

Excellent Integrated System Limited

Stocking Distributor

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[IXYS Corporation](#)

[VBO50-12NO7](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

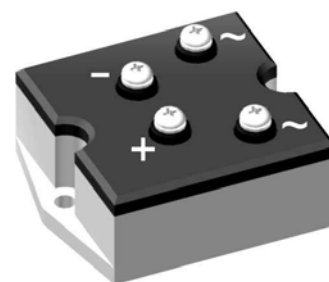
Standard Rectifier Module

1~ Rectifier	
V_{RRM}	= 1200 V
I_{DAV}	= 45 A
I_{FSM}	= 750 A

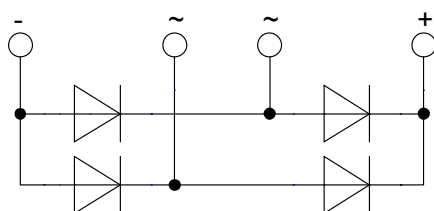
1~ Rectifier Bridge

Part number

VBO50-12NO7



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 one phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: PWS-B

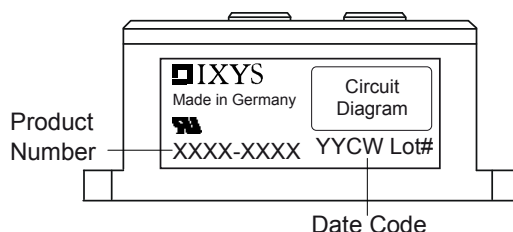
- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Aluminium internally DCB isolated
- Advanced power cycling

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				1300	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				1200	V
I _R	reverse current	V _R = 1200 V	T _{VJ} = 25°C			100	μA
		V _R = 1200 V	T _{VJ} = 150°C			1.5	mA
V _F	forward voltage drop	I _F = 20 A	T _{VJ} = 25°C			1.03	V
		I _F = 40 A				1.14	V
		I _F = 20 A	T _{VJ} = 125 °C			0.92	V
		I _F = 40 A				1.06	V
I _{DAV}	bridge output current	T _C = 85°C rectangular d = 0.5	T _{VJ} = 150°C			45	A
V _{F0}	threshold voltage	} for power loss calculation only				0.76	V
r _F	slope resistance					6.9	mΩ
R _{thJC}	thermal resistance junction to case					2.7	K/W
R _{thCH}	thermal resistance case to heatsink				0.4		K/W
P _{tot}	total power dissipation	T _C = 25°C				46	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	T _{VJ} = 45°C			750	A
		t = 8,3 ms; (60 Hz), sine	V _R = 0 V			810	A
		t = 10 ms; (50 Hz), sine	T _{VJ} = 150°C			640	A
		t = 8,3 ms; (60 Hz), sine	V _R = 0 V			690	A
I ² t	value for fusing	t = 10 ms; (50 Hz), sine	T _{VJ} = 45°C			2.82	kA²s
		t = 8,3 ms; (60 Hz), sine	V _R = 0 V			2.73	kA²s
		t = 10 ms; (50 Hz), sine	T _{VJ} = 150°C			2.05	kA²s
		t = 8,3 ms; (60 Hz), sine	V _R = 0 V			1.98	kA²s
C _J	junction capacitance	V _R = 400 V; f = 1 MHz			10		pF



VBO50-12NO7

Package PWS-B			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			100	A
T_{stg}	storage temperature		-40		125	°C
T_{VJ}	virtual junction temperature		-40		150	°C
Weight				193		g
M_D	mounting torque		4.25		5.75	Nm
M_T	terminal torque		2.5		3.5	Nm
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	11.0			mm
$d_{Spb/Apb}$		terminal to backside	7.5			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	VBO50-12NO7	VBO50-12NO7	Box	10	474002

