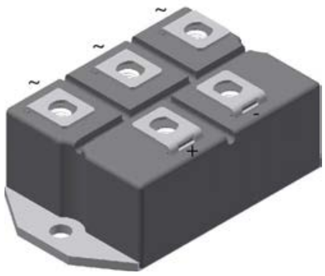
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	1400 V
I_{DAV}	=	90 A
I_{FSM}	=	750 A

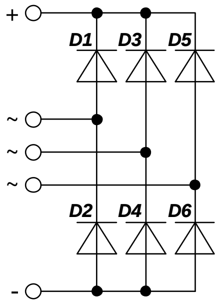
3~ Rectifier Bridge

Part number

VUO82-14NO7



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

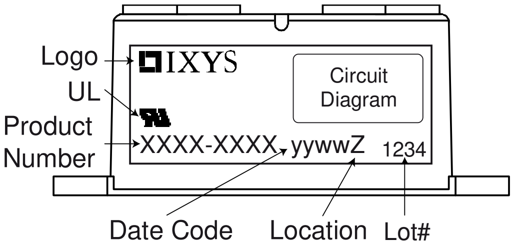
Package: PWS-D

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Rectifier

Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			1500	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1400	V
I_R	*reverse current*	V_R = 1400 V	T_{VJ} = 25°C			100	µA
		V_R = 1400 V	T_{VJ} = 150°C			1,5	mA
V_F	*forward voltage drop*	I_F = 30 A	T_{VJ} = 25°C			1,08	V
		I_F = 90 A				1,35	V
		I_F = 30 A	T_{VJ} = 125°C			0,99	V
		I_F = 90 A				1,33	V
I_{DAV}	*bridge output current*	T_C = 115°C rectangular d = ⅓	T_{VJ} = 150°C			90	A
V_{F0}	*threshold voltage*	*for power loss calculation only*	T_{VJ} = 150°C			0,78	V
r_F	*slope resistance*	*for power loss calculation only*				6	mΩ
R_{thJC}	*thermal resistance junction to case*					0,9	K/W
R_{thCH}	*thermal resistance case to heatsink*				0,4		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			135	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			750	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			810	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			640	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			690	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			2,82	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			2,73	kA²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			2,05	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			1,98	kA²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		27		pF

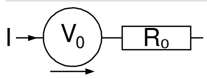
Package PWS-D				Ratings		
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	***RMS current***	per terminal			150	A
T_{VJ}	***virtual junction temperature***		-40		150	°C
T_{op}	***operation temperature***		-40		125	°C
T_{stg}	***storage temperature***		-40		125	°C
Weight				159		g
M_D	***mounting torque***		4,25		5,75	Nm
M_T	***terminal torque***		4,25		5,75	Nm
$d_{Spp/App}$	***creepage distance on surface | striking distance through air***	***terminal to terminal***	9,5			mm
$d_{Spb/Apb}$		***terminal to backside***	26,0			mm
V_{ISOL}	***isolation voltage***	t = 1 second; 50/60 Hz, RMS; $I_{ISOL} \le 1$ mA	3000			V
		t = 1 minute	2500			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO82-14NO7	VUO82-14NO7	Box	10	461695

