



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



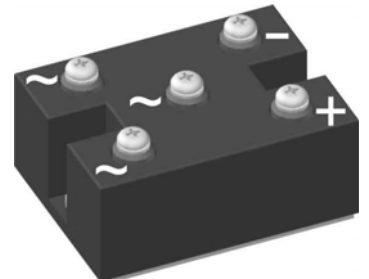
## Standard Rectifier Module

<b>3~ Rectifier</b>
$V_{RRM} = 1200\text{ V}$
$I_{DAV} = 150\text{ A}$
$I_{FSM} = 1800\text{ A}$

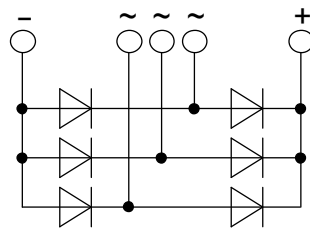
### 3~ Rectifier Bridge

Part number

VUO125-12N07



 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:

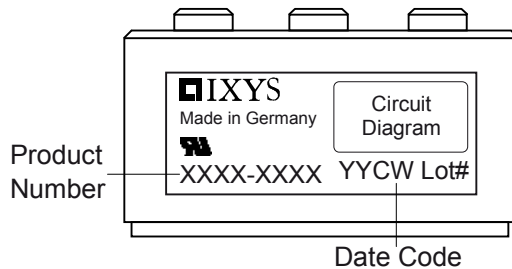
- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

#### Package: PWS-C

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

Rectifier				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
$V_{RSM}$	max. non-repetitive reverse blocking voltage					1300	V	
$V_{RRM}$	max. repetitive reverse blocking voltage					1200	V	
$I_R$	reverse current	$V_R = 1200$ V	$T_{VJ} = 25^\circ\text{C}$			200	$\mu\text{A}$	
		$V_R = 1200$ V	$T_{VJ} = 150^\circ\text{C}$			2	mA	
$V_F$	forward voltage drop	$I_F = 50$ A	$T_{VJ} = 25^\circ\text{C}$			1.07	V	
						1.34	V	
		$I_F = 150$ A	$T_{VJ} = 125^\circ\text{C}$			0.97	V	
						1.31	V	
$I_{DAV}$	bridge output current	$T_C = 110^\circ\text{C}$ rectangular $d = 1/3$	$T_{VJ} = 150^\circ\text{C}$			150	A	
$V_{FO}$	threshold voltage					0.76	V	
$r_F$	slope resistance					3.6	m $\Omega$	
						} for power loss calculation only		
$R_{thJC}$	thermal resistance junction to case					0.6	K/W	
$R_{thCH}$	thermal resistance case to heatsink				0.30		K/W	
$P_{tot}$	total power dissipation			$T_C = 25^\circ\text{C}$		205	W	
$I_{FSM}$	max. forward surge current	$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			1.80	kA	
						1.95	kA	
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V	$T_{VJ} = 150^\circ\text{C}$			1.53	kA
							1.65	kA
$I^2t$	value for fusing	$t = 10$ ms; (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			16.2	kA <sup>2</sup> s	
						15.7	kA <sup>2</sup> s	
		$t = 8,3$ ms; (60 Hz), sine	$V_R = 0$ V	$T_{VJ} = 150^\circ\text{C}$			11.7	kA <sup>2</sup> s
							11.3	kA <sup>2</sup> s
$C_J$	junction capacitance	$V_R = 400$ V; $f = 1$ MHz	$T_{VJ} = 25^\circ\text{C}$		58		pF	

Package PWS-C			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
<b>Weight</b>				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
$d_{Spb/Appb}$		terminal to backside	14.0			mm
$V_{ISOL}$	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V

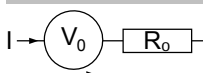


Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO125-12NO7	VUO125-12NO7	Box	10	456764

