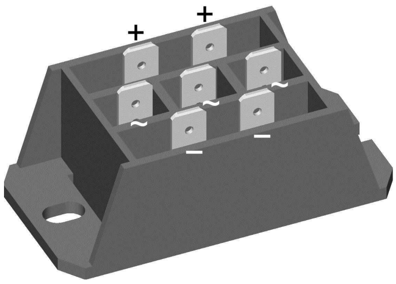
Standard Rectifier Module

3~ Rectifier		
V_{RRM}	=	800 V
I_{DAV}	=	45 A
I_{FSM}	=	300 A

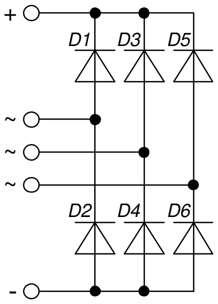
3~ Rectifier Bridge

Part number

VUO30-08NO3



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: FO-F

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- ¼“ fast-on terminals
- Easy to mount with two screws
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

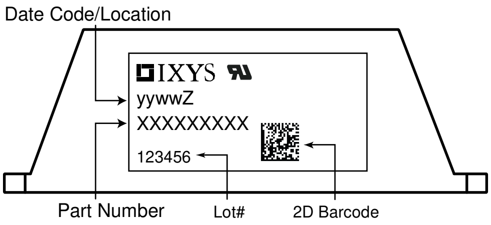
Rectifier

Symbol	Definition	Conditions		Ratings			Unit
				min.	typ.	max.	
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 = 15 A	T_{VJ} = 25°C			1.10	V
		I_F = 45 A				1.38	V
		I_F = 15 A	T_{VJ} = 125°C			1.01	V
		I_F = 45 A				1.38	V
I_{DAV}	*bridge output current*	T_C = 110°C	T_{VJ} = 150°C			45	A
		rectangular d = ⅓					
V_{F0}	*threshold voltage*	*for power loss calculation only*	T_{VJ} = 150°C			0.80	V
r_F	*slope resistance*					12.9	mΩ
R_{thJC}	*thermal resistance junction to case*					2	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.4		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			60	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			300	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			325	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			255	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			275	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			450	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			440	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			325	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			315	A²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		10		pF

Package FO-F

Ratings

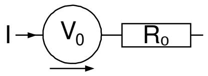
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal					100	A
T_{VJ}	*virtual junction temperature*				-40		150	°C
T_{op}	*operation temperature*				-40		125	°C
T_{stg}	*storage temperature*				-40		125	°C
Weight						45		g
M_D	*mounting torque*				2		2.5	Nm
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*		*terminal to terminal*	18.0	6.0			mm
$d_{Spb/Apb}$			*terminal to backside*	26.0	20.0			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA		3600			V
		t = 1 minute			3000			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO30-08NO3	VUO30-08NO3	Box	10	417181

