

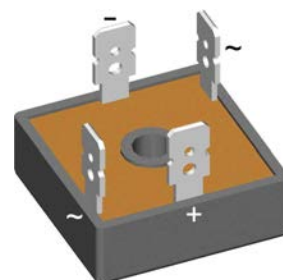
Standard Rectifier Module

1~ Rectifier	
V_{RRM}	= 1600 V
I_{DAV}	= 18 A
I_{FSM}	= 550 A

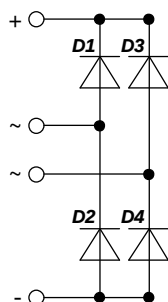
1~ Rectifier Bridge

Part number

VBO36-16NO8



 E72873



Features / Advantages:

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

Applications:

- Diode for main rectification
- For one 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

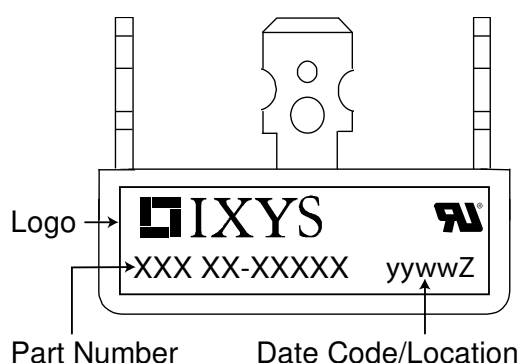
- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- 1/4" fast-on terminals
- Easy to mount with one screw

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Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				1700	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				1600	V
I_R	reverse current	$V_R = 1600\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			40	μA
		$V_R = 1600\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			1,5	mA
V_F	forward voltage drop	$I_F = 15\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1,04	V
		$I_F = 30\text{ A}$				1,14	V
		$I_F = 15\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0,93	V
		$I_F = 30\text{ A}$				1,06	V
I_{DAV}	bridge output current	$T_C = 85^{\circ}\text{C}$ rectangular	$T_{VJ} = 150^{\circ}\text{C}$ d = 0.5			18	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}\text{C}$		0,76	V
r_F	slope resistance					9,1	m Ω
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	$V_R = 0\text{ V}$			595	A
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			470	A
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			505	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}\text{C}$			1,52	kA ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			1,48	kA ² s
		t = 10 ms; (50 Hz), sine	$T_{VJ} = 150^{\circ}\text{C}$			1,11	kA ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0\text{ V}$			1,06	kA ² s
C_J	junction capacitance	$V_R = 400\text{ V}; f = 1\text{ MHz}$			18		pF

Package FO-B				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
I _{RMS}	<i>RMS current</i>	per terminal				100	A	
T _{VJ}	<i>virtual junction temperature</i>			-40		150	°C	
T _{op}	<i>operation temperature</i>			-40		125	°C	
T _{stg}	<i>storage temperature</i>			-40		125	°C	
Weight					19		g	
M _D	<i>mounting torque</i>			1,8		2,2	Nm	
d _{Spp/App}	<i>creepage distance on surface striking distance through air</i>	<i>terminal to terminal</i>	9,0	7,0			mm	
d _{Spb/Apb}		<i>terminal to backside</i>	10,0	10,0			mm	
V _{ISOL}	<i>isolation voltage</i>	t = 1 second	50/60 Hz, RMS; I _{ISOL} ≤ 1 mA		3000			V
		t = 1 minute			2500			V

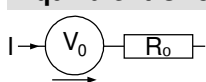


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VBO36-16NO8	VBO36-16NO8	Box	50	471976

