

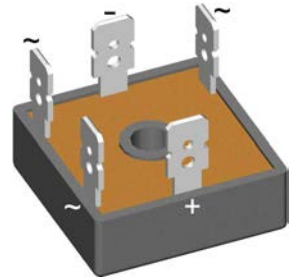
# Standard Rectifier Module


<b>3~ Rectifier</b>	
$V_{RRM}$	= 1800 V
$I_{DAV}$	= 27 A
$I_{FSM}$	= 550 A

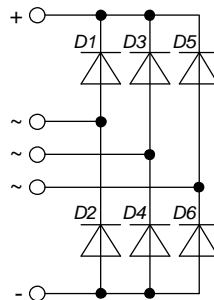
## 3~ Rectifier Bridge

Part number

**VUO36-18N08**



 E72873



### Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour

### 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: FO-B

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- 1/4" fast-on terminals
- Easy to mount with one screw

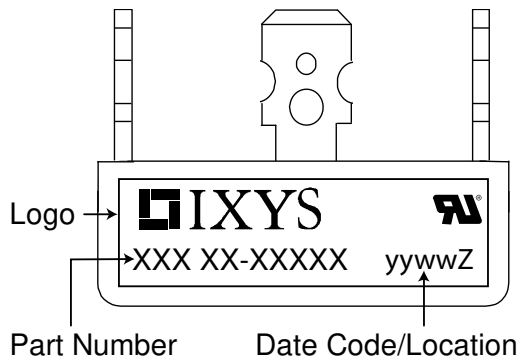
### Disclaimer Notice

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](http://www.littelfuse.com/disclaimer-electronics).

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	$\mu\text{A}$
		$V_R = 1800$ V		$T_{VJ} = 150^\circ\text{C}$		1,5	mA
$V_F$	forward voltage drop	$I_F = 15$ A		$T_{VJ} = 25^\circ\text{C}$		1,04	V
		$I_F = 45$ A				1,23	V
		$I_F = 15$ A		$T_{VJ} = 125^\circ\text{C}$		0,93	V
		$I_F = 45$ A				1,18	V
$I_{DAV}$	bridge output current	$T_C = 85^\circ\text{C}$		$T_{VJ} = 150^\circ\text{C}$		27	A
		rectangular	$d = \frac{1}{3}$				
$V_{FO}$	threshold voltage			$T_{VJ} = 150^\circ\text{C}$		0,76	V
$r_F$	slope resistance					9,1	m $\Omega$
						} for power loss calculation only	
$R_{thJC}$	thermal resistance junction to case					7	K/W
$R_{thCH}$	thermal resistance case to heatsink				1		K/W
$P_{tot}$	total power dissipation			$T_C = 25^\circ\text{C}$		17	W
$I_{FSM}$	max. forward surge current	$t = 10$ ms; (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		550	A
		$t = 8,3$ ms; (60 Hz), sine		$V_R = 0$ V		595	A
		$t = 10$ ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		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		$T_{VJ} = 45^\circ\text{C}$		1,52	kA <sup>2</sup> s
		$t = 8,3$ ms; (60 Hz), sine		$V_R = 0$ V		1,48	kA <sup>2</sup> s
		$t = 10$ ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		1,11	kA <sup>2</sup> s
		$t = 8,3$ ms; (60 Hz), sine		$V_R = 0$ V		1,06	kA <sup>2</sup> s
$C_J$	junction capacitance	$V_R = 400$ V; $f = 1$ MHz		$T_{VJ} = 25^\circ\text{C}$		18	pF



Package FO-B		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
<b>Weight</b>				20		g
$M_D$	mounting torque		1,8		2,2	Nm
$d_{Spp/App}$	creepage distance on surface   striking distance through air	terminal to terminal	9,0	7,0		mm
$d_{Spb/Apb}$		terminal to backside	10,0	10,0		mm
$V_{ISOL}$	isolation voltage	t = 1 second t = 1 minute	3000 2500			V V
		50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA				

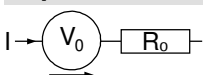


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO36-18NO8	VUO36-18NO8	Box	50	465186

