

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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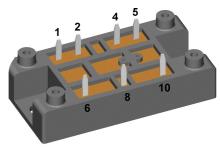
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	1600
I_{DAV}	=	60
I_{FSM}	=	350

3~ Rectifier Bridge

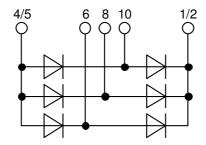
Part number

VUO52-16NO1



Backside: isolated





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

Terms _Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or live endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments; the conclusion of quality agreements;
- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

IXYS reserves the right to change limits, conditions and dimensions.

Data according to IEC 60747 and per semiconductor unless otherwise specified

20151030d



Rectifier			Ratings			
Definition	Conditions		min.	typ.	max.	Unit
max. non-repetitive reverse bloc	cking voltage	$T_{VJ} = 25^{\circ}C$			1700	V
max. repetitive reverse blocking	voltage	$T_{VJ} = 25^{\circ}C$			1600	V
reverse current	V _R = 1600 V	$T_{VJ} = 25^{\circ}C$			40	μΑ
	$V_R = 1600 \text{ V}$	$T_{VJ} = 150$ °C			1,5	mΑ
forward voltage drop	I _F = 20 A	$T_{VJ} = 25^{\circ}C$			1,13	V
	$I_F = 60 \text{ A}$				1,44	V
	I _F = 20 A	$T_{VJ} = 125$ °C			1,07	٧
	$I_F = 60 \text{ A}$				1,50	٧
bridge output current	T _C = 110°C	T _{vJ} = 150°C			60	Α
	rectangular d = ⅓					i ! !
threshold voltage		T _{vJ} = 150°C			0,83	٧
slope resistance } for power	loss calculation only				11,5	mΩ
thermal resistance junction to ca	ase				1,3	K/W
thermal resistance case to heats	sink			0,3		K/W
total power dissipation		$T_{C} = 25^{\circ}C$			95	W
max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}C$			350	Α
	t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			380	Α
	t = 10 ms; (50 Hz), sine	T _{vJ} = 150°C			300	Α
	t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			320	Α
value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}C$			615	A ² s
	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
junction capacitance	$V_{R} = 400 \text{ V}; f = 1 \text{ MHz}$	$T_{VJ} = 25^{\circ}C$		10		pF
	max. non-repetitive reverse blocking max. repetitive reverse blocking reverse current forward voltage drop bridge output current threshold voltage slope resistance junction to ca thermal resistance case to heats total power dissipation max. forward surge current value for fusing	$\begin{array}{c} \textit{max. non-repetitive reverse blocking voltage} \\ \textit{max. repetitive reverse blocking voltage} \\ \textit{reverse current} & V_{\text{R}} = 1600 \text{ V} \\ V_{\text{R}} = 1600 \text{ V} \\ \\ \textit{forward voltage drop} & I_{\text{F}} = 20 \text{ A} \\ I_{\text{F}} = 60 \text{ A} \\ \\ \textit{I}_{\text{F}} = 60 \text{ A} \\ \\ \textit{bridge output current} & T_{\text{C}} = 110 ^{\circ}\text{C} \\ \textit{rectangular} & d = \frac{1}{3} \\ \\ \textit{threshold voltage slope resistance} \end{array} \right\} \textit{ for power loss calculation only} \\ \textit{thermal resistance junction to case} \\ \textit{thermal resistance case to heatsink} \\ \textit{total power dissipation} \\ \textit{max. forward surge current} & t = 10 \text{ ms; (50 Hz), sine} \\ t = 8,3 \text{ ms; (60 Hz), sine} \\ t = 8,3 \text{ ms; (60 Hz), sine} \\ t = 8,3 \text{ ms; (60 Hz), sine} \\ t = 10 \text{ ms; (50 Hz), sine} \\ t $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$



Package V1-A-Pack				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I _{RMS}	RMS current	per terminal				100	Α
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
$d_{\text{Spb/Apb}}$			terminal to backside	12,0			mm
V _{ISOL}	isolation voltage	t = 1 second	50/0011 5140 1	3600			٧
		t = 1 minute	50/60 Hz, RMS; I _{ISOL} ≤ 1 mA	3000			٧



Data Matrix: Typ (1-19), DC+Prod.Index (20-25), FKT# (26-31) leer (33), Ifd.# (33-36)

