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.

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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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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

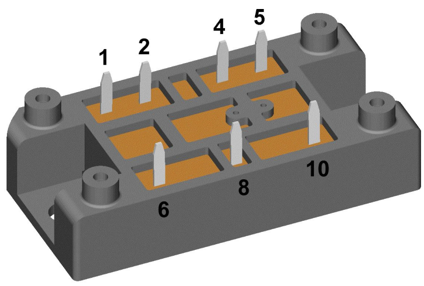
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	2000
I_{DAV}	=	60
I_{FSM}	=	350

3~ Rectifier Bridge

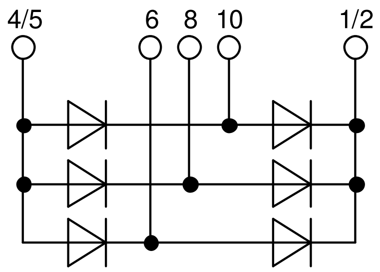
Part number

VUO52-20NO1



Backside: isolated

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

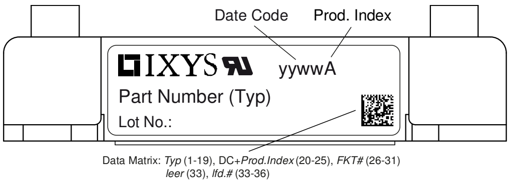
Package: V1-A-Pack

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Height: 17 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			2100	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			2000	V
I_R	*reverse current*	V_R = 2000 V	T_{VJ} = 25°C			40	µA
		V_R = 2000 V	T_{VJ} = 150°C			1,5	mA
V_F	*forward voltage drop*	I_F = 20 A	T_{VJ} = 25°C			1,13	V
		I_F = 60 A				1,44	V
		I_F = 20 A	T_{VJ} = 125°C			1,07	V
		I_F = 60 A				1,50	V
I_{DAV}	*bridge output current*	T_C = 110°C rectangular d = ⅓	T_{VJ} = 150°C			60	A
V_{F0}	*threshold voltage*	*for power loss calculation only*	T_{VJ} = 150°C			0,83	V
r_F	*slope resistance*					11,5	mΩ
R_{thJC}	*thermal resistance junction to case*					1,3	K/W
R_{thCH}	*thermal resistance case to heatsink*				0,3		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			95	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			350	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			380	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			300	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			320	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			615	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			600	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			450	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			425	A²s
C_J	*junction capacitance*	V_R = 700 V; f = 1 MHz	T_{VJ} = 25°C		7		pF

Data according to IEC 60747and per semiconductor unless otherwise specified

Package V1-A-Pack				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				37		g
M_D	*mounting torque*		2		2,5	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*	*terminal to terminal*	6,0			mm
$d_{Spb/Apb}$		*terminal to backside*	12,0			mm
V_{ISOL}	*isolation voltage*	t = 1 second; 50/60 Hz, RMS; I_{ISOL} ≤ 1 mA	3600			V
		t = 1 minute	3000			V

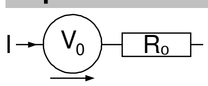


Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO52-20NO1	VUO52-20NO1	Blister	24	463329

Similar Part	Package	Voltage class
VUO52-08NO1	V1-A-Pack	800
VUO52-12NO1	V1-A-Pack	1200
VUO52-14NO1	V1-A-Pack	1400
VUO52-16NO1	V1-A-Pack	1600
VUO52-18NO1	V1-A-Pack	1800
VUO52-22NO1	V1-A-Pack	2200
VUO34-16NO1	V1-A-Pack	1600
VUO34-18NO1	V1-A-Pack	1800

