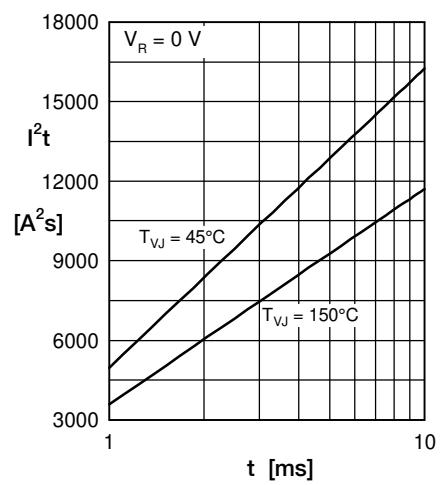


Fig. 3 I²t versus time per diode
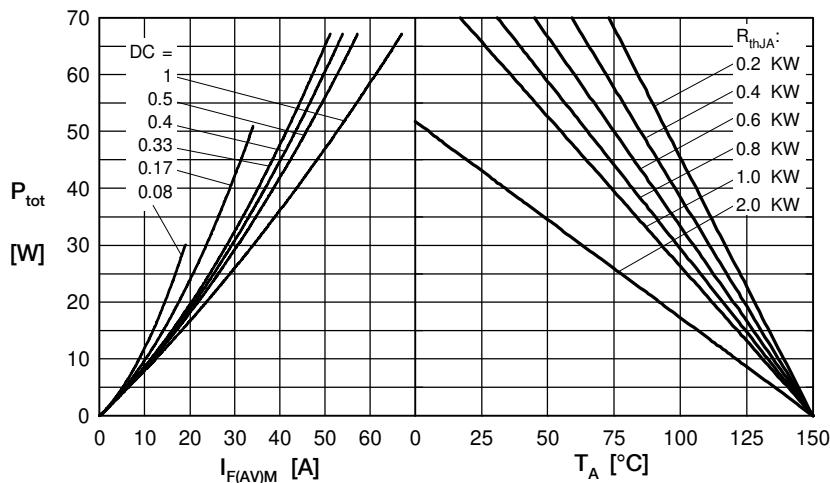
Fig. 4 Power dissipation vs. forward current
and ambient temperature per diode
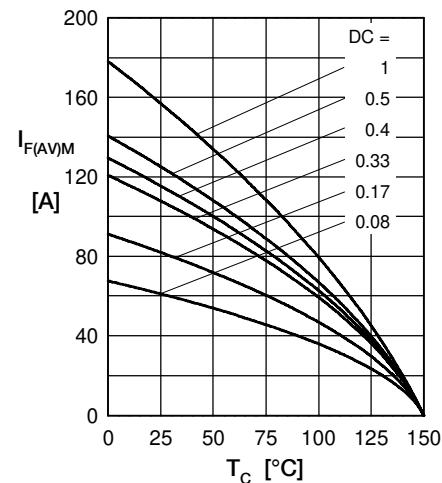
Fig. 5 Max. forward current vs.
case temperature per diode
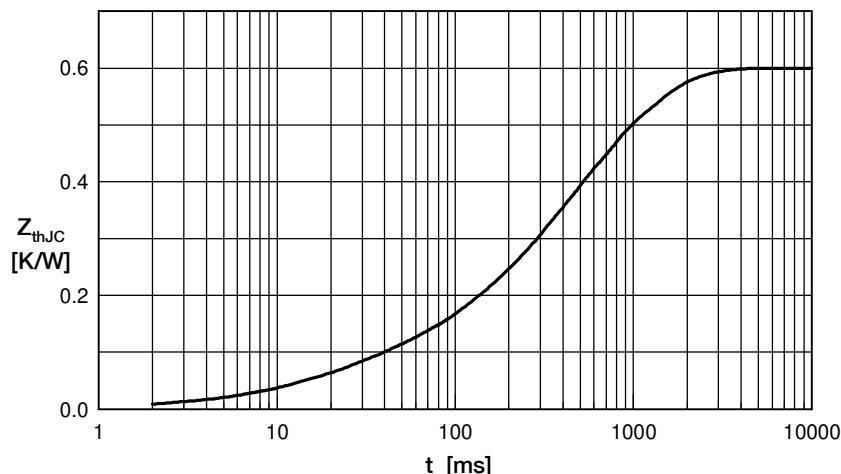
Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.060	0.020
2	0.003	0.010
3	0.150	0.225
4	0.243	0.800
5	0.144	0.580