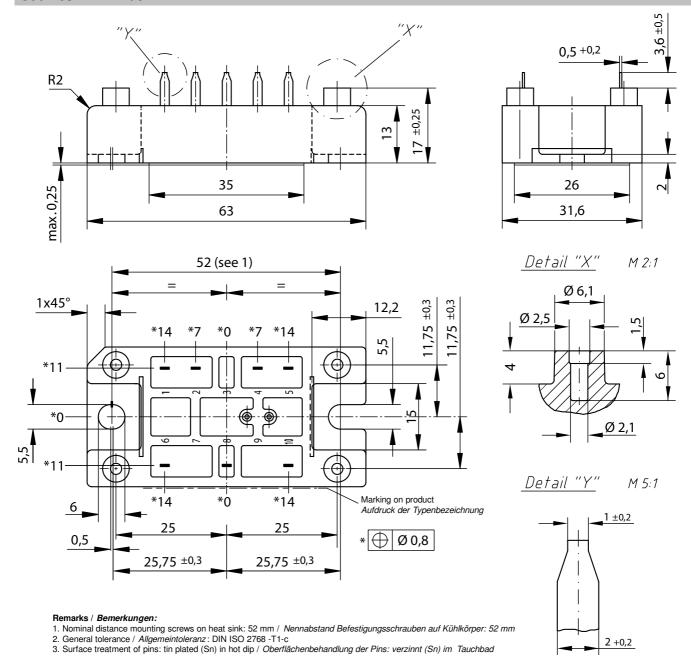
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO52-16NO1	VUO52-16NO1	Blister	24	461180

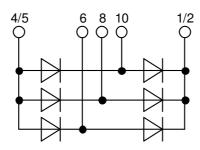
Similar Part	Package	Voltage class
VUO52-08NO1	V1-A-Pack	800
VUO52-12NO1	V1-A-Pack	1200
VUO52-14NO1	V1-A-Pack	1400
VUO52-18NO1	V1-A-Pack	1800
VUO52-20NO1	V1-A-Pack	2000
VUO52-22NO1	V1-A-Pack	2200
VUO34-16NO1	V1-A-Pack	1600
VUO34-18NO1	V1-A-Pack	1800

Equiv	alent Circuits for	Simulation	* on die level	$T_{VJ} = 150 ^{\circ}\text{C}$
$I \rightarrow V_0$	R_0	Rectifier		
V _{0 max}	threshold voltage	0,83		V
$R_{0 \text{ max}}$	slope resistance *	10,2		$m\Omega$



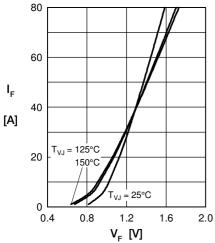
Outlines V1-A-Pack

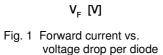






Rectifier





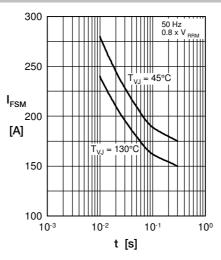


Fig. 2 Surge overload current vs. time per diode

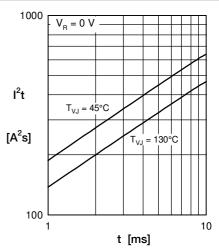


Fig. 3 I²t vs. time per diode

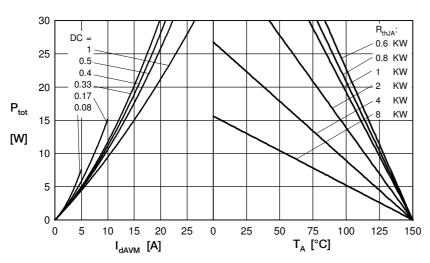


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

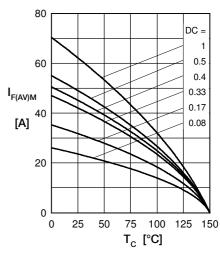


Fig. 5 Max. forward current vs. case temperature per diode

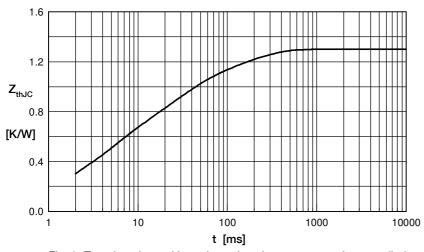


Fig. 6 Transient thermal impedance junction to case vs. time per diode

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