Equivalent Circuits for Simulation

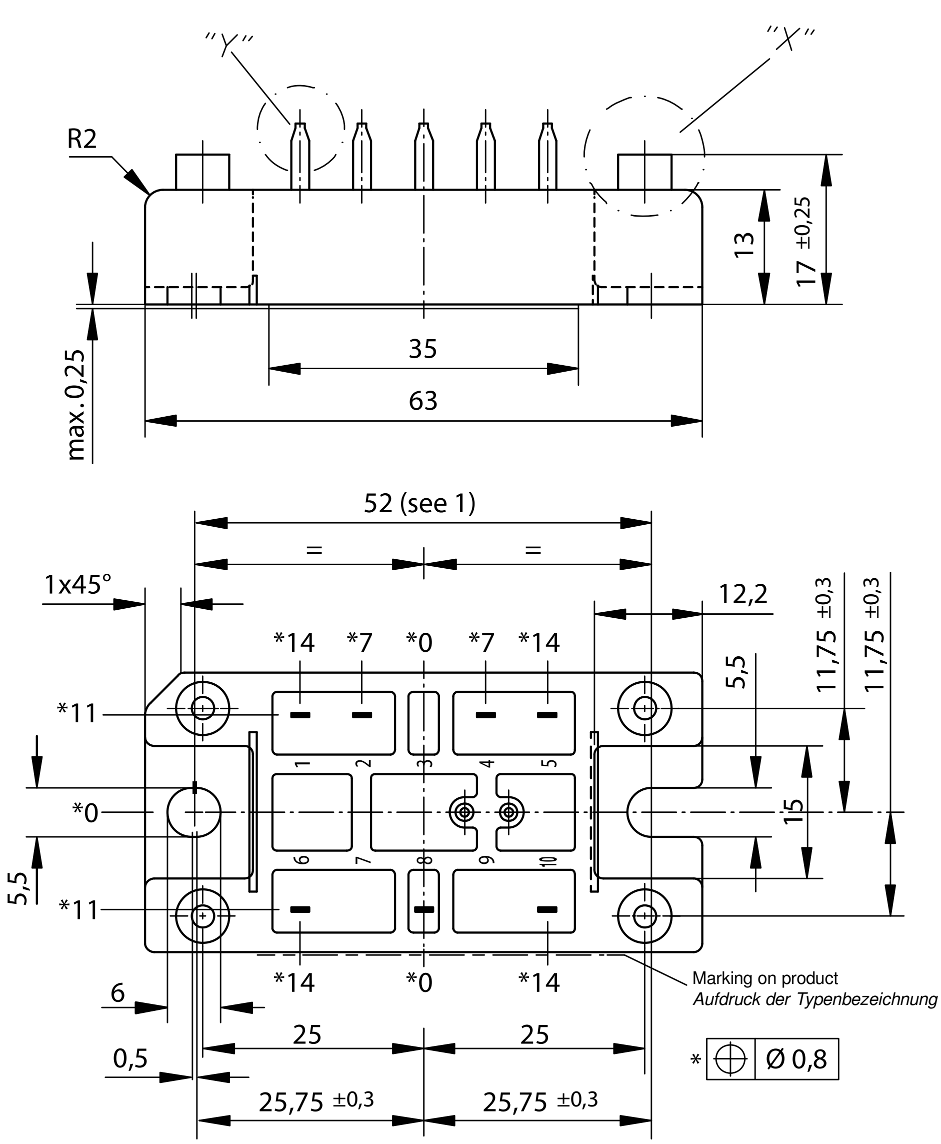
** on die level* $T_{VJ} = 150\,°C$

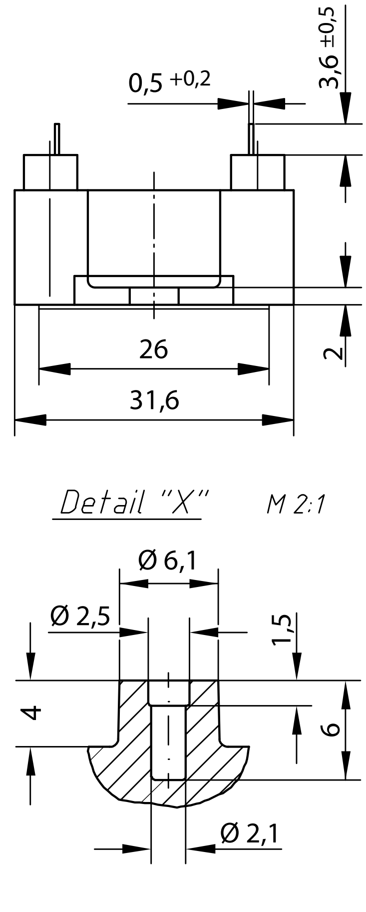


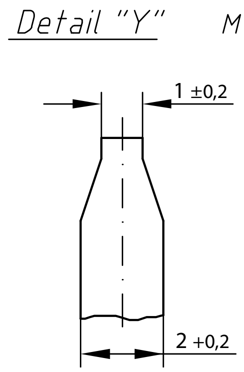
Rectifier

$V_{0\,max}$	*threshold voltage*	0,83	V
$R_{0\,max}$	*slope resistance **	10,2	mΩ

Outlines V1-A-Pack

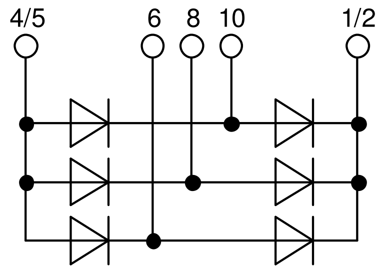






Remarks / ***Bemerkungen:***

1. Nominal distance mounting screws on heat sink: 52 mm / *Nennabstand Befestigungsschrauben auf Kühlkörper: 52 mm*
2. General tolerance / *Allgemeintoleranz*: DIN ISO 2768 -T1-c
3. Surface treatment of pins: tin plated (Sn) in hot dip / *Oberflächenbehandlung der Pins: verzinnt (Sn) im Tauchbad*



