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!

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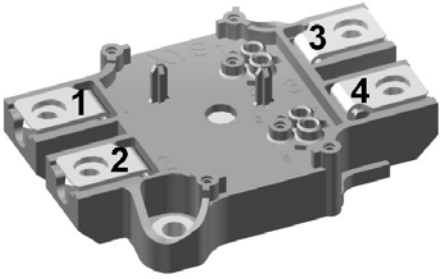
Standard Rectifier Module

V_{RRM} = 2x 1600 V
I_{FAV} = 200 A
V_F = 1.06 V

Phase leg

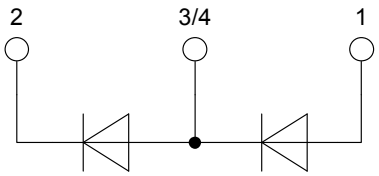
Part number

MDMA200P1600SA



Backside: isolated

E72873



Features / Advantages:

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

Applications:

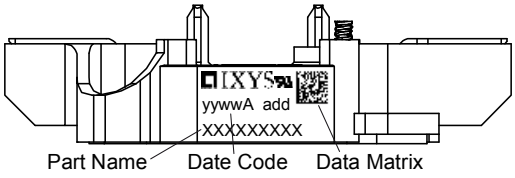
- Diode for main rectification
- For single and three phase bridge configurations

Package: SimBus A

- Isolation Voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Gate: Spring contacts for solder-free PCB-mounting
- Height: 17 mm
- 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*		T_{VJ} = 25°C			1700	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1600	V
I_R	*reverse current*	V_R = 1600 V	T_{VJ} = 25°C			200	µA
		V_R = 1600 V	T_{VJ} = 150°C			15	mA
V_F	*forward voltage drop*	I_F = 200 A	T_{VJ} = 25°C			1.13	V
		I_F = 400 A				1.33	V
		I_F = 200 A	T_{VJ} = 125 °C			1.06	V
		I_F = 400 A				1.32	V
I_{FAV}	*average forward current*	T_C = 110°C	T_{VJ} = 150°C			200	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.76	V
r_F	*slope resistance* }					1.4	mΩ
R_{thJC}	*thermal resistance junction to case*					0.15	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.08		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			830	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			6.00	kA
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			6.48	kA
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			5.10	kA
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			5.51	kA
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			180.0	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			174.7	kA²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			130.1	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			126.3	kA²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		273		pF

Package SimBus A					Ratings			
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal					300	A
T_{VJ}	*virtual junction temperature*				-40		150	°C
T_{op}	*operation temperature*				-40		125	°C
T_{stg}	*storage temperature*				-40		125	°C
Weight						152		g
M_D	*mounting torque*				3		5	Nm
M_T	*terminal torque*				2.5		5	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*		*terminal to terminal*	14.0	10.0			mm
$d_{Spb/Apb}$			*terminal to backside*	14.0	10.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS; I_{ISOL} ≤ 1 mA		4800			V
		t = 1 minute			4000			V



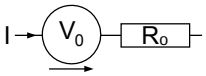
Part number

M = Module
D = Diode
M = Standard Rectifier
A = (up to 1800V)
200 = Current Rating [A]
P = Phase leg
1600 = Reverse Voltage [V]
SA = SimBus A

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MDMA200P1600SA	MDMA200P1600SA	Blister	9	510373