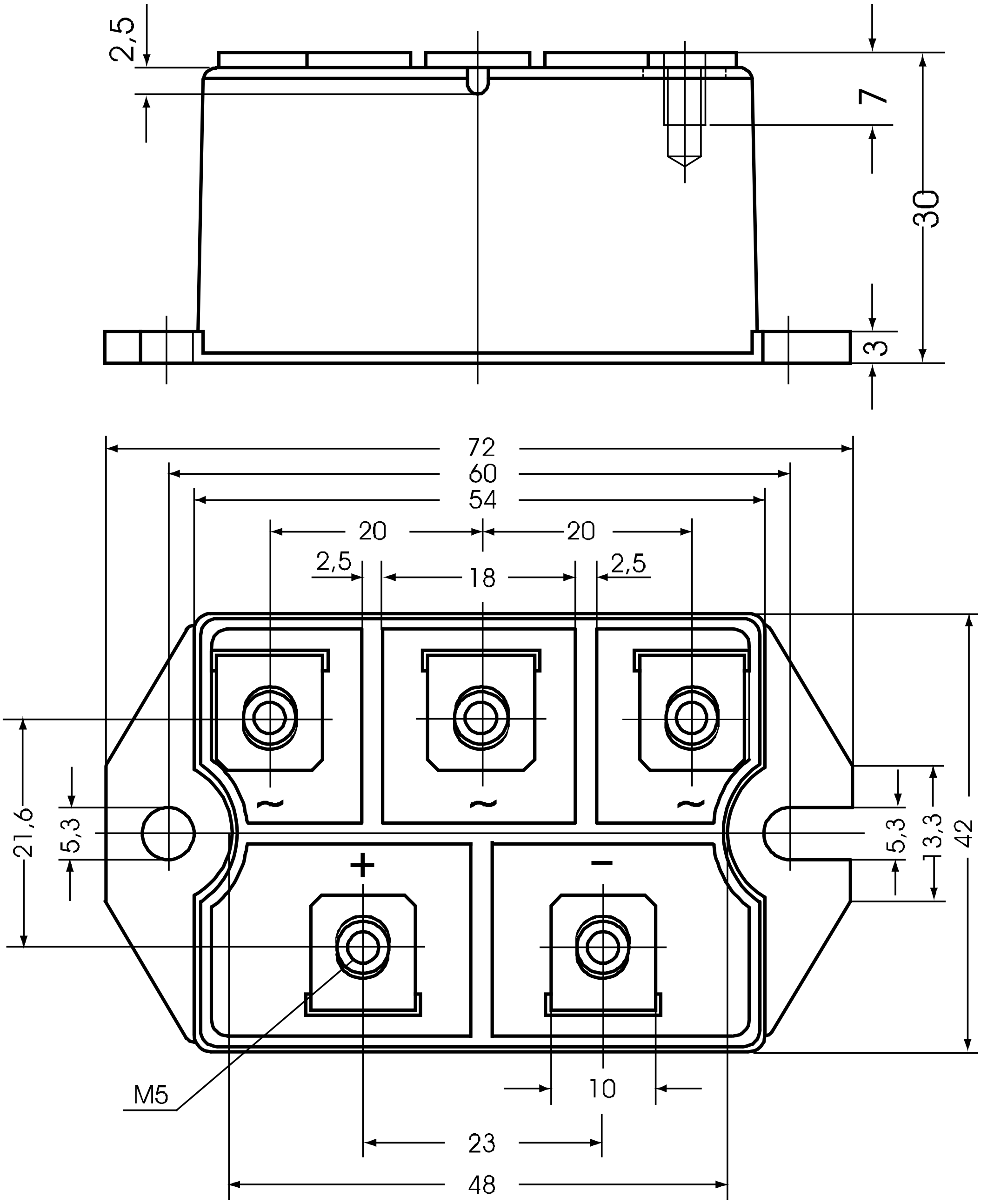
Equivalent Circuits for Simulation

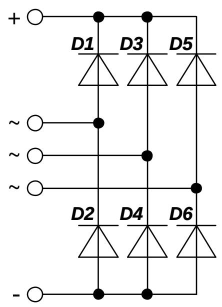
*** on die level*** $T_{VJ} = 150°C$



		Rectifier	
$V_{0\ max}$	***threshold voltage***	0,78	V
$R_{0\ max}$	***slope resistance ****	4,8	mΩ

