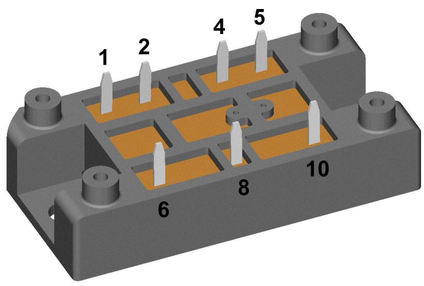
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	800 V
I_{DAV}	=	80 A
I_{FSM}	=	600 A

3~ Rectifier Bridge

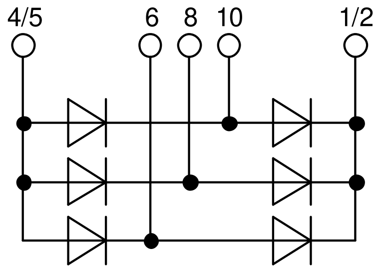
Part number

VUO80-08NO1



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

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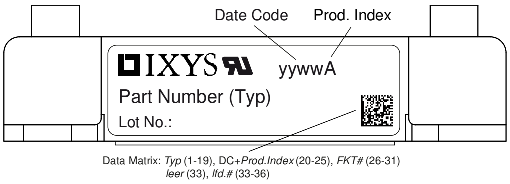
Rectifier				Ratings		
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	*max. non-repetitive reverse blocking voltage*	T_{VJ} = 25°C			900	V
V_{RRM}	*max. repetitive reverse blocking voltage*	T_{VJ} = 25°C			800	V
I_R	*reverse current*	V_R = 800 V; T_{VJ} = 25°C			40	µA
		V_R = 800 V; T_{VJ} = 150°C			1.5	mA
V_F	*forward voltage drop*	I_F = 30 A; T_{VJ} = 25°C			1.14	V
		I_F = 90 A			1.48	V
		I_F = 30 A; T_{VJ} = 125°C			1.06	V
		I_F = 90 A			1.51	V
I_{DAV}	*bridge output current*	T_C = 110°C; rectangular d = ⅓; T_{VJ} = 150°C			80	A
V_{F0}	*threshold voltage*	*for power loss calculation only*; T_{VJ} = 150°C			0.81	V
r_F	*slope resistance*	*for power loss calculation only*			7.8	mΩ
R_{thJC}	*thermal resistance junction to case*				1.1	K/W
R_{thCH}	*thermal resistance case to heatsink*			0.3		K/W
P_{tot}	*total power dissipation*	T_C = 25°C			110	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; T_{VJ} = 45°C			600	A
		t = 8,3 ms; (60 Hz), sine; V_R = 0 V			650	A
		t = 10 ms; (50 Hz), sine; T_{VJ} = 150°C			510	A
		t = 8,3 ms; (60 Hz), sine; V_R = 0 V			550	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine; T_{VJ} = 45°C			1.80	kA²s
		t = 8,3 ms; (60 Hz), sine; V_R = 0 V			1.76	kA²s
		t = 10 ms; (50 Hz), sine; T_{VJ} = 150°C			1.30	kA²s
		t = 8,3 ms; (60 Hz), sine; V_R = 0 V			1.26	kA²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz; T_{VJ} = 25°C		18		pF

Package V1-A-Pack

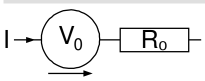
Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal				100	A
T_{VJ}	*virtual junction temperature*			-40		150	°C
T_{op}	*operation temperature*			-40		125	°C
T_{stg}	*storage temperature*			-40		125	°C
Weight					37		g
M_D	*mounting torque*			2		2.5	Nm
$d_{Spp/App}$	*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	VUO80-08NO1	VUO80-08NO1	Blister	24	516847

