Standard Rectifier Module

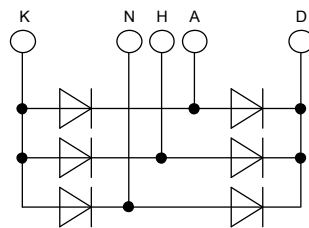| 3~ Rectifier		
V_{RRM} =	1600	V
I_{DAV} =	70	A
I_{FSM} =	300	A

3~ Rectifier Bridge

Part number

VUO68-16NO7
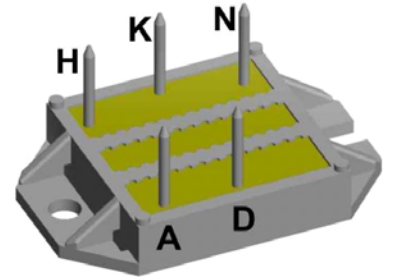
🔲 pending

Features / Advantages:

● Package with DCB ceramic
● Reduced weight
● Improved temperature and power cycling
● Planar passivated chips
● Very low forward voltage drop
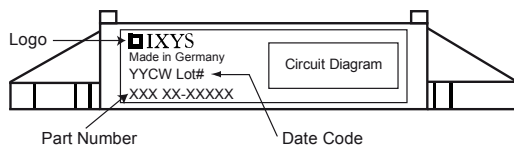● Very low leakage current

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: ECO-PAC1

● Isolation Voltage: 3600 V~
● Industry standard outline
● RoHS compliant
● Soldering pins for PCB mounting
● Height: 9 mm
● Base plate: DCB ceramic
● Reduced weight
● Advanced power cycling

Data according to IEC 60747and per semiconductor unless otherwise specified   20130308a

Rectifier | | | | Ratings | | |

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, drain 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	$T_{VJ} = 25°C$			1.15	V
		$I_F = 60$ A				1.50	V
		$I_F = 20$ A	$T_{VJ} = 125°C$			1.12	V
		$I_F = 60$ A				1.39	V
I_{DAV}	bridge output current	$T_C = 105°C$	$T_{VJ} = 150°C$			70	A
		rectangular d = ⅓					
V_{F0}	threshold voltage	} for power loss calculation only	$T_{VJ} = 150°C$			0.82	V
r_F	slope resistance					12.2	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	$T_{VJ} = 45°C$			300	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			325	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			255	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			275	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45°C$			450	A²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			440	A²s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150°C$			325	A²s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ V			315	A²s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz	$T_{VJ} = 25°C$		10		pF

Package	ECO-PAC1			Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal					A
T_{stg}	storage temperature			-40		150	°C
T_{VJ}	virtual junction temperature			-40		150	°C
Weight					18		g
M_D	mounting torque			1.5		2	Nm
$d_{Spp/App}$	creepage distance on surface | striking distance through air	terminal to terminal		11.2			mm
$d_{Spb/Apb}$		terminal to backside					mm
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	3600			V
		t = 1 minute		3000			V

Logo
IXYS
Made in Germany
YYCW Lot#
Circuit Diagram
XXX XX-XXXXX
Part Number
Date Code

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO68-16NO7	VUO68-16NO7	Box	25	479624

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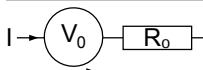
Rectifier