### Equivalent Circuits for Simulation

\* on die level

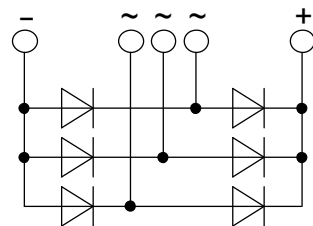
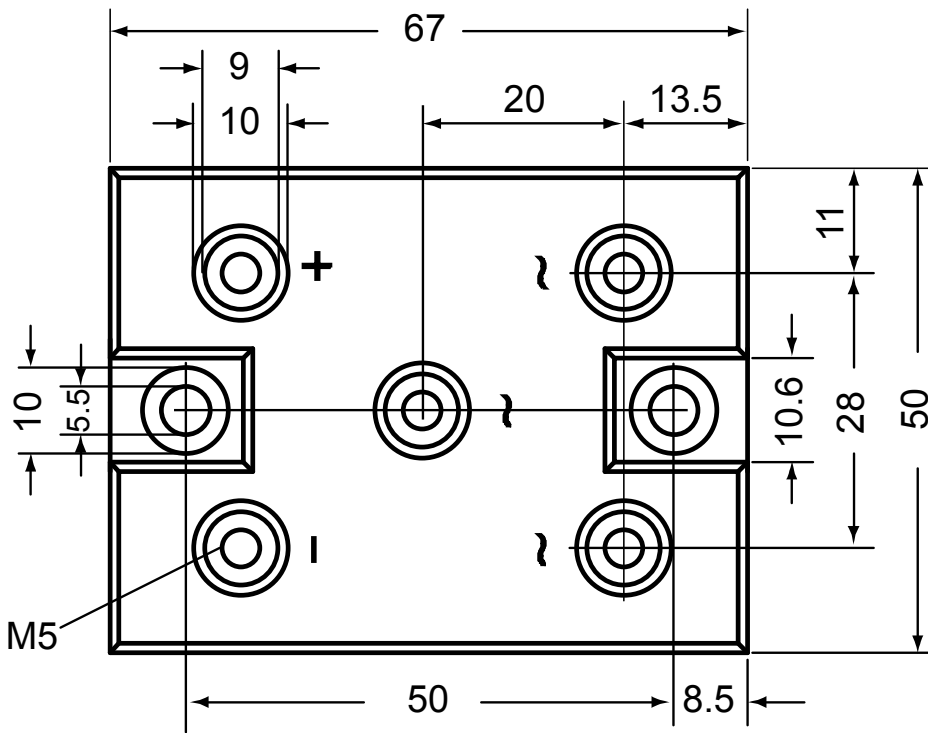
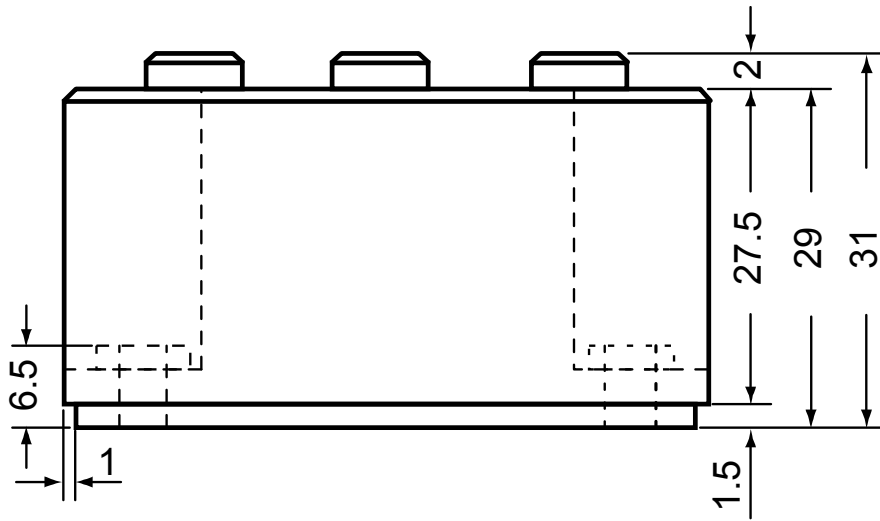
$T_{VJ} = 150\text{ °C}$