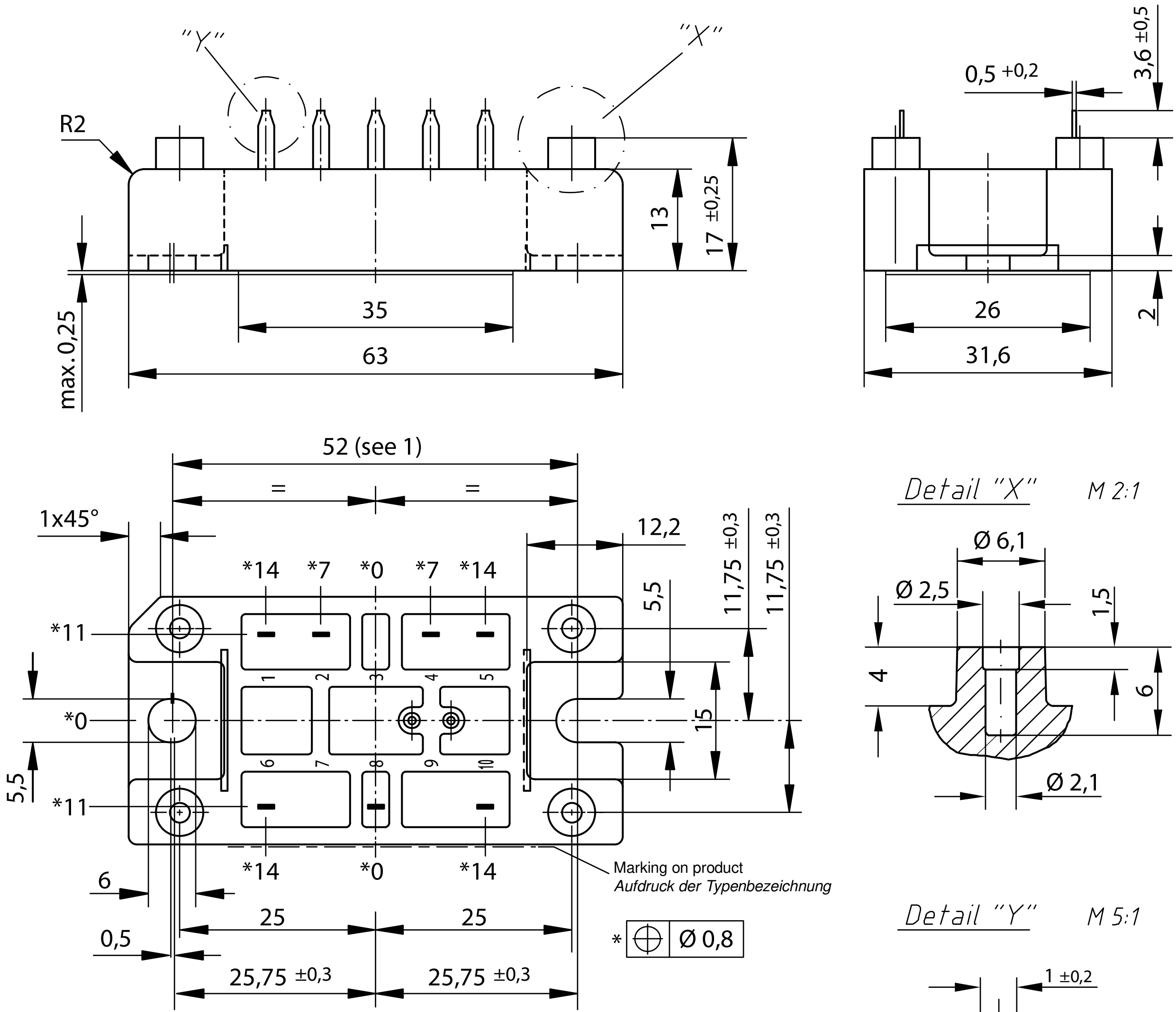
Equivalent Circuits for Simulation

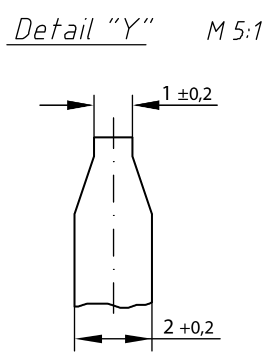
* on die level $T_{VJ} = 150°C$



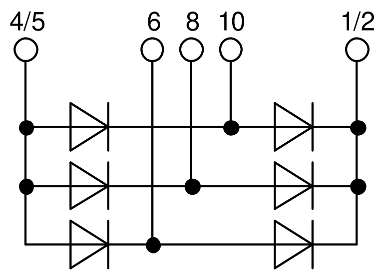
		Rectifier	
$V_{0\,max}$	*threshold voltage*	0.81	V
$R_{0\,max}$	*slope resistance **	6.6	mΩ

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*
4. *Detail X*:
   EJOT PT® self-tapping screws (dimension K25) to be recommended for mounting on PCB
   selbstschneidende Schraube (Größe K25) empfohlen für die PCB-Montage
   Take care on the maximum screw length according to board thickness and the maximum hole depth of 6 mm
   Bei der Wahl der Schraubenlänge die PCB-Dicke und die maximale Lochtiefe von 6mm beachten
   Recommended mounting torque: 1.5 Nm / *Empfohlenes Drehmoment: 1.5 Nm*