$V_{0\,max}$	threshold voltage	0.82	V
$R_{0\,max}$	slope resistance *	11	mΩ

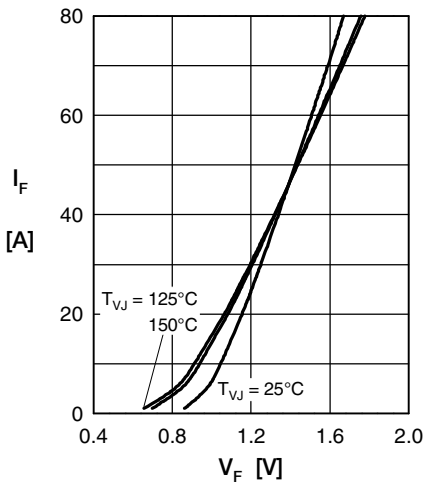**Outlines   ECO-PAC1**
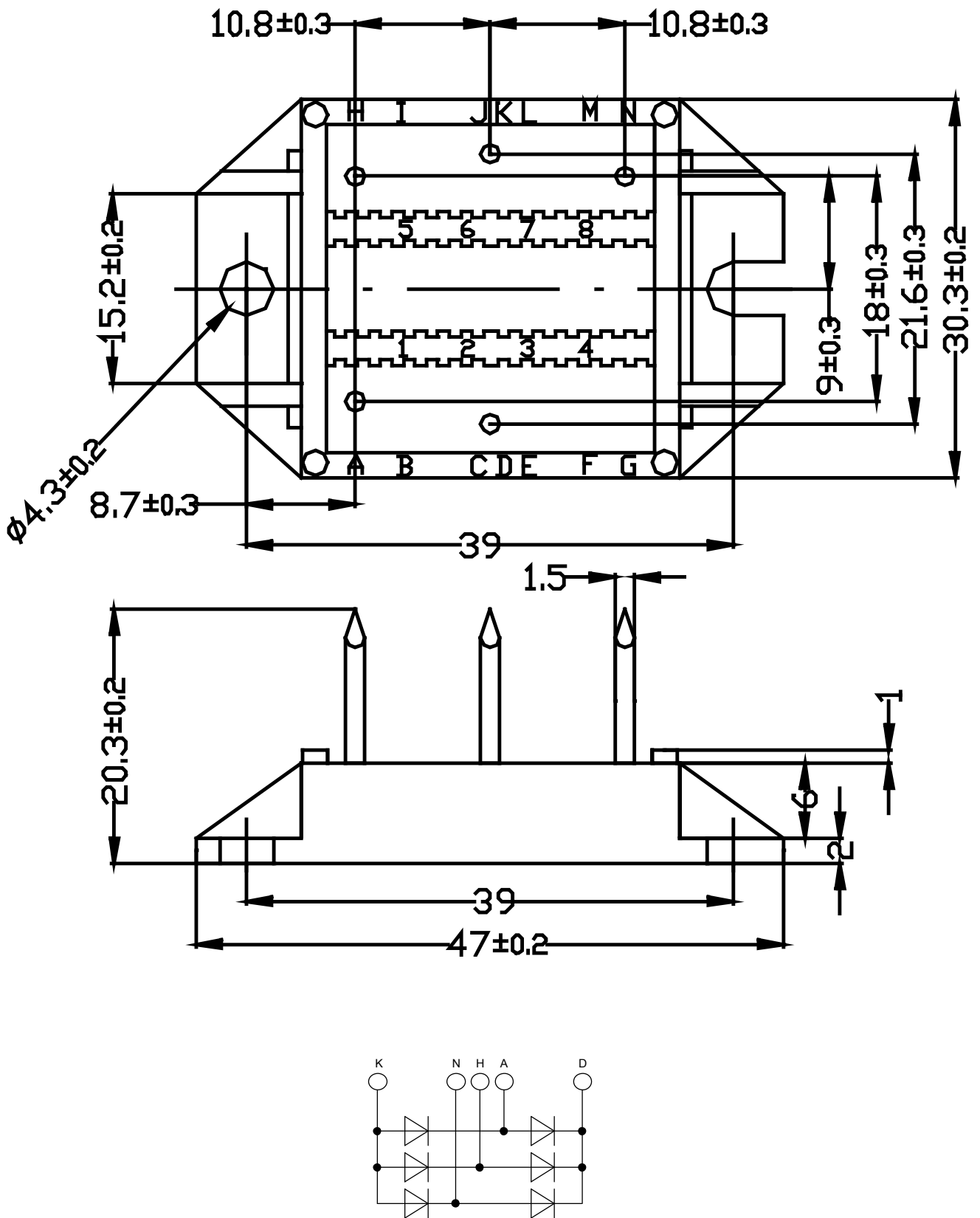
Rectifier

Fig. 1 Forward current versus voltage drop per diode
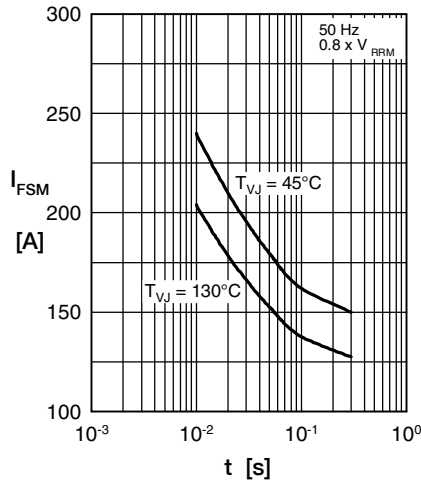