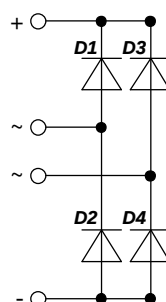
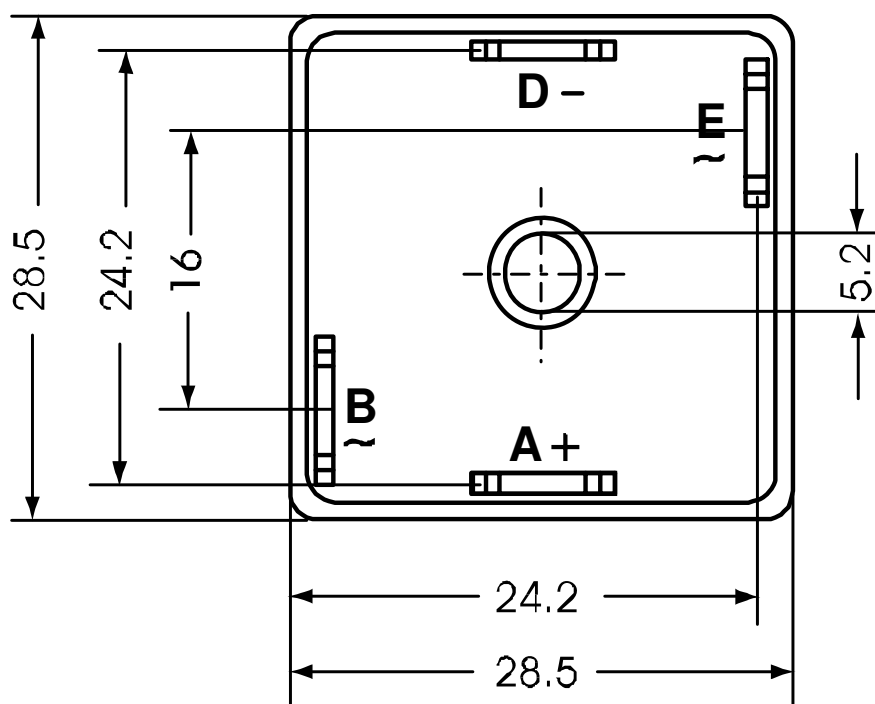
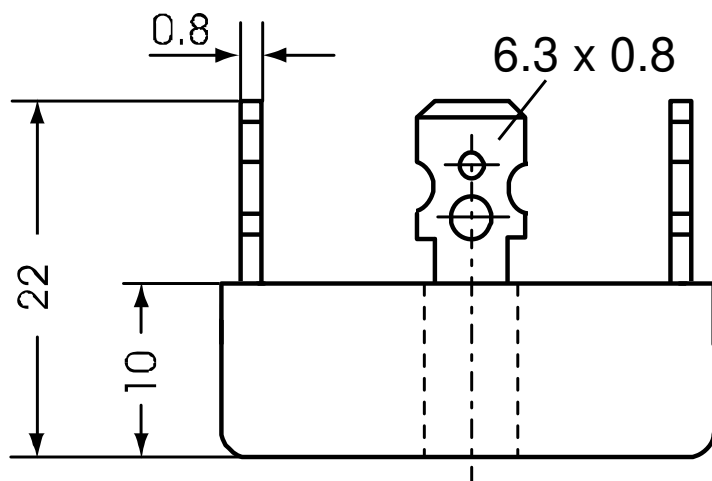
Equivalent Circuits for Simulation

* on die level

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

		Rectifier	
$V_{0\ max}$	<i>threshold voltage</i>	0,76	V
$R_{0\ max}$	<i>slope resistance *</i>	7,9	mΩ