Outlines PWS-D





Rectifier

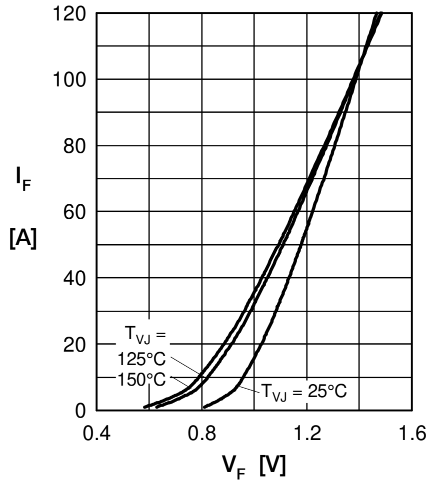


Fig. 1 Forward current versus voltage drop per diode

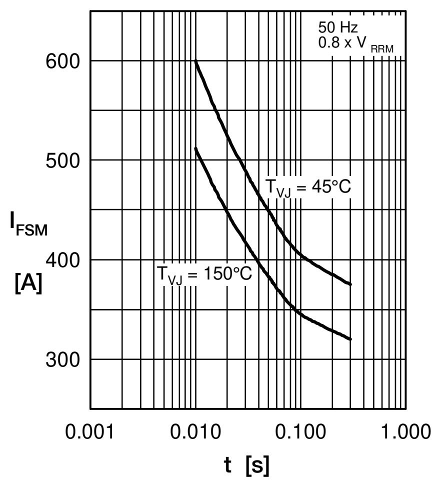


Fig. 2 Surge overload current

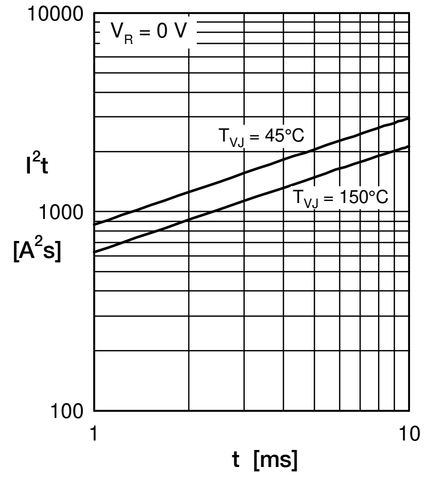


Fig. 3 I^2t versus time per diode

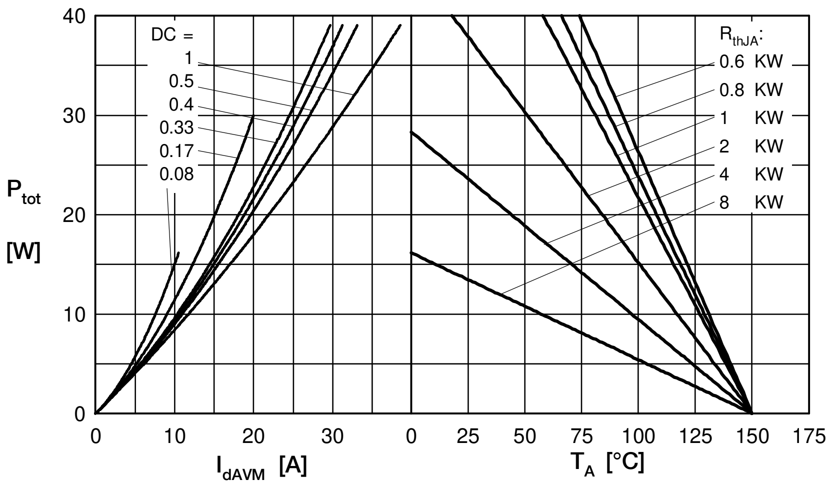


Fig. 4 Power dissipation vs. direct output current & ambient temperature

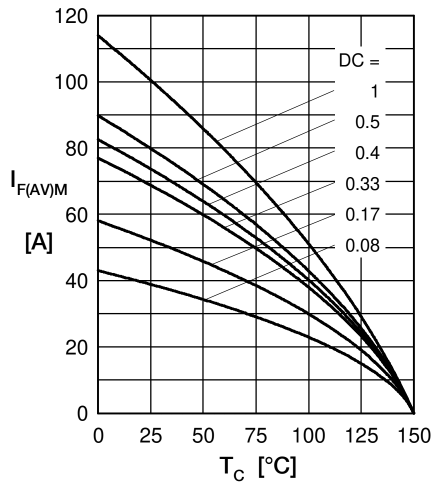


Fig. 5 Max. forward current vs. case temperature

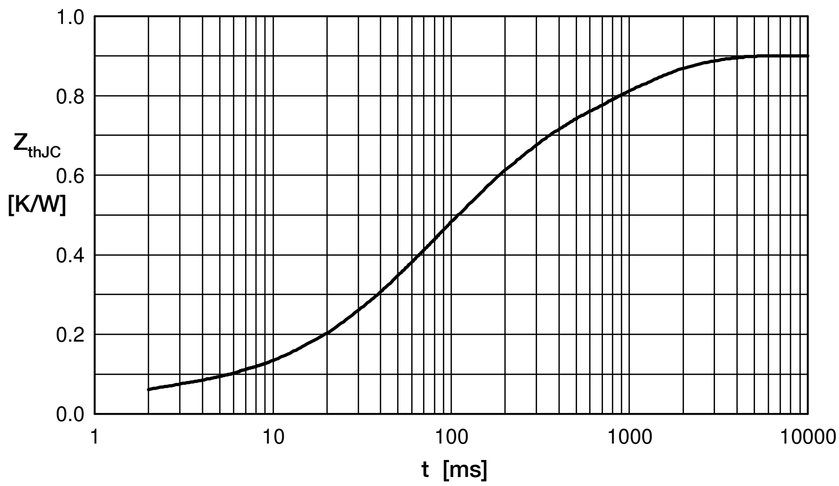


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.05	0.001
2	0.14	0.030
3	0.18	0.070
4	0.28	0.150
5	0.25	0.950