

tentative

Standard Rectifier Module

$$V_{RRM} = 2 \times 1600 \text{ V}$$

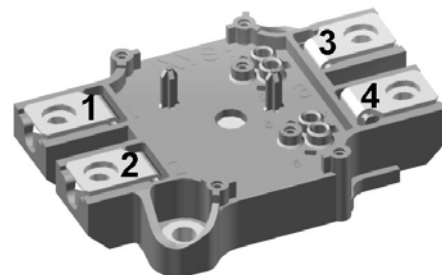
$$I_{FAV} = 200 \text{ A}$$

$$V_F = 1.06 \text{ V}$$

Phase leg

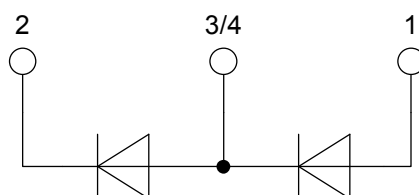
Part number

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

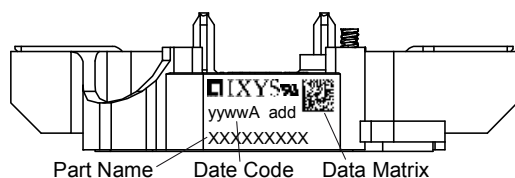
Package:

- Housing: SimBus A
- International standard package
- RoHS compliant
- Isolation voltage: 4800 V~
- Advanced power cycling

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, drain current	$V_R = 1600\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			200	μA
		$V_R = 1600\text{ V}$	$T_{VJ} = 125^{\circ}\text{C}$			5	mA
V_F	forward voltage drop	$I_F = 200\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.13	V
		$I_F = 400\text{ A}$				1.33	V
		$I_F = 200\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.06	V
		$I_F = 400\text{ A}$				1.32	V
I_{FAV}	average forward current	$T_C = 100^{\circ}\text{C}$	$T_{VJ} = 150^{\circ}\text{C}$			200	A
		180° sine					
V_{FO}	threshold voltage	} for power loss calculation only	$T_{VJ} = 150^{\circ}\text{C}$			0.95	V
r_F	slope resistance					0.96	m Ω
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		$T_C = 25^{\circ}\text{C}$			830	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 45^{\circ}\text{C}$			6.00	kA
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			6.48	kA
		$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 150^{\circ}\text{C}$			5.10	kA
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			5.51	kA
I^2t	value for fusing	$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 45^{\circ}\text{C}$			180.0	kA ² s
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			174.7	kA ² s
		$t = 10\text{ ms; (50 Hz), sine}$	$T_{VJ} = 150^{\circ}\text{C}$			130.1	kA ² s
		$t = 8,3\text{ ms; (60 Hz), sine}$	$V_R = 0\text{ V}$			126.3	kA ² s
C_J	junction capacitance	$V_R = 400\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		273		pF

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Package SimBus A				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
I _{RMS}	RMS current	per terminal				300	A	
T _{stg}	storage temperature			-40		125	°C	
T _{vj}	virtual junction temperature			-40		150	°C	
Weight					152		g	
M _D	mounting torque			3		5	Nm	
M _T	terminal torque			2.5		5	Nm	
V _{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; I ^{ISOL} ≤ 1 mA	4800			V	
		t = 1 minute		4000			V	
d _{Spp/App}	creepage distance on surface striking distance through air	terminal to terminal		14.0	10.0			mm
d _{Spb/App}		terminal to backside		14.0	10.0			mm



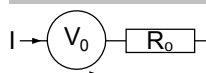
Part number

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

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

Rectifier

$V_{0\max}$	threshold voltage	0.95	V
$R_{0\max}$	slope resistance *	0.16	mΩ

Outlines SimBus A

general tolerance:
ISO 2768-mK