Outlines FO-B



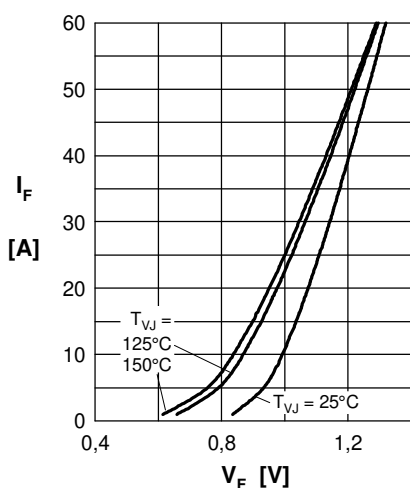
Rectifier


Fig. 1 Forward current vs. voltage drop per diode

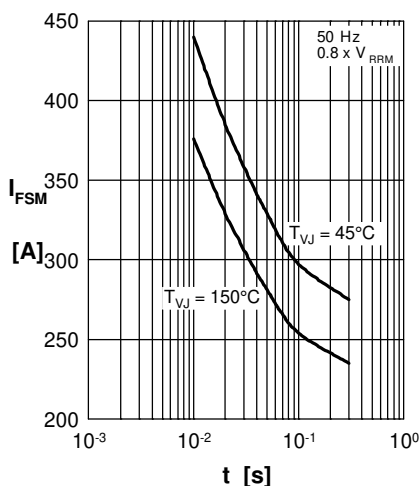


Fig. 2 Surge overload current vs. time per diode

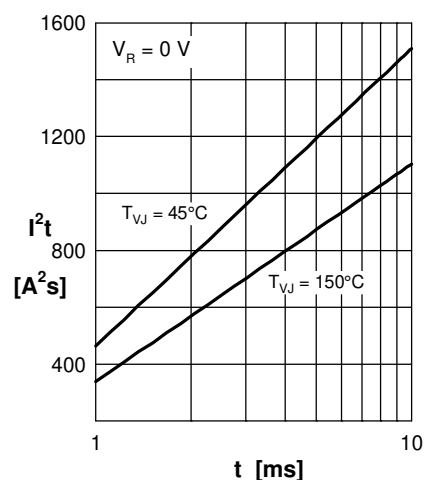


Fig. 3 I^2t vs. time per diode

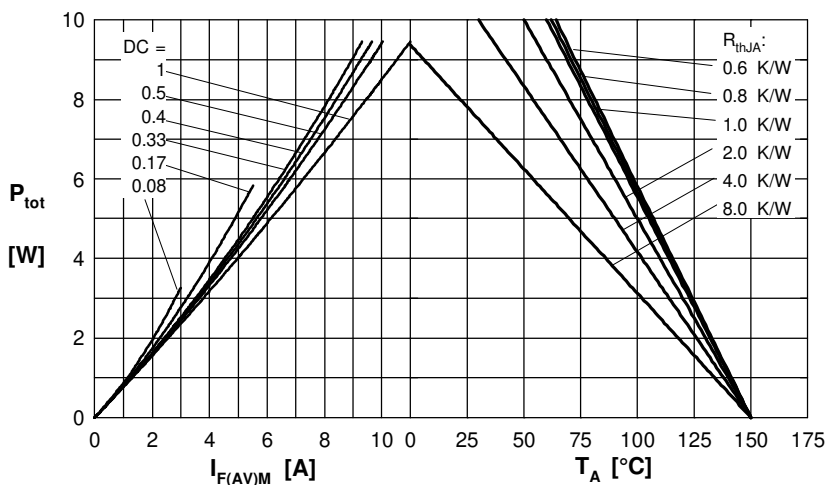


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

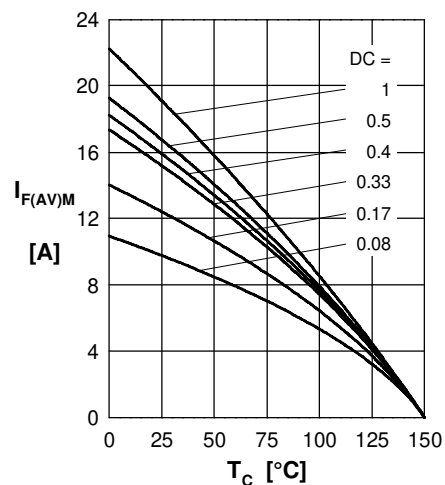


Fig. 5 Max. forward current vs. case temperature per diode

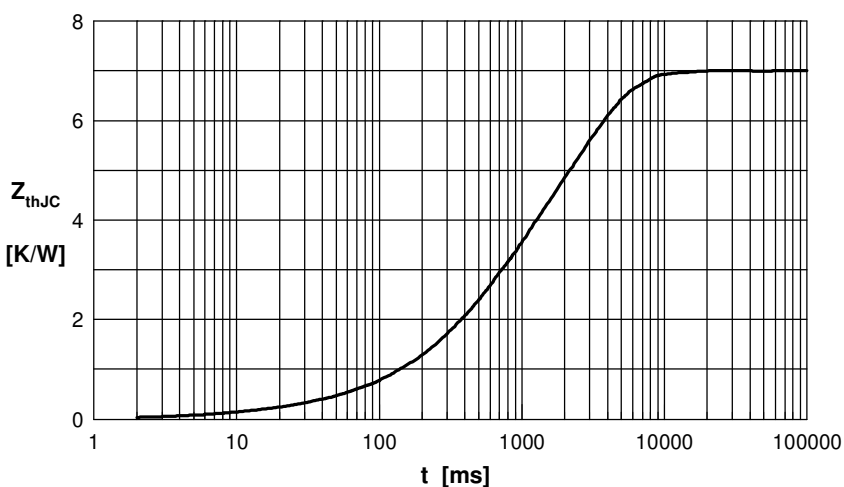


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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