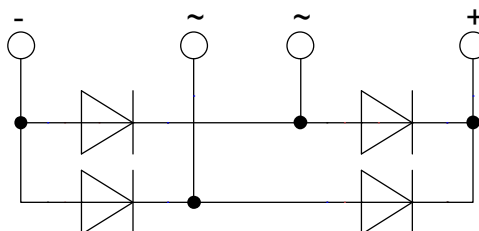
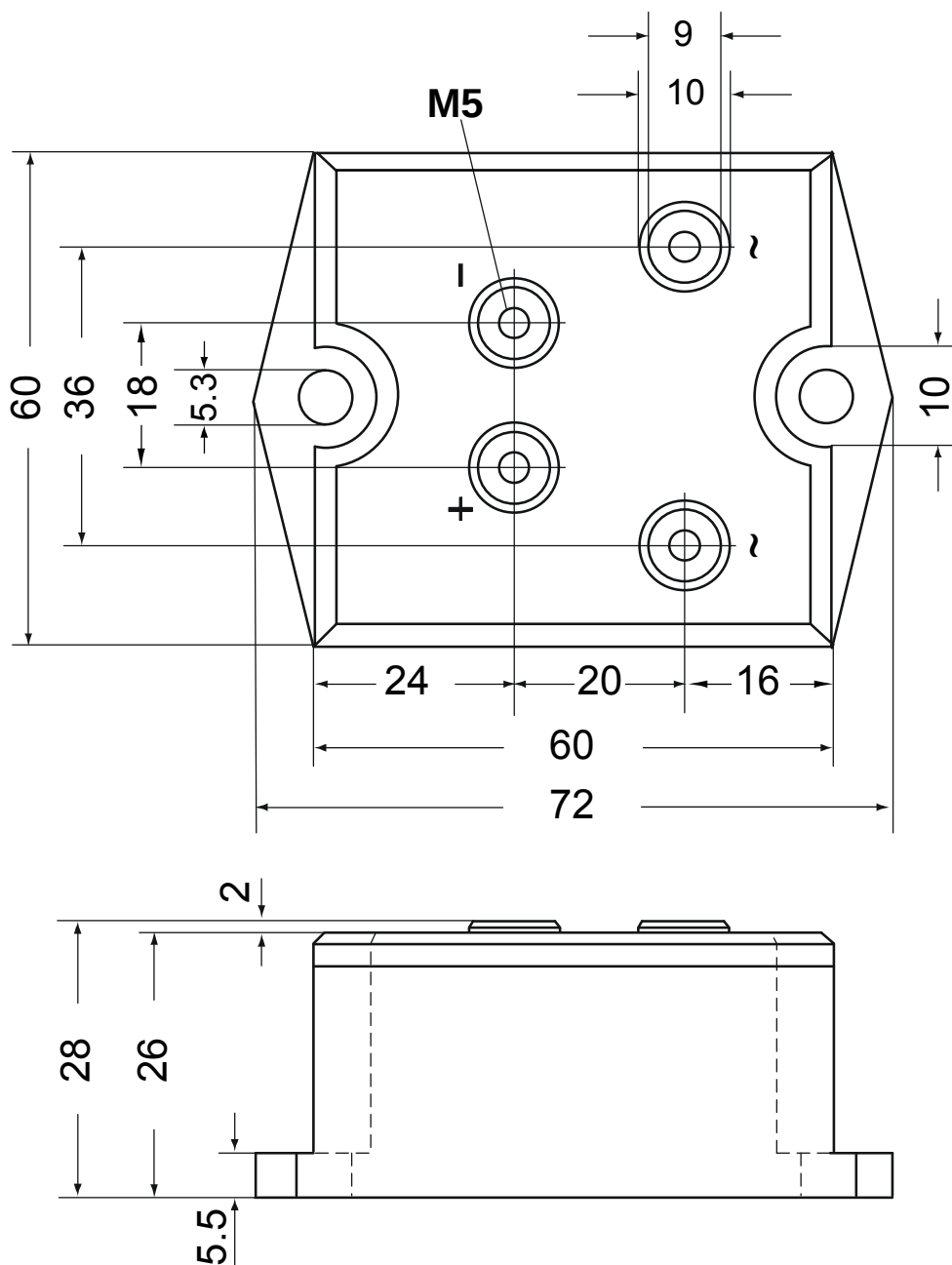
Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150\text{ °C}$

		Rectifier	
$V_{0\text{ max}}$	threshold voltage	0.76	V
$R_{0\text{ max}}$	slope resistance *	5.7	mΩ