**Equivalent Circuits for Simulation**

\* on die level

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

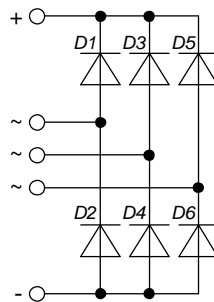
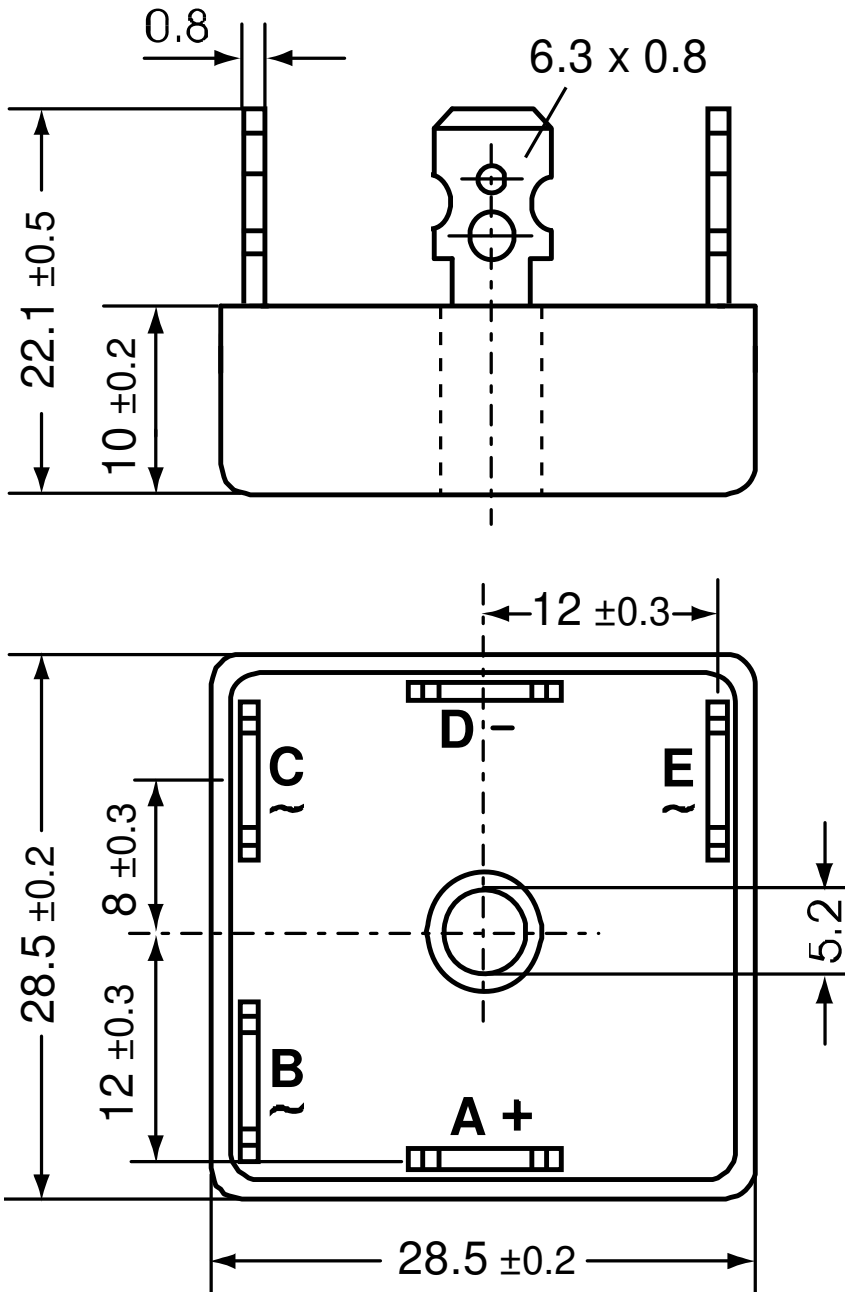


