Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	1600 V
I_{DAV}	=	60 A
I_{FSM}	=	550 A

3~ Rectifier Bridge

Part number

VUO64-16NO7

U E72873
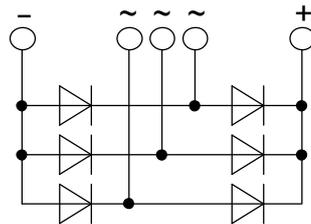
Features / Advantages:

● 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 Flat

● Industry standard outline
● RoHS compliant
● Easy to mount with two screws
● Height: 17 mm
● Base plate: Copper internally DCB isolated
● Advanced power cycling

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	$T_{VJ} = 25°C$			40	µA
		$V_R = 1600$ V	$T_{VJ} = 150°C$			1.5	mA
V_F	forward voltage drop	$I_F = 20$ A	$T_{VJ} = 25°C$			1.07	V
		$I_F = 60$ A				1.30	V
		$I_F = 20$ A	$T_{VJ} = 125°C$			0.96	V
		$I_F = 60$ A				1.27	V
I_{DAV}	bridge output current	$T_C = 120°C$	$T_{VJ} = 150°C$			60	A
		rectangular d = ⅓					
V_{F0}	threshold voltage } for power loss calculation only		$T_{VJ} = 150°C$			0.78	V
r_F	slope resistance } for power loss calculation only					8.1	mΩ
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		$T_C = 25°C$			110	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$			550	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			595	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			470	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			505	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$			1.52	kA²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			1.48	kA²s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			1.11	kA²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			1.06	kA²s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz	$T_{VJ} = 25°C$		19		pF

Package	PWS-D Flat				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					118		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		13.0			mm
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	3000			V
		t = 1 minute		2500			V

Logo →
Date → IXYS
Code → Made in Germany
       YCW Lot#
       XXX XX-XXXXX

Circuit Diagram
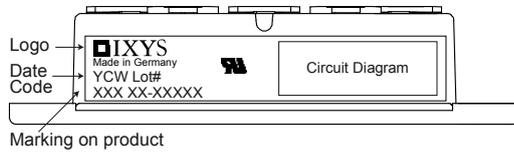
Marking on product

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO64-16NO7	VUO64-16NO7	Box	10	508503

Similar Part	Package	Voltage class
VUO62-16NO7	PWS-D	1600

Equivalent Circuits for Simulation   *on die level* $T_{VJ} = 150\,°C$
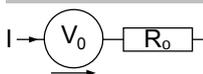
I → V_0 — R_0 —   **Rectifier**

$V_{0\,max}$	threshold voltage	0.78	V
$R_{0\,max}$	slope resistance *	6.9	mΩ

Outlines   PWS-D Flat

Max. allowed screw-in depth: 6 mm

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per semiconductor unless otherwise specified   20130410a