Rectifier

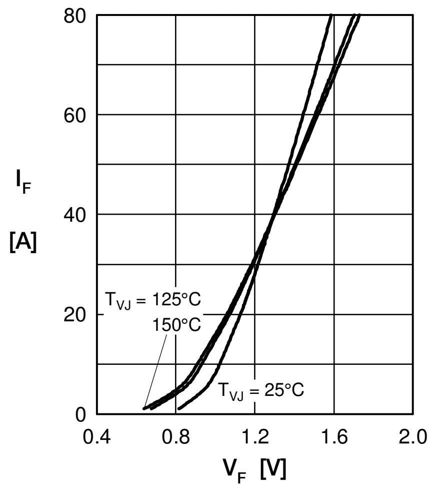


Fig. 1 Forward current vs. voltage drop per diode

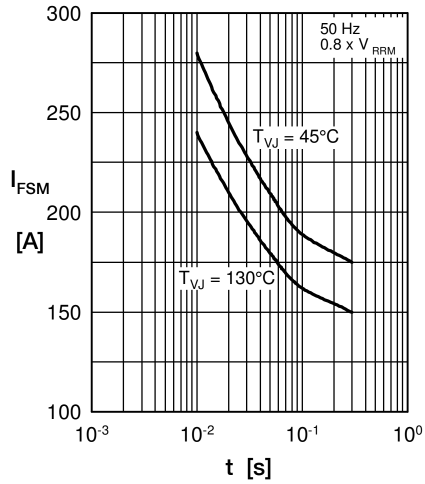


Fig. 2 Surge overload current vs. time per diode

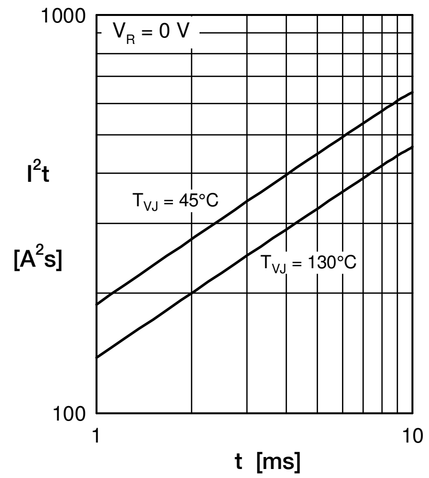


Fig. 3 I^2t vs. time per diode

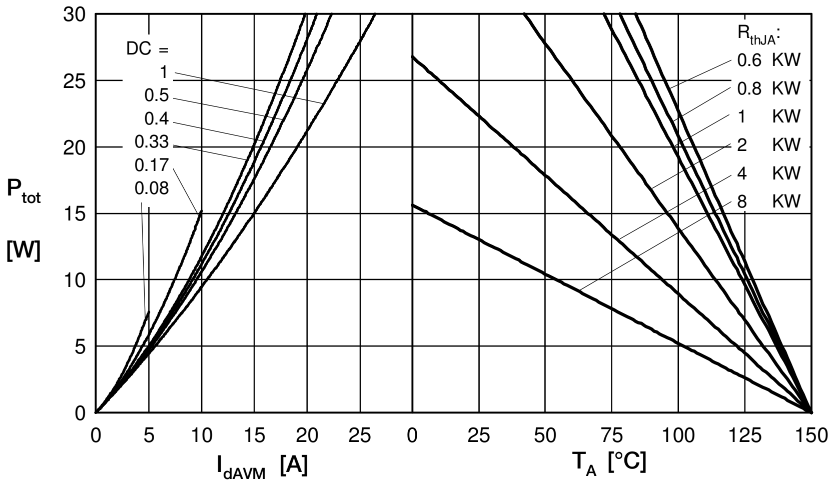


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

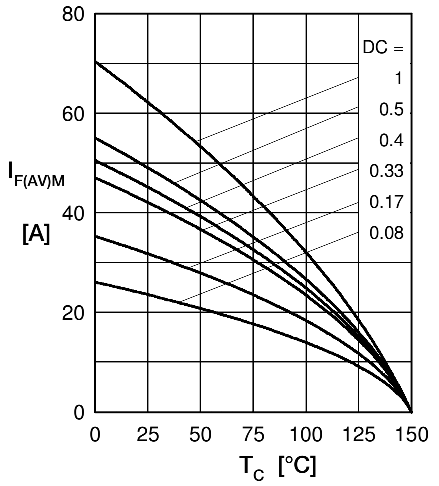


Fig. 5 Max. forward current vs. case temperature per diode

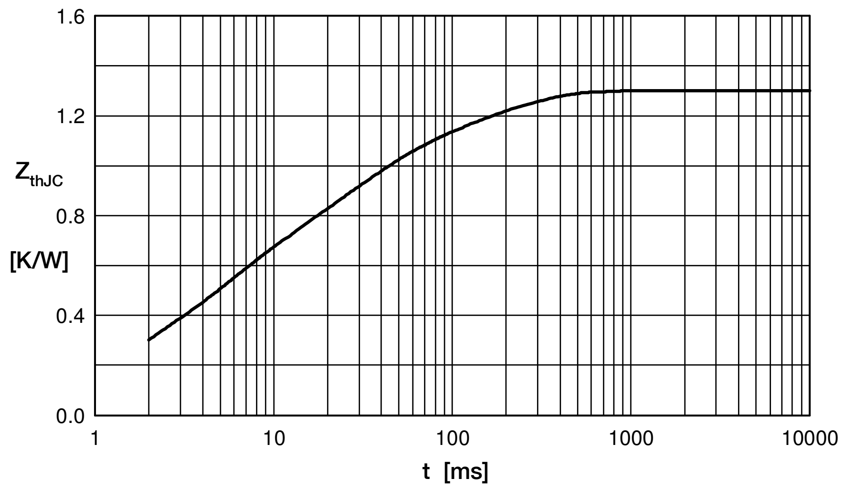


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.06070	0.008
2	0.173	0.05
3	0.3005	0.06
4	0.463	0.3
5	0.3028	0.15