Equivalent Circuits for Simulation

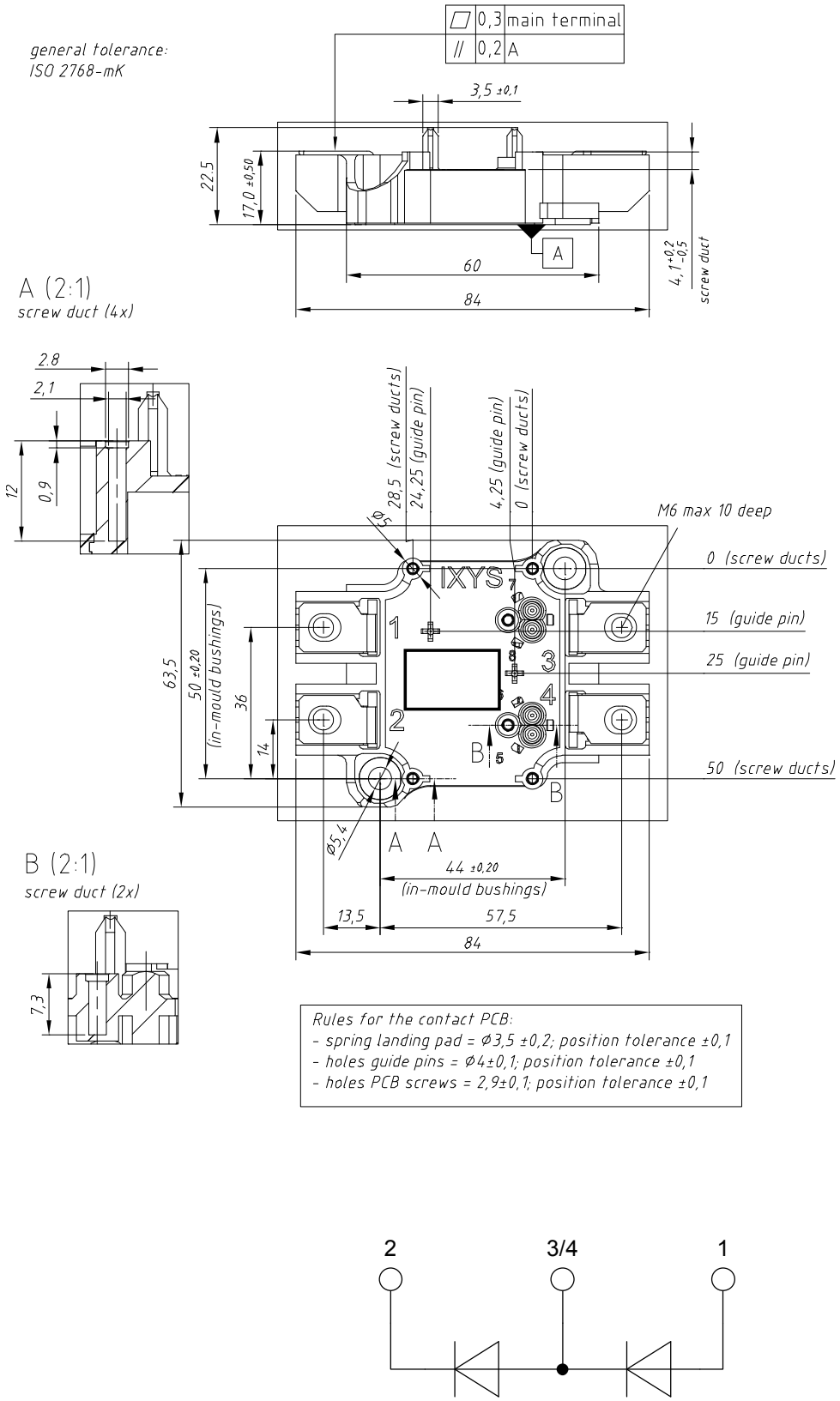
** on die level* T_{VJ} = 150 °C



Rectifier

$V_{0\,max}$	*threshold voltage*	0.76	V
$R_{0\,max}$	*slope resistance **	0.8	mΩ

Outlines SimBus A



Rules for the contact PCB:
- spring landing pad = Ø3,5 ±0,2; position tolerance ±0,1
- holes guide pins = Ø4±0,1; position tolerance ±0,1
- holes PCB screws = 2,9±0,1; position tolerance ±0,1