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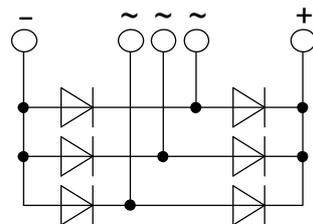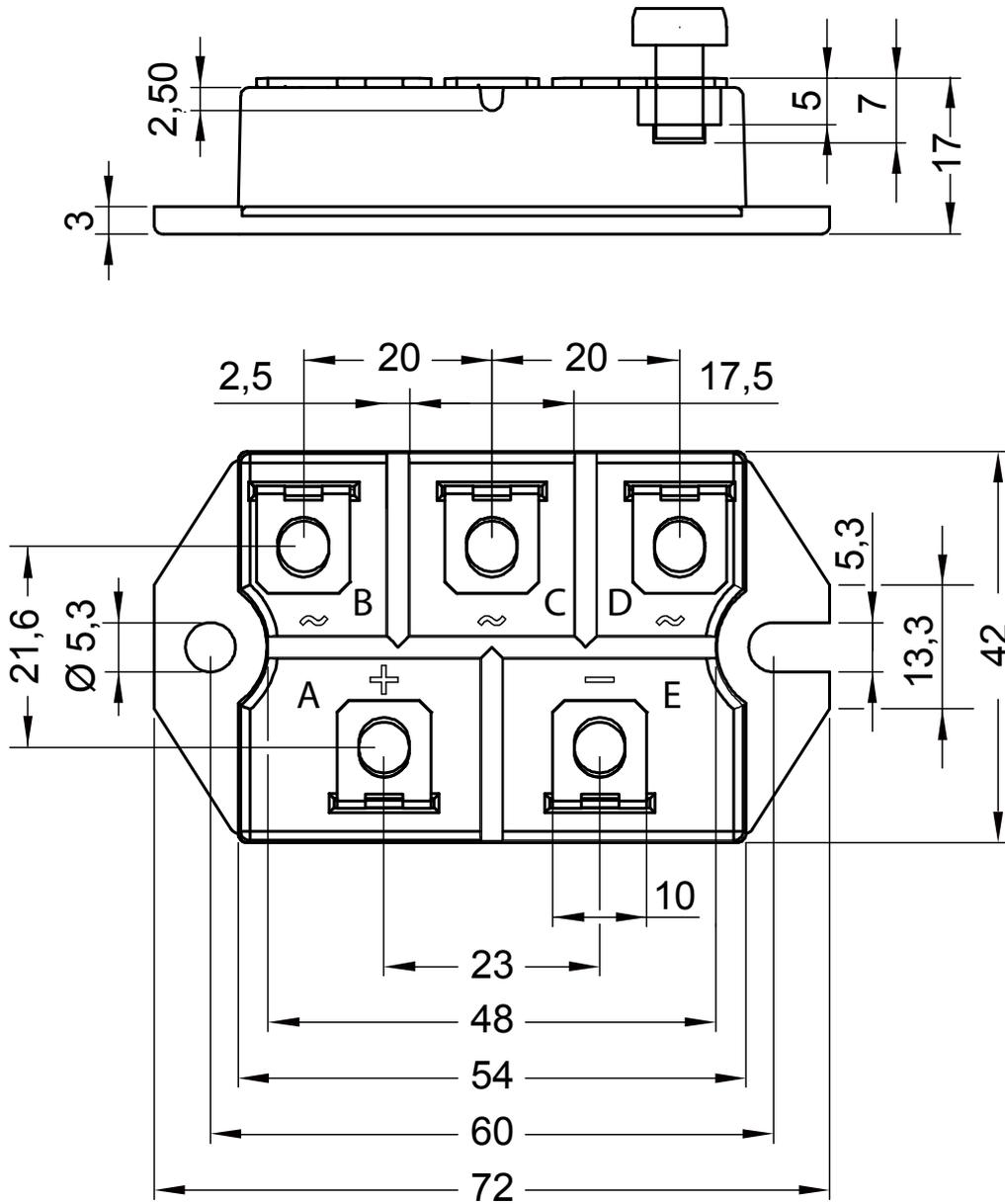
Rectifier
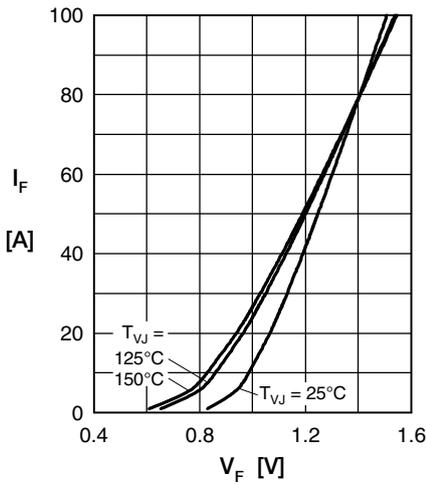
Fig. 1 Forward current vs. voltage drop per diode
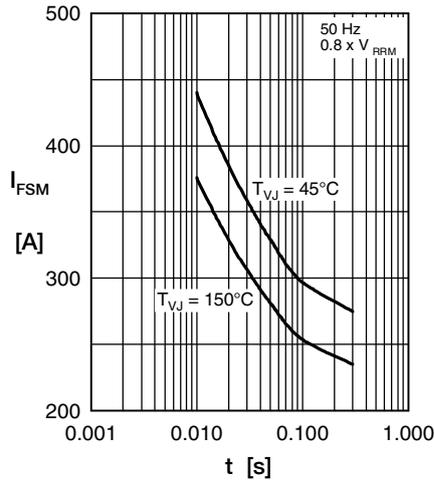