Rectifier

$V_{0\ max}$	threshold voltage	0.76	V
$R_{0\ max}$	slope resistance *	2.4	mΩ

**Outlines PWS-C**



## Rectifier

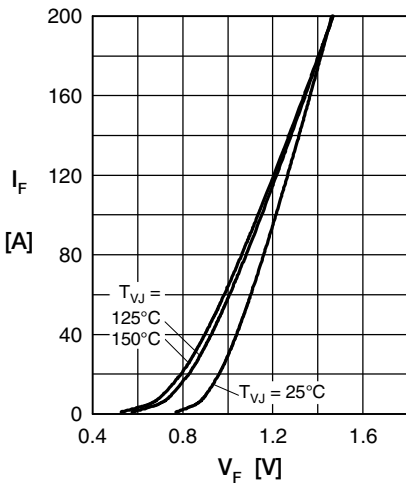


Fig. 1 Forward current versus voltage drop per diode

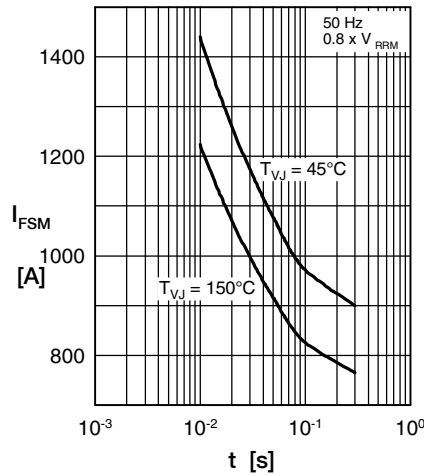


Fig. 2 Surge overload current vs. time per diode

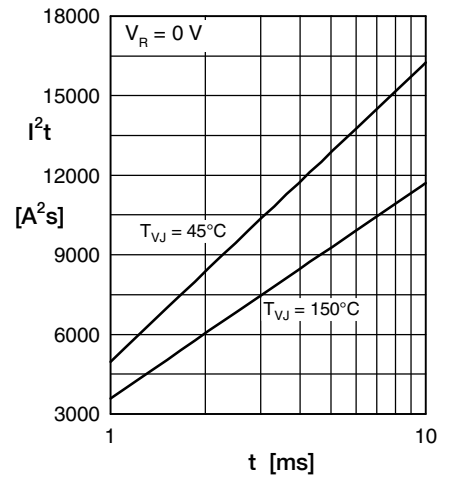


Fig. 3  $I^2t$  versus time per diode

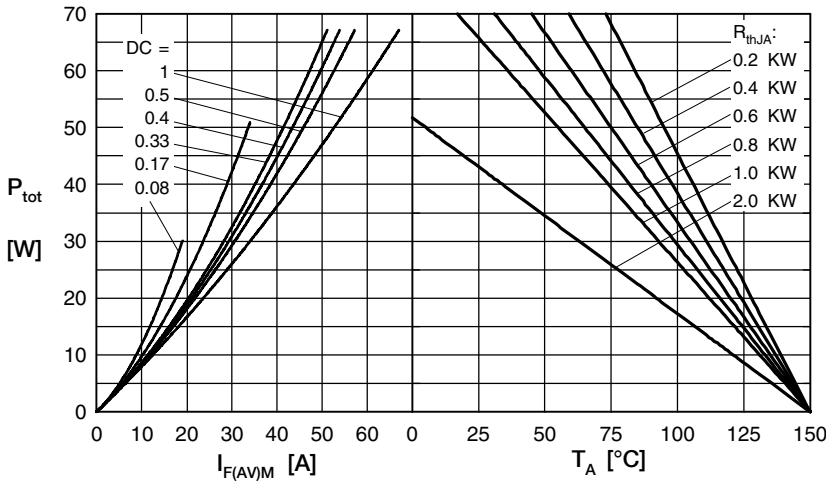


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

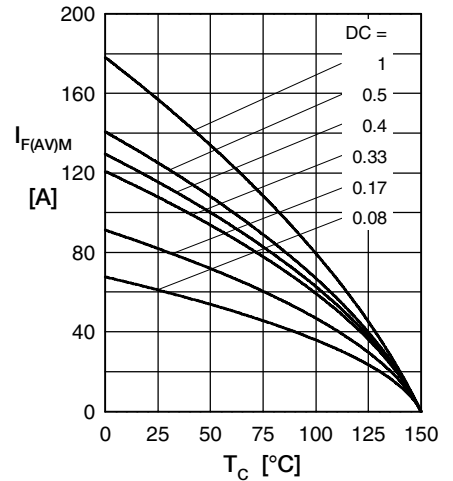


Fig. 5 Max. forward current vs. case temperature per diode

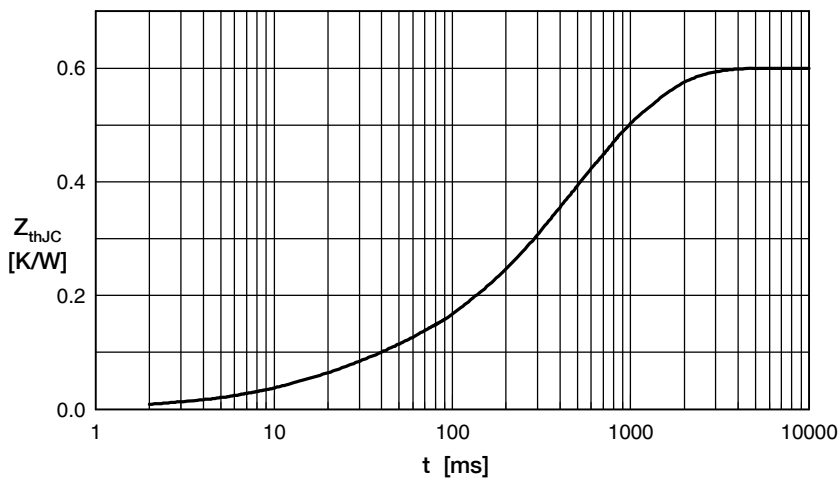


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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