

Phase out

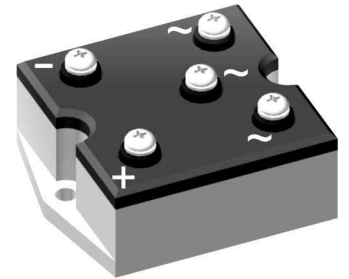

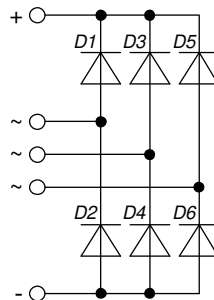
Standard Rectifier Module

PHASE OUT

3~ Rectifier Bridge

3~ Rectifier	
$V_{RRM} =$	1800 V
$I_{DAV} =$	35 A
$I_{FSM} =$	400 A

Part number

VUO35-18NO7

 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-A

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

Recommended replacement: VUO62-18NO7

Disclaimer Notice

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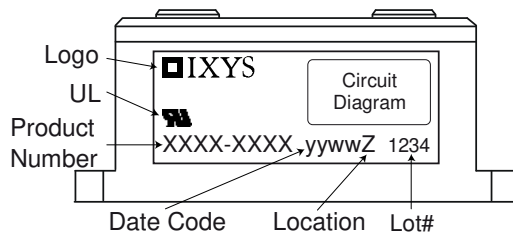


Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					1900	V
V_{RRM}	max. repetitive reverse blocking voltage					1800	V
I_R	reverse current	$V_R = 1800$ V	$T_{VJ} = 25^\circ\text{C}$			40	μA
		$V_R = 1800$ V	$T_{VJ} = 150^\circ\text{C}$			1.5	mA
V_F	forward voltage drop	$I_F = 15$ A	$T_{VJ} = 25^\circ\text{C}$			1.10	V
		$I_F = 45$ A				1.38	V
		$I_F = 15$ A	$T_{VJ} = 125^\circ\text{C}$			1.01	V
		$I_F = 45$ A				1.38	V
I_{DAV}	bridge output current	$T_C = 85^\circ\text{C}$ rectangular	$T_{VJ} = 150^\circ\text{C}$			35	A
V_{FO}	threshold voltage	} for power loss calculation only				0.80	V
r_F	slope resistance					12.9	m Ω
R_{thJC}	thermal resistance junction to case					4.2	K/W
R_{thCH}	thermal resistance case to heatsink				0.6		K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		29	W
I_{FSM}	max. forward surge current	$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			400	A
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V			430	A
		$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			340	A
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V			365	A
I^2t	value for fusing	$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			800	A ² s
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V			770	A ² s
		$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 150^\circ\text{C}$			580	A ² s
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V			555	A ² s
C_J	junction capacitance	$V_R = 400$ V; $f = 1$ MHz	$T_{VJ} = 25^\circ\text{C}$		10		pF

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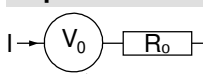
Package PWS-A		Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			100	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		125	°C
Weight				100		g
M_D	mounting torque		1.25		1.75	Nm
M_T	terminal torque		1.25		1.75	Nm
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	6.5			mm
$d_{Spb/Apb}$		terminal to backside	8.5			mm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO35-18NO7	VUO35-18NO7	Box	20	456667