Fig. 2 Surge overload current vs. time per diode
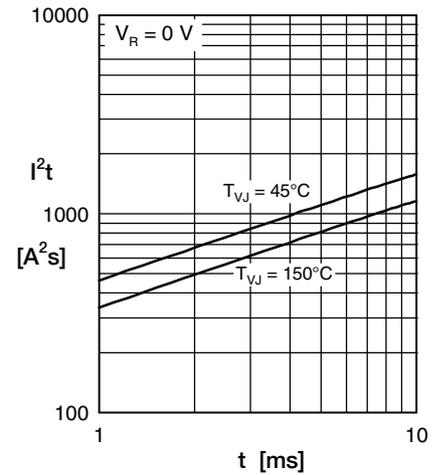

Fig. 3 I^2t vs. time per diode
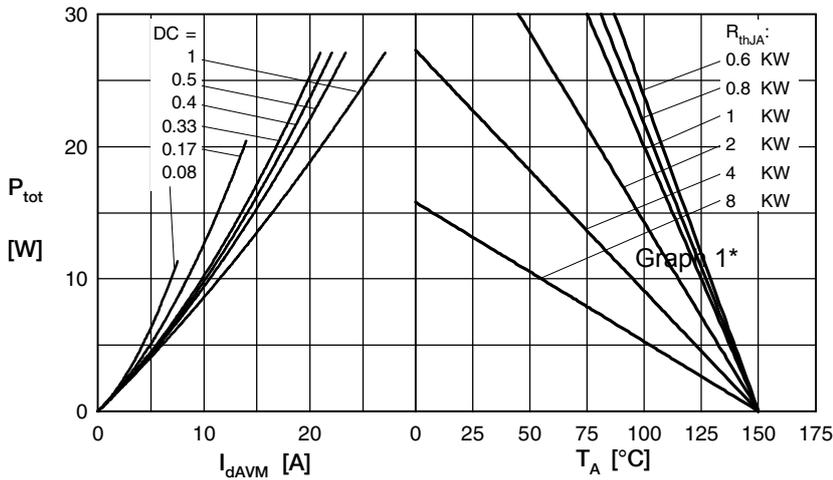
Fig. 4 Power dissipation vs. forward current and ambient temperature per diode
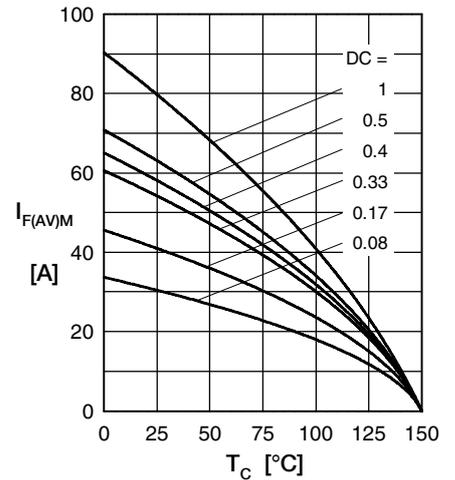

Fig. 5 Max. forward current vs. case temperature per diode
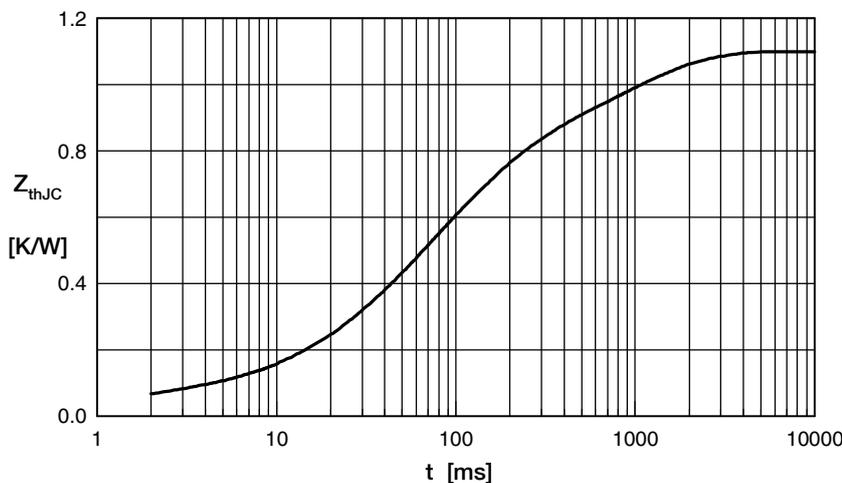
Fig. 6 Transient thermal impedance junction to case vs. time per diode

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

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