Rectifier

$V_{0\ max}$	threshold voltage	0,76	V
$R_{0\ max}$	slope resistance *	7,9	mΩ



Outlines FO-B



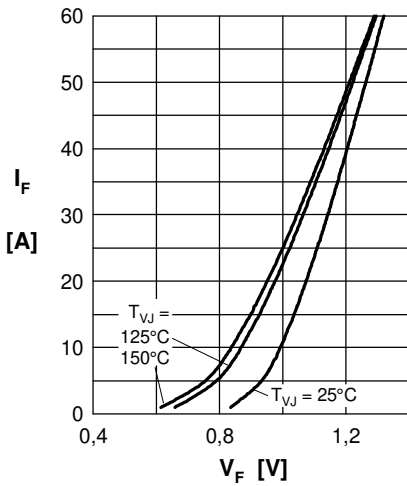
**Rectifier**


Fig. 1 Forward current vs. voltage drop per diode

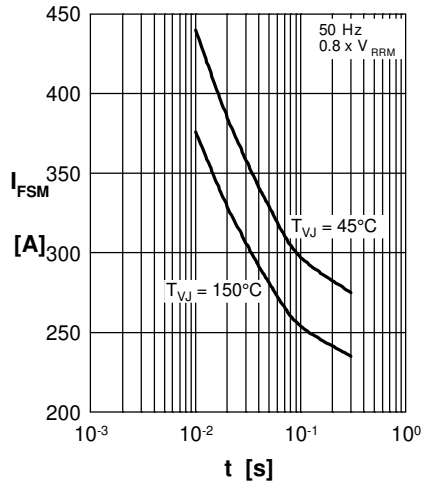


Fig. 2 Surge overload current vs. time per diode

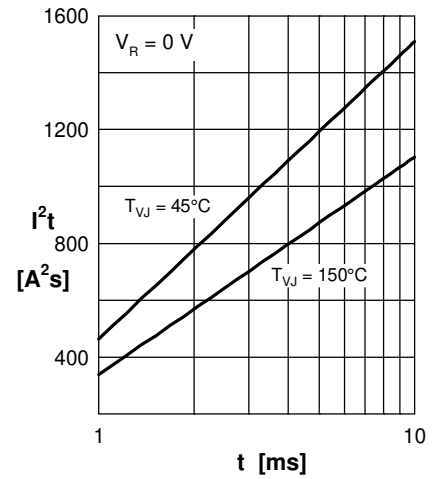
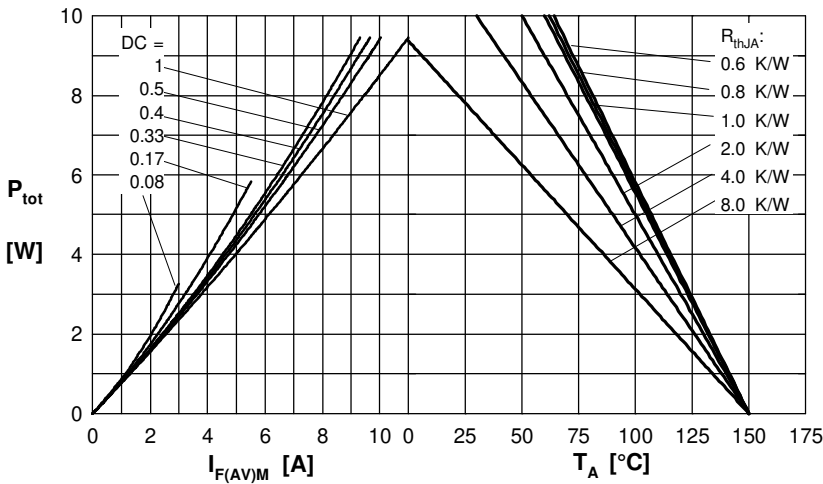

 Fig. 3  $I^2t$  vs. time per diode


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

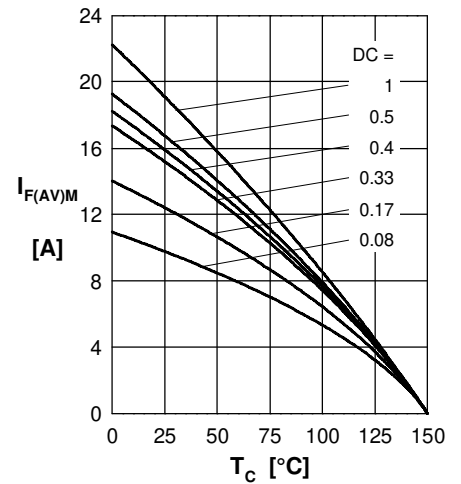


Fig. 5 Max. forward current vs. case temperature per diode

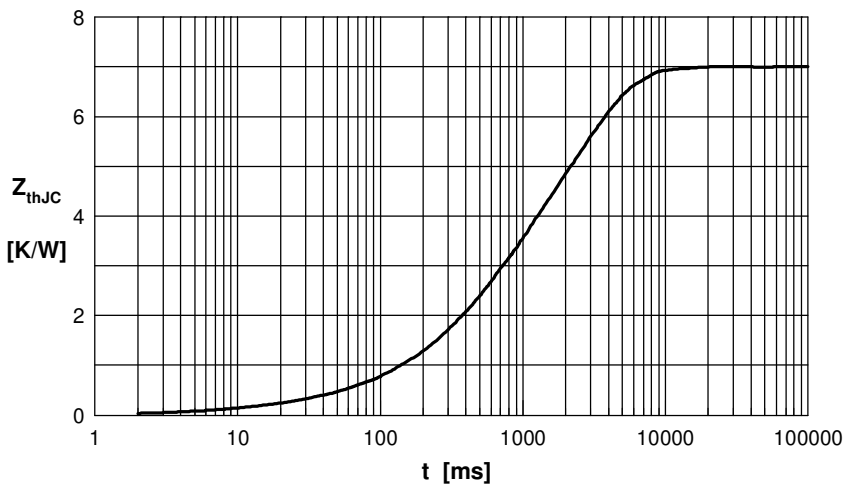


Fig. 6 Transient thermal impedance junction to case vs. time per diode

 Constants for  $Z_{thJC}$  calculation:

i	$R_{th}$ (K/W)	$t_i$ (s)
1	0.040	0.005
2	0.150	0.030
3	1.710	0.400
4	5.100	2.300