Outlines PWS-B



Rectifier

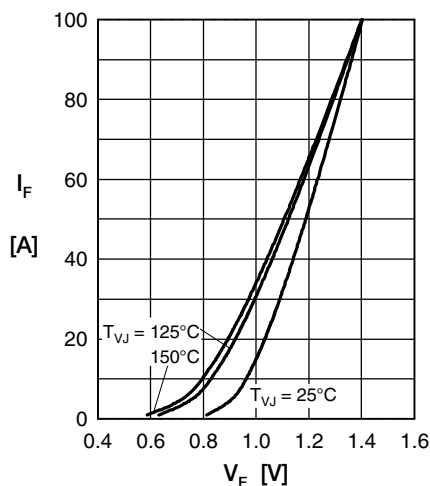


Fig. 1 Forward current vs. voltage drop per diode

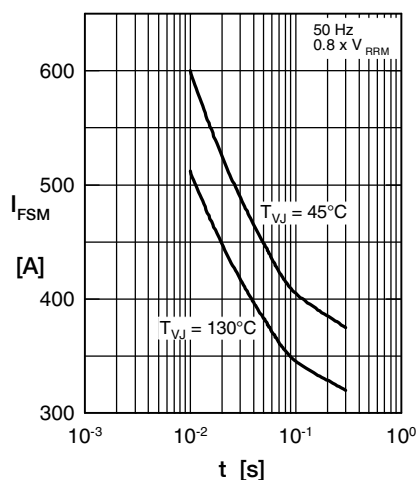


Fig. 2 Surge overload current vs. time per diode

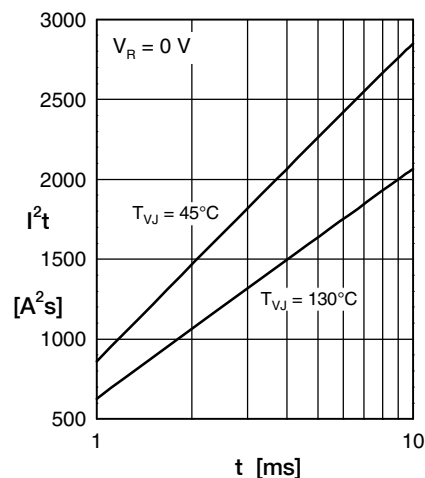


Fig. 3 I^2t vs. time per diode

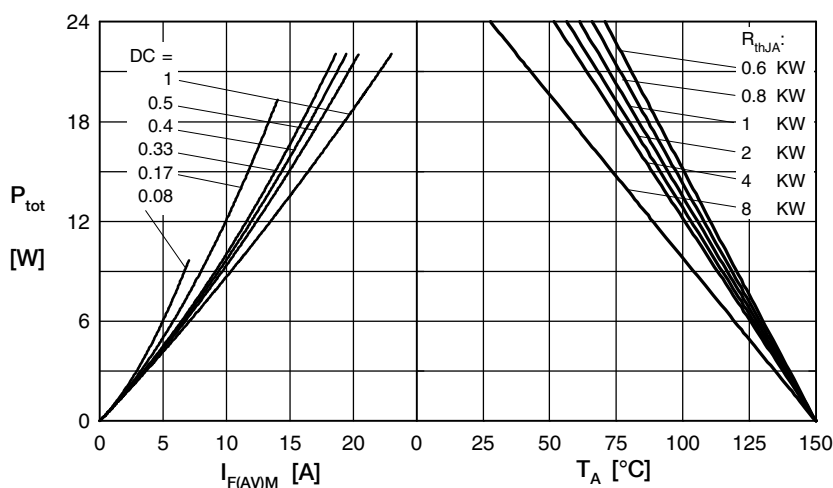


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

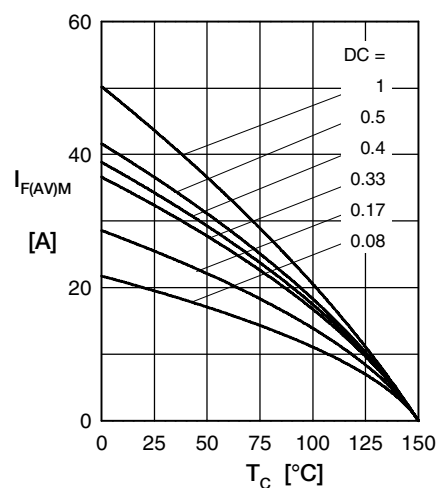


Fig. 5 Max. forward current vs. case temperature per diode

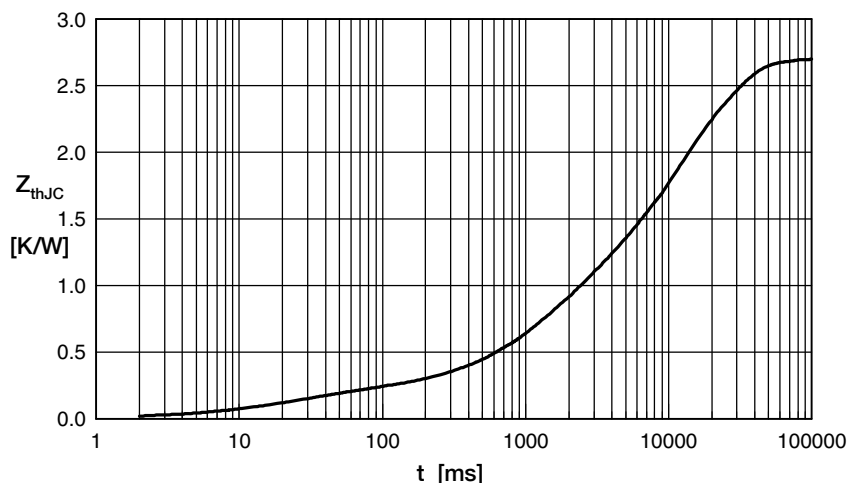


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.040	0.010
2	0.150	0.030
3	0.610	1.350
4	1.900	14.00