Equivalent Circuits for Simulation

* on die level

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

Rectifier

$V_{0\max}$	threshold voltage	0.8	V
$R_{0\max}$	slope resistance *	11.7	mΩ



Rectifier

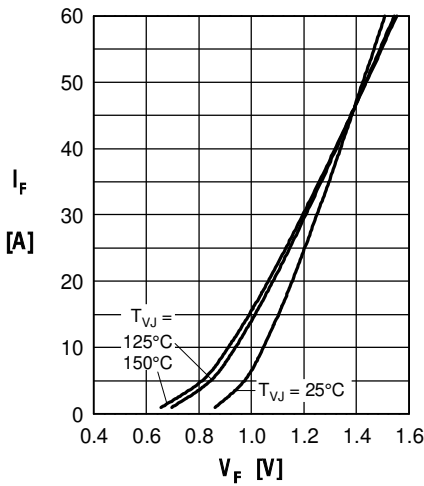


Fig. 1 Forward current vs. voltage drop per diode

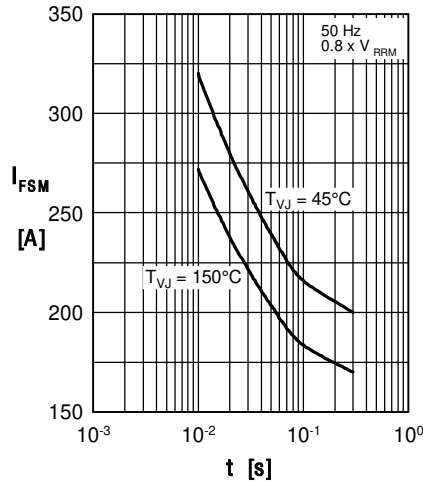


Fig. 2 Surge overload current vs. time per diode

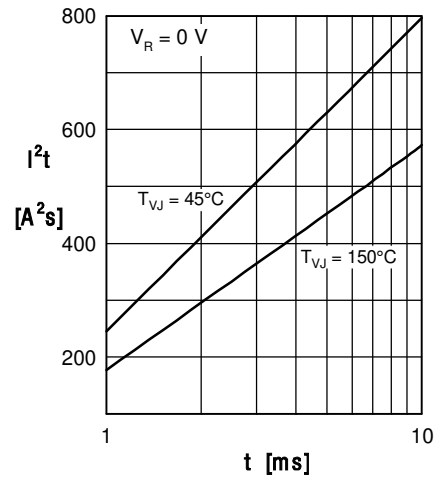


Fig. 3 I^2t vs. time per diode

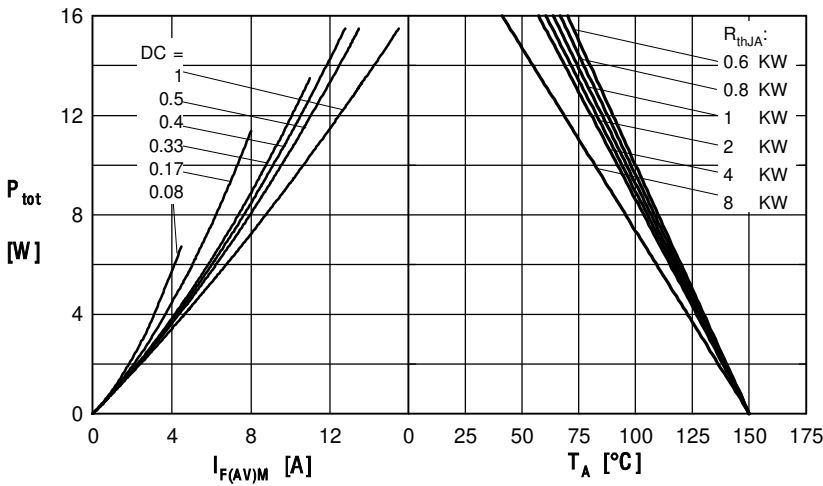


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

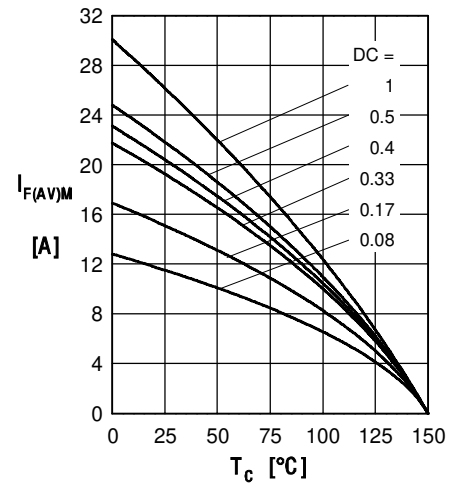


Fig. 5 Max. forward current vs. case temperature per diode

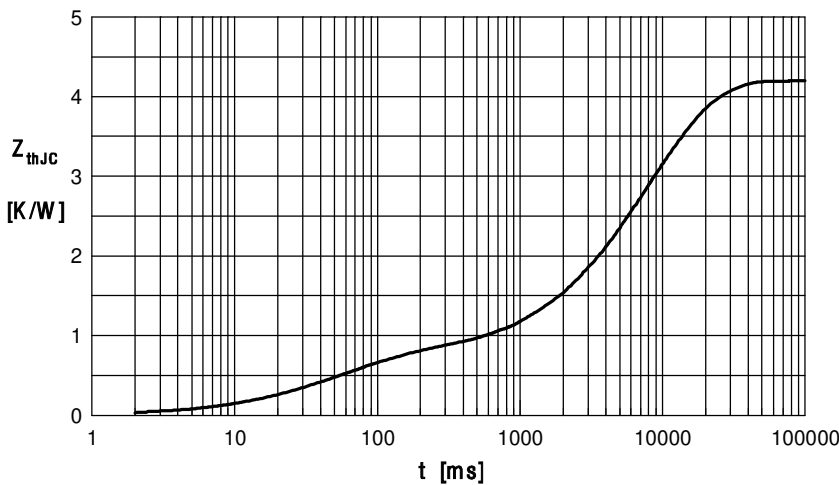


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.194	0.024
2	0.556	0.070
3	0.450	3.250
4	3.000	9.300