Rectifier

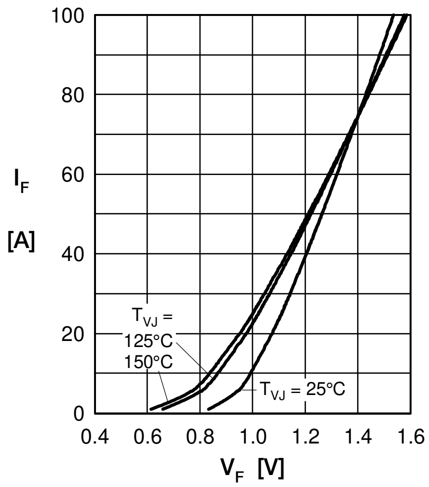


Fig. 1 Forward current vs. voltage drop per diode

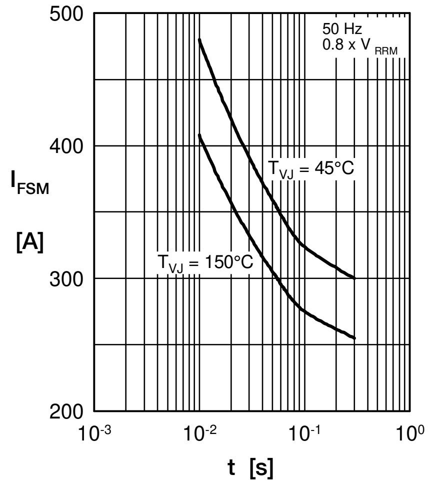


Fig. 2 Surge overload current vs. time per diode

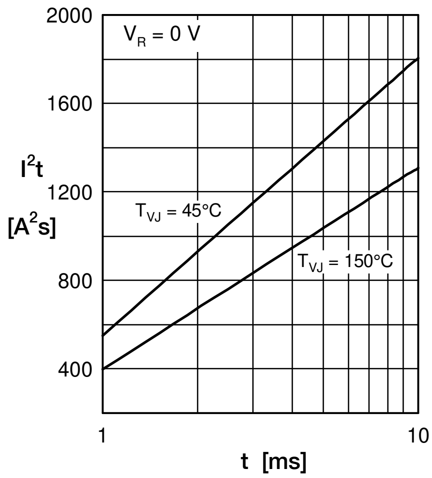


Fig. 3 I^2t vs. time per diode

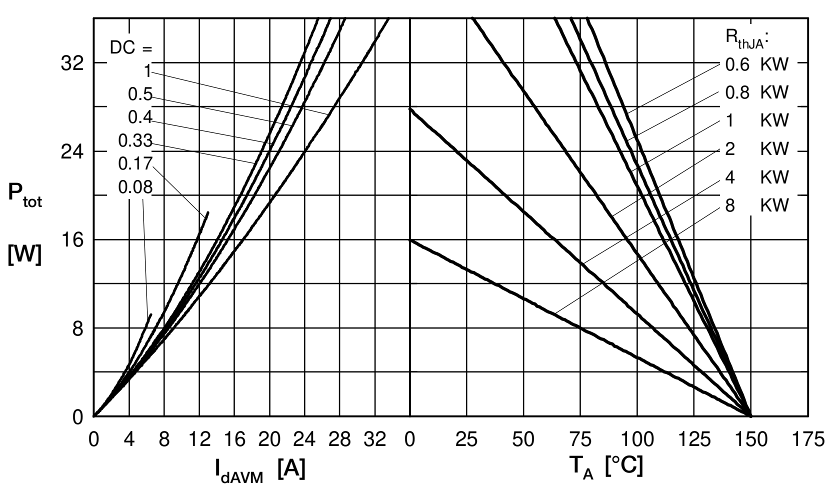


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

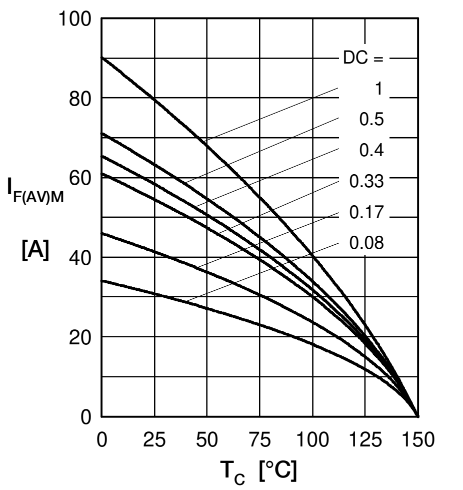


Fig. 5 Max. forward current vs. case temperature per diode

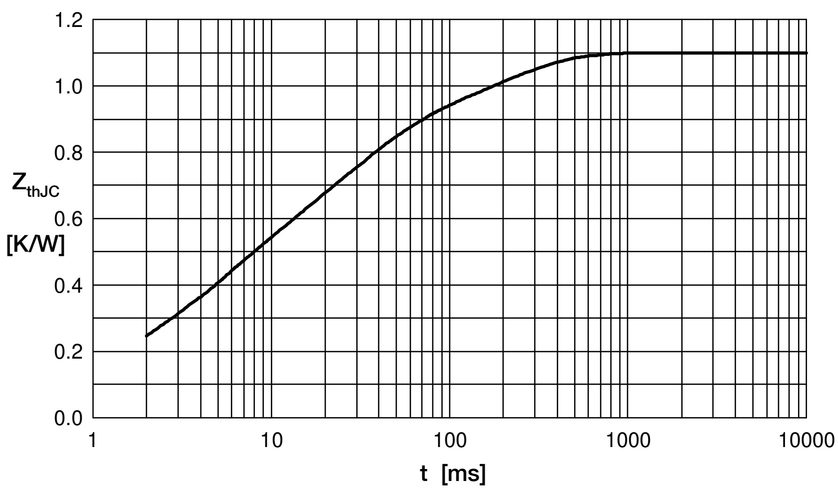


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.0607	0.0004
2	0.1230	0.00256
3	0.2305	0.0045
4	0.4230	0.0242
5	0.2628	0.1800