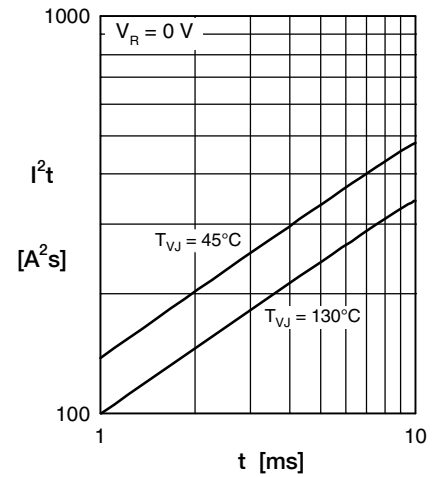Fig. 2 Surge overload current

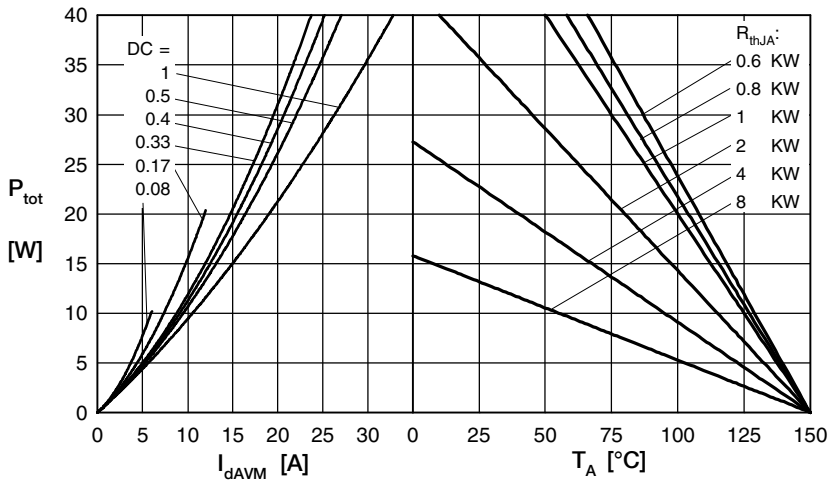Fig. 3 I^2t versus time per diode

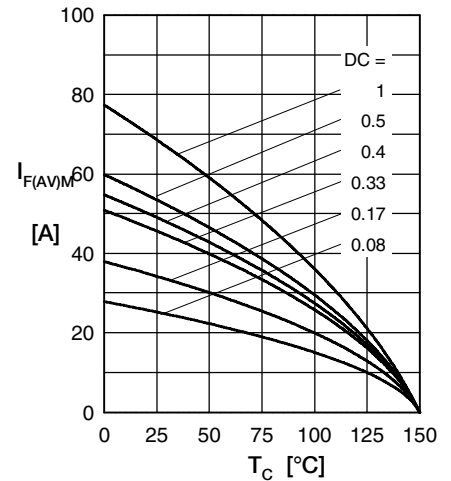Fig. 4 Power dissipation vs. direct output current & ambient temperature
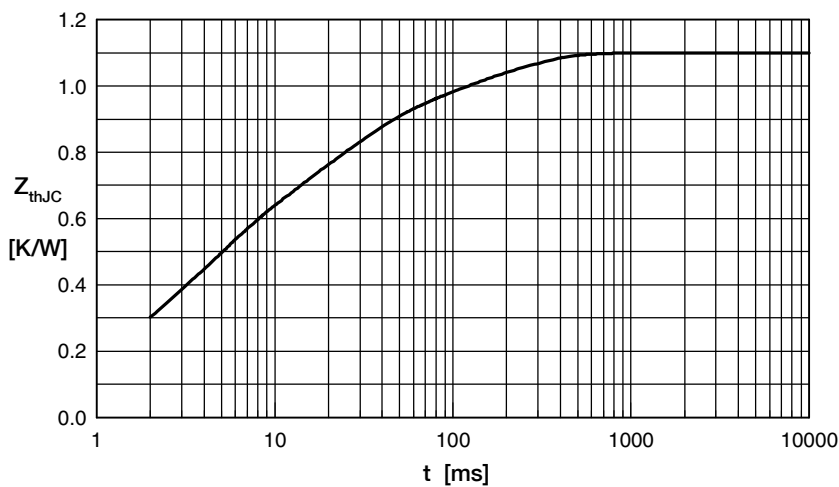

Fig. 5 Max. forward current vs. case temperature

Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.05070	0.004
2	0.163	0.0025
3	0.2805	0.0035
4	0.363	0.02
5	0.2228	0.15