Rectifier

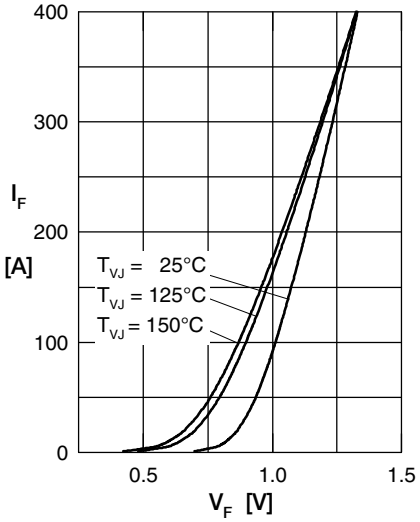


Fig. 1 Forward current versus voltage drop per diode

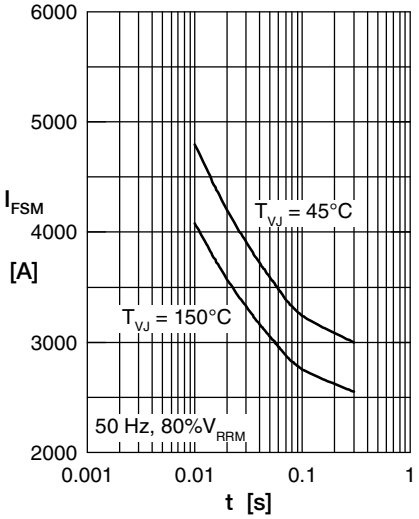


Fig. 2 Surge overload current vs. time per diode

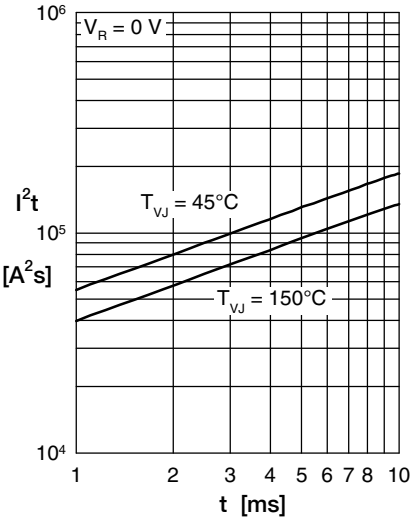


Fig. 3 I^2t versus time per diode

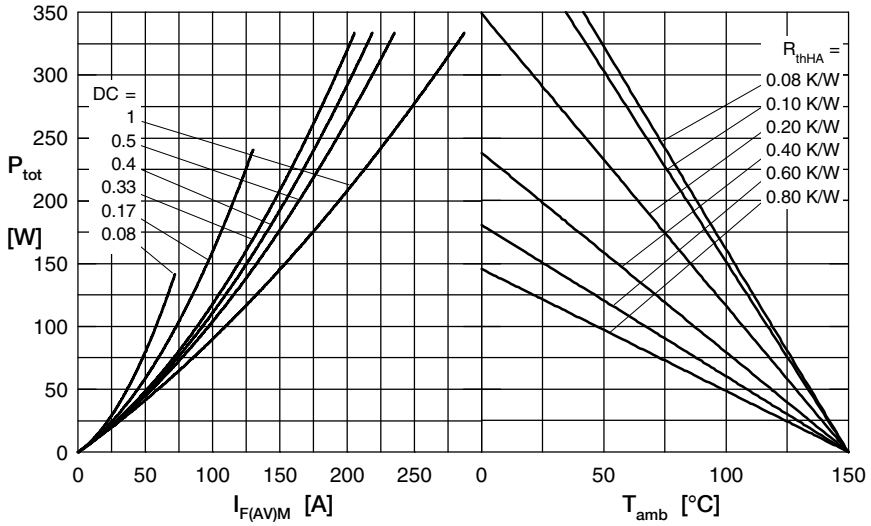


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

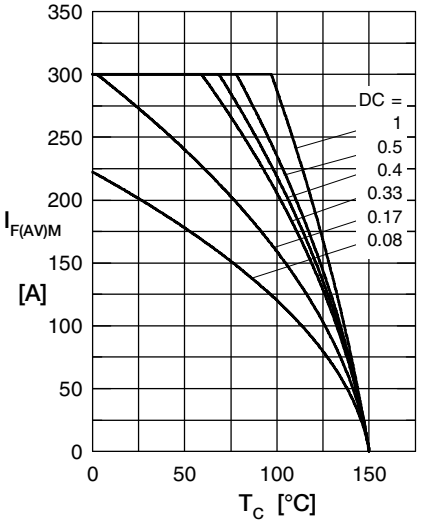


Fig. 5 Max. forward current vs. case temperature per diode

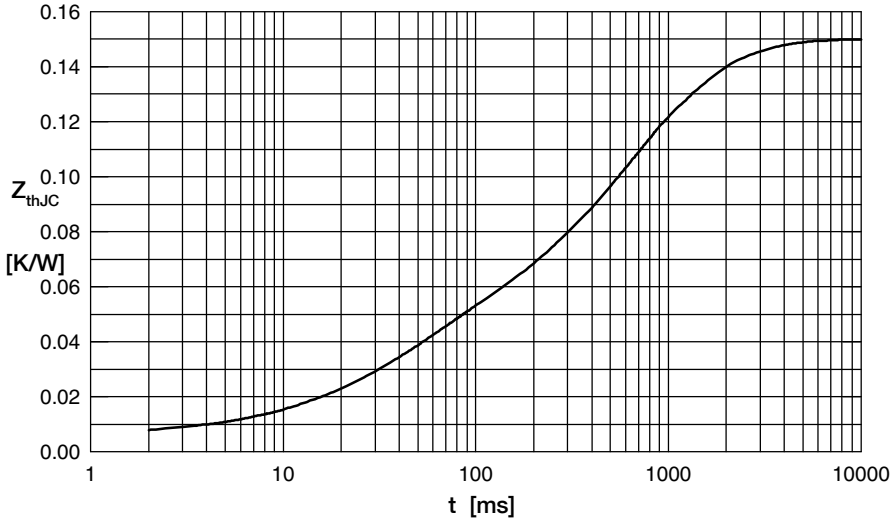


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.006	0.0005
2	0.035	0.0400
3	0.079	0.5500
4	0.030	1.5000