

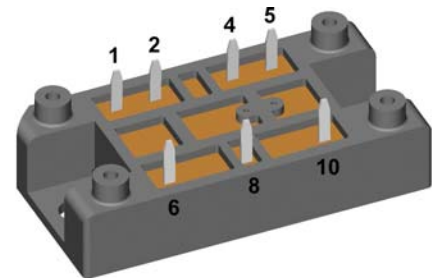
Standard Rectifier Module

3~ Rectifier	
V_{RRM}	= 800 V
I_{DAV}	= 60 A
I_{FSM}	= 350 A

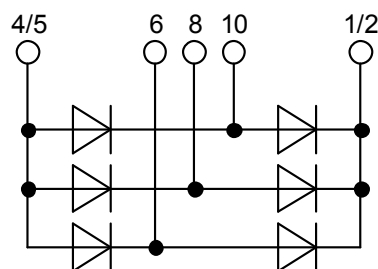
3~ Rectifier Bridge

Part number

VUO52-08NO1



 E72873



Features / Advantages:

- Package with DCB ceramic
- Reduced weight
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
- Very low leakage current

Applications:

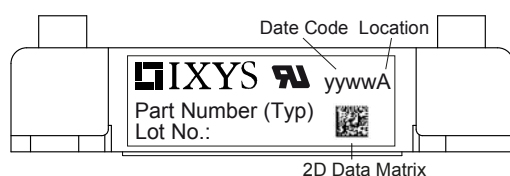
- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: V1-A-Pack

- Isolation Voltage: 3600V~
- 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	$T_{VJ} = 25^{\circ}\text{C}$				900	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				800	V
I_R	reverse current, drain current	$V_R = 800\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			40	μA
		$V_R = 800\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			1.5	mA
V_F	forward voltage drop	$I_F = 20\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.13	V
		$I_F = 60\text{ A}$				1.44	V
		$I_F = 20\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.07	V
		$I_F = 60\text{ A}$				1.50	V
I_{DAV}	bridge output current	$T_C = 110^{\circ}\text{C}$	$T_{VJ} = 150^{\circ}\text{C}$			60	A
		rectangular $d = \frac{1}{3}$					
V_{FO}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}\text{C}$		0.83	V
r_F	slope resistance					11.5	m Ω
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	$T_C = 25^{\circ}\text{C}$				95	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			350	A
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			380	A
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			300	A
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			320	A
I^2t	value for fusing	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			615	A ² s
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			600	A ² s
		$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			450	A ² s
		$t = 8,3\text{ ms}; (60\text{ Hz}), \text{ sine}$	$V_R = 0\text{ V}$			425	A ² s
C_J	junction capacitance	$V_R = 400\text{ V}; f = 1\text{ MHz}$			10		pF

Package V1-A-Pack			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				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	3600			V
		t = 1 minute	3000			V



Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO52-08NO1	VUO52-08NO1	Box	10	461164

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

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

		Rectifier	
$V_{0\max}$	threshold voltage	0.83	V
$R_{0\max}$	slope resistance *	10.2	mΩ

Technical drawing of a mechanical part, showing three views: front view, top view, and side view. The drawing includes dimensions and a title block.

Front View:

- Overall width: 63
- Overall height: 17 ± 0,25
- Central slot width: 35
- Slot depth: 13
- Side slots: 2 (each)
- Top surface: R2
- Bottom surface: 0,25

Top View:

- Overall width: 50 ± 0,2
- Overall height: 23,5 ± 0,1
- Central slot width: 38,6
- Slot depth: 14 ± 0,3
- Slot width: 7 ± 0,3
- Side slots: 2 (each)
- Top surface: R1
- Bottom surface: 0,5
- Left side: 4x45°
- Right side: 15
- Central slot: 25,75 ± 0,15
- Overall width: 51,5 ± 0,3

Side View:

- Overall width: 31,6
- Overall height: 3,3 ± 0,5
- Central slot width: 26
- Slot depth: 2
- Top surface: 0,5 ± 0,2
- Bottom surface: 2

Detail "X" (M 2:1):

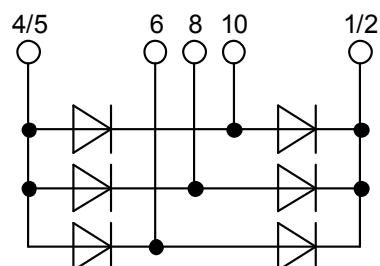
- Overall width: 6,1
- Overall height: 1,5
- Central slot width: 2,5
- Slot depth: 1,5
- Side slots: 2 (each)
- Top surface: R1
- Bottom surface: 0,5 ± 0,3

Detail "Y" (M 5:1):

- Overall width: 2 ± 0,2
- Overall height: 1,5
- Central slot width: 0,5 ± 0,3
- Slot depth: 1,5
- Side slots: 2 (each)
- Top surface: 1 ± 0,2
- Bottom surface: 2 ± 0,2

Title Block:

Aufdruck der Typenbezeichnung



Rectifier

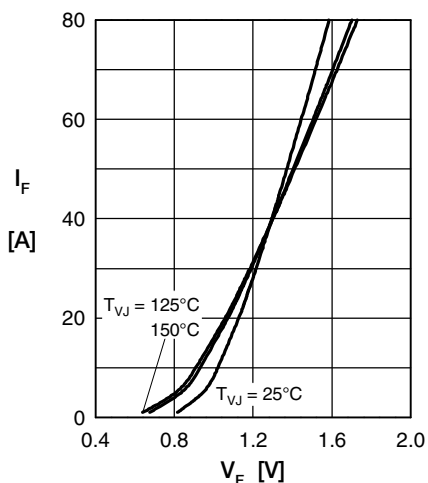


Fig. 1 Forward current versus voltage drop per diode

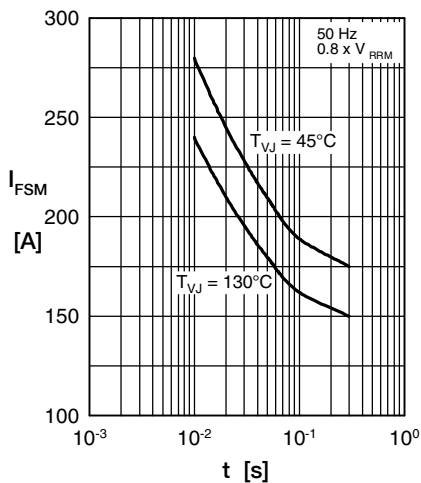


Fig. 2 Surge overload current

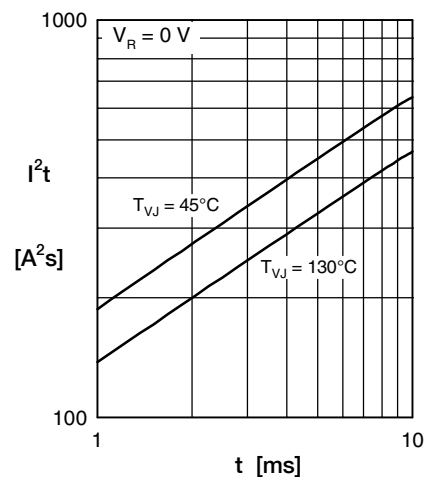


Fig. 3 I^2t versus time per diode

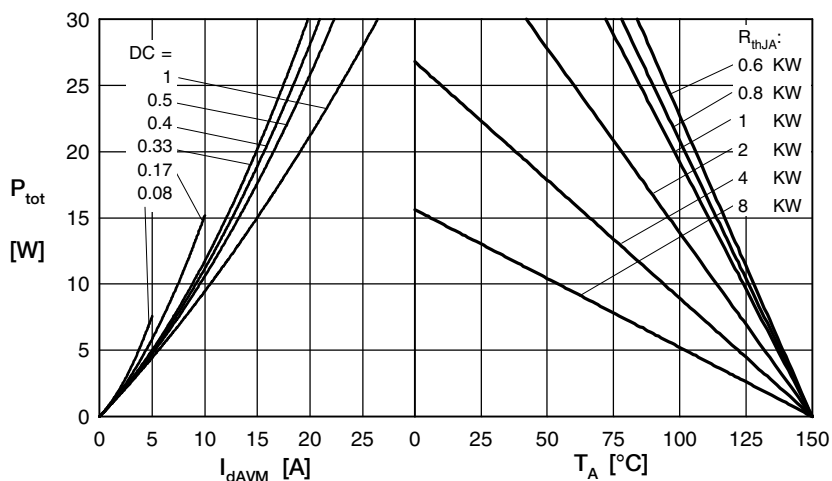


Fig. 4 Power dissipation vs. direct output current & ambient temperature

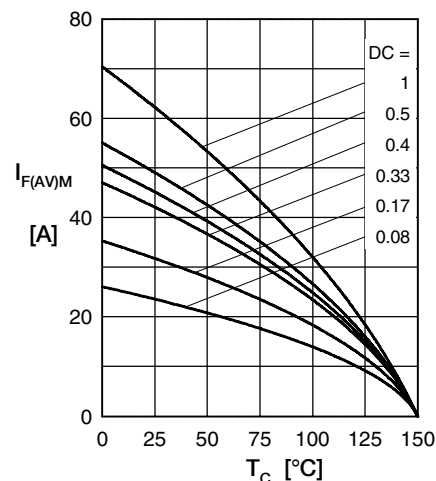


Fig. 5 Max. forward current vs. case temperature

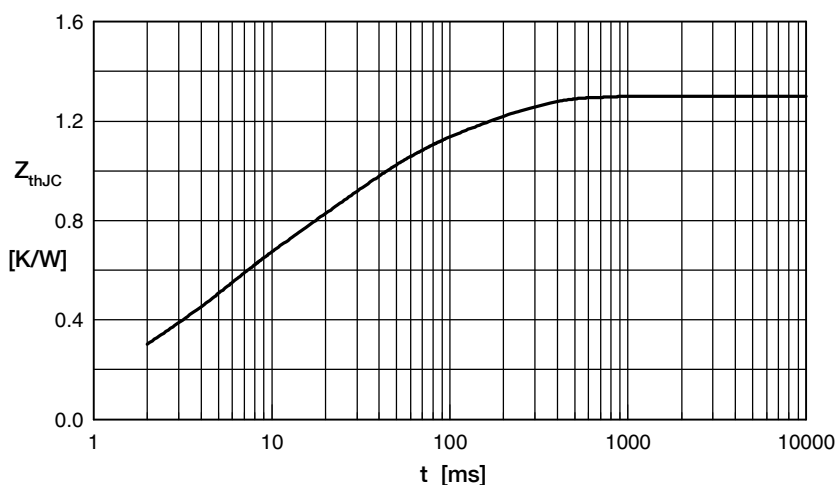


Fig. 6 Transient thermal impedance junction to case

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