

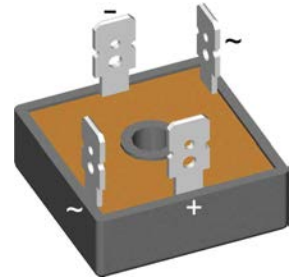
Standard Rectifier Module


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

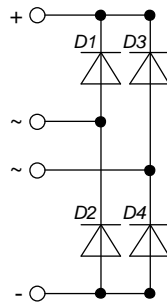
1~ Rectifier Bridge

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
- ¼" fast-on terminals
- Easy to mount with one screw

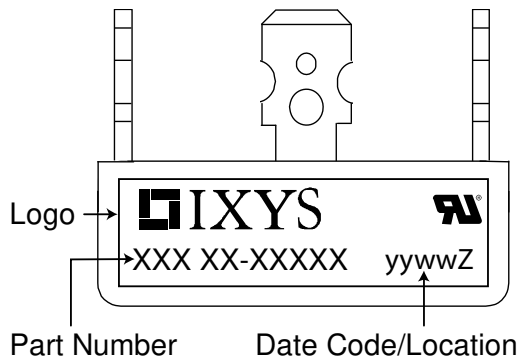
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Rectifier				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V_{RSM}	max. non-repetitive reverse blocking voltage					1700	V	
V_{RRM}	max. repetitive reverse blocking voltage					1600	V	
I_R	reverse current	$V_R = 1600$ V	$T_{VJ} = 25^\circ\text{C}$			40	μA	
		$V_R = 1600$ 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	
		$I_F = 30$ A				1,14	V	
		$I_F = 15$ A	$T_{VJ} = 125^\circ\text{C}$			0,93	V	
		$I_F = 30$ 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_{FO}	threshold voltage	} for power loss calculation only				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	$V_R = 0$ 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 ² s	
		t = 8,3 ms; (60 Hz), sine	$V_R = 0$ 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	$V_R = 0$ V			1,06	kA ² 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	
Weight					19	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	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

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

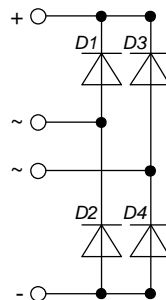
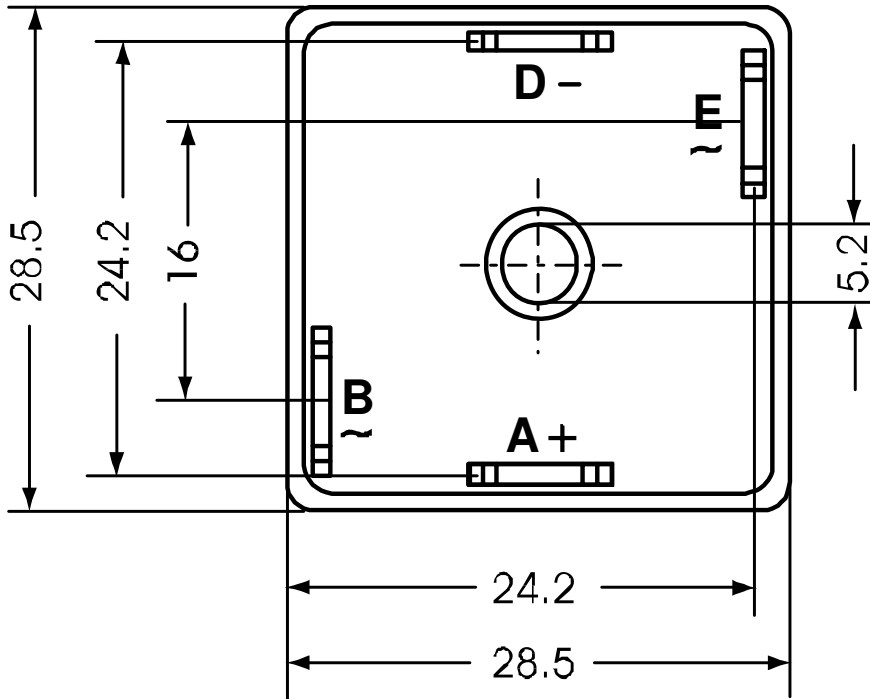
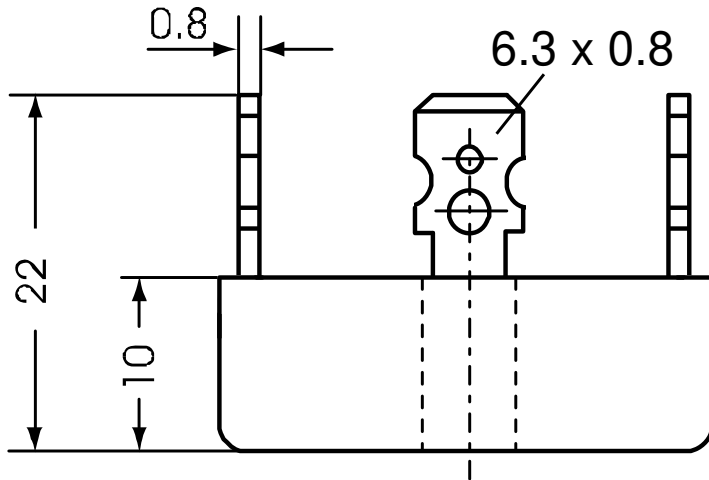


Rectifier

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



Outlines FO-B



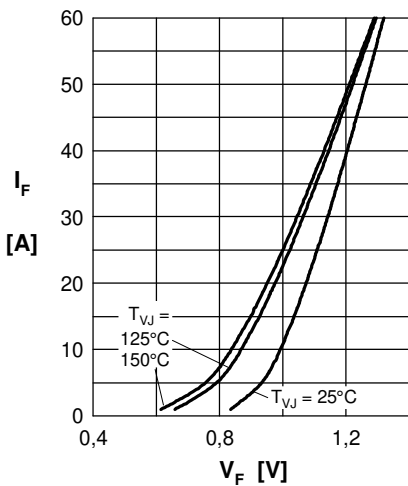
Rectifier


Fig. 1 Forward current vs. voltage drop per diode

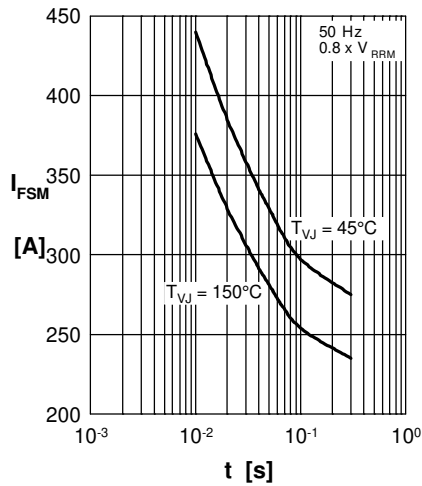


Fig. 2 Surge overload current vs. time per diode

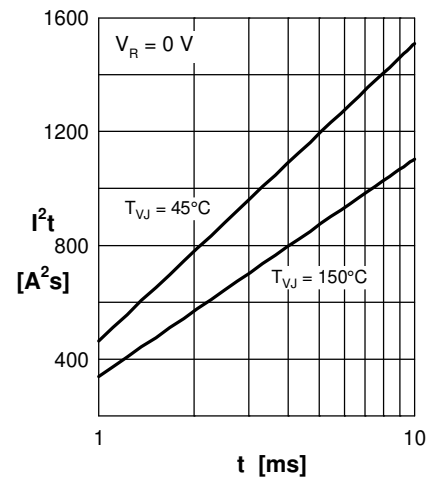
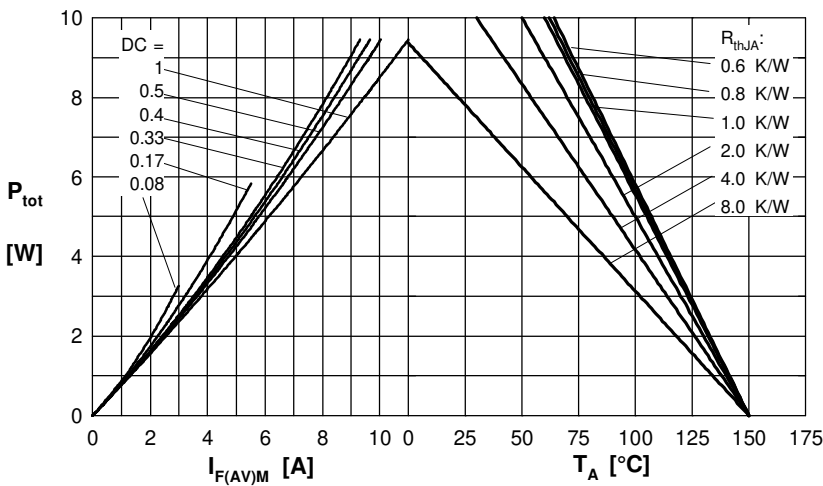

 Fig. 3 I^2t vs. time per diode


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

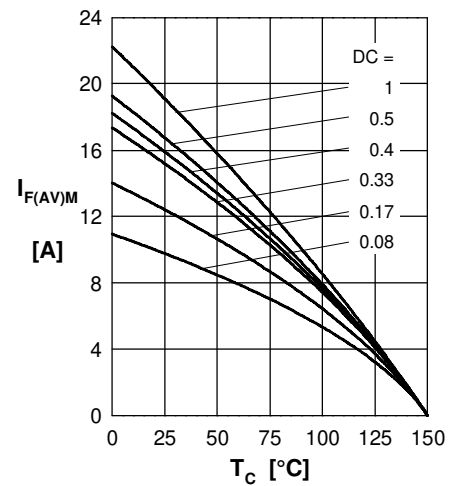


Fig. 5 Max. forward current vs. case temperature per diode

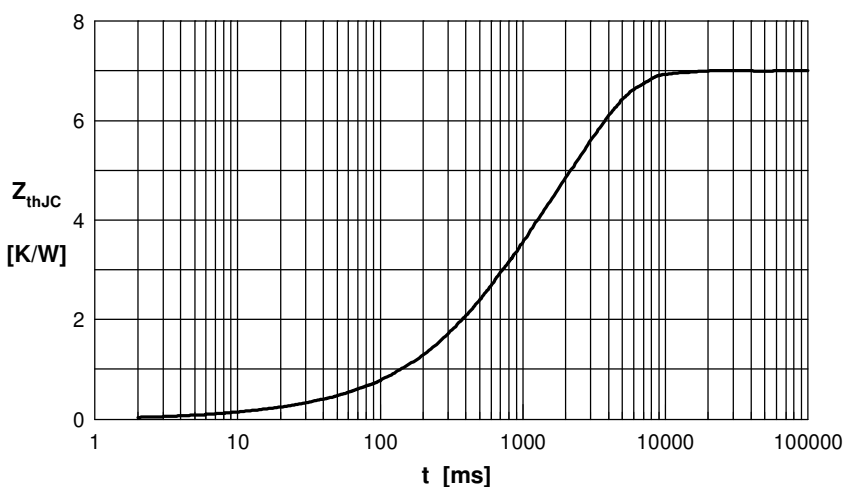


Fig. 6 Transient thermal impedance junction to case vs. time per diode

 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