Equivalent Circuits for Simulation

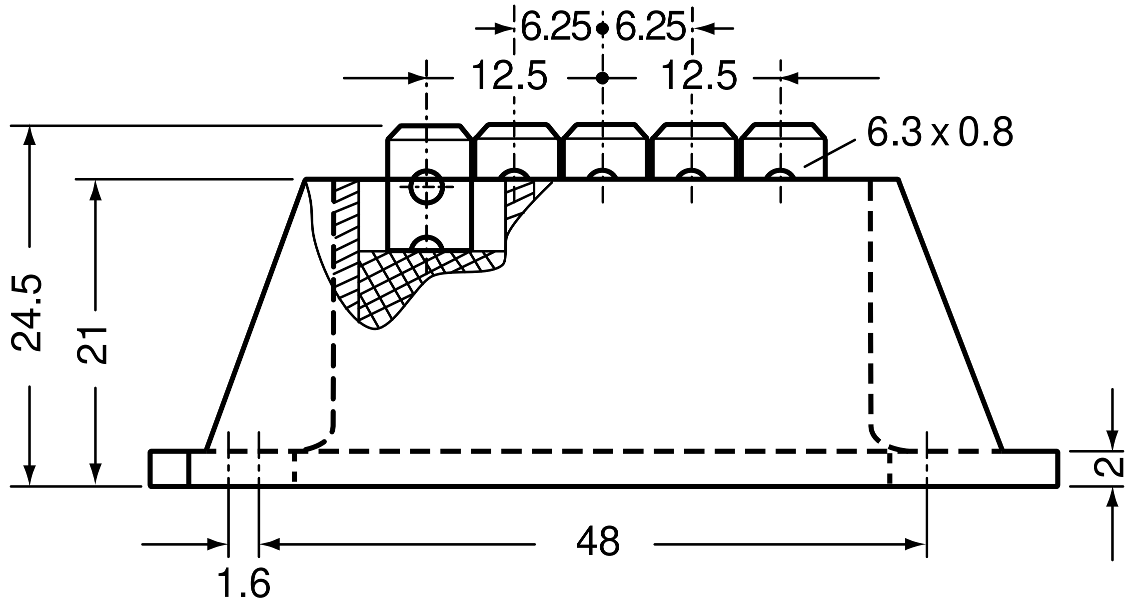
* on die level $T_{VJ} = 150°C$

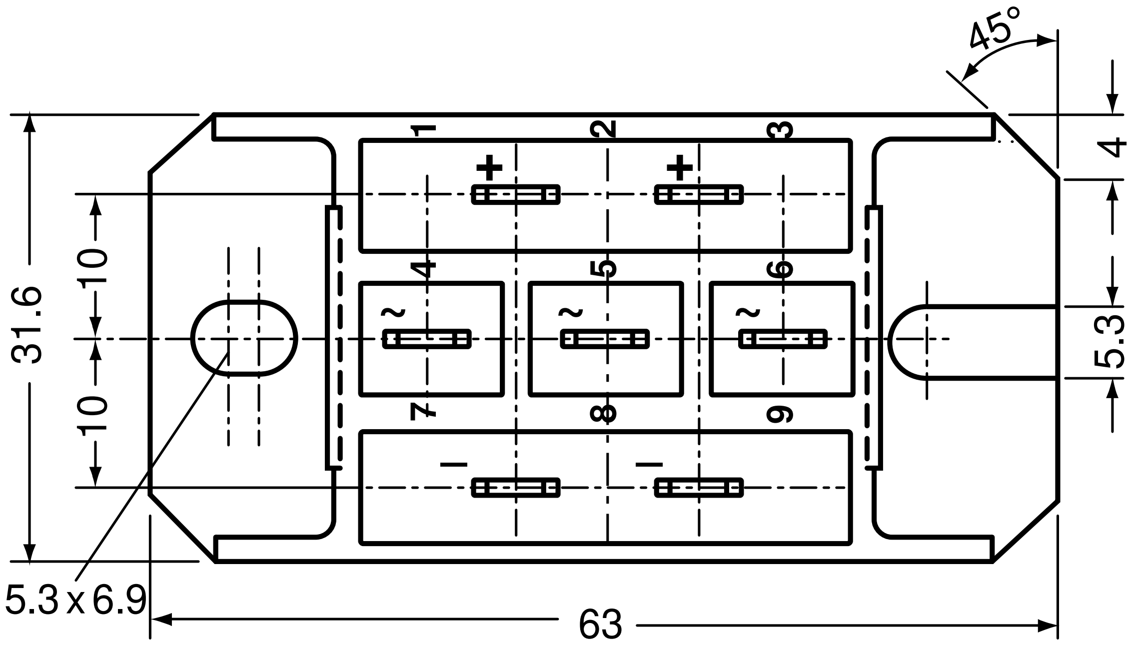


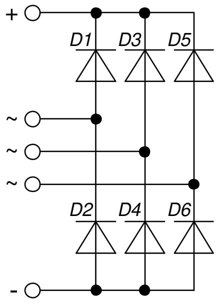
		Rectifier	
$V_{0\,max}$	*threshold voltage*	0.8	V
$R_{0\,max}$	*slope resistance **	11.7	mΩ

Data according to IEC 60747and per semiconductor unless otherwise specified

Outlines FO-F







Rectifier

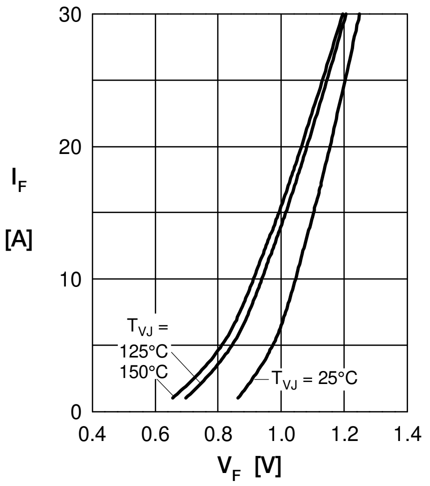


Fig. 1 Forward current vs. voltage drop per diode

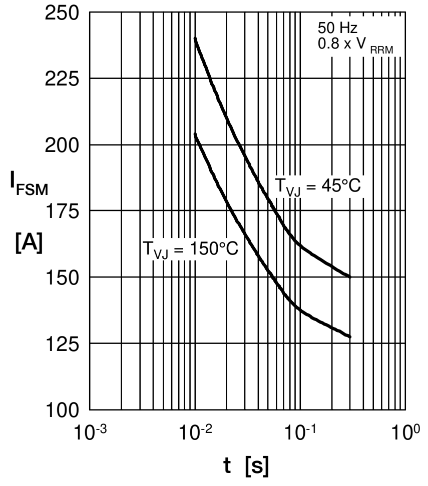


Fig. 2 Surge overload current vs. time per diode

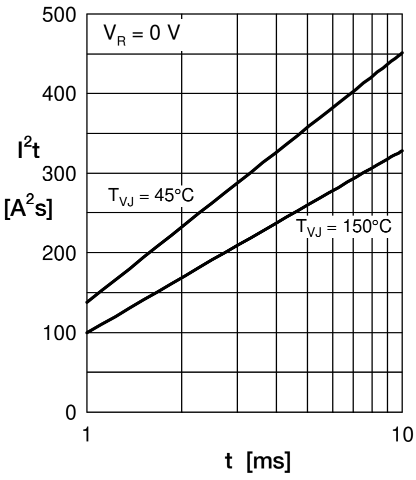


Fig. 3 I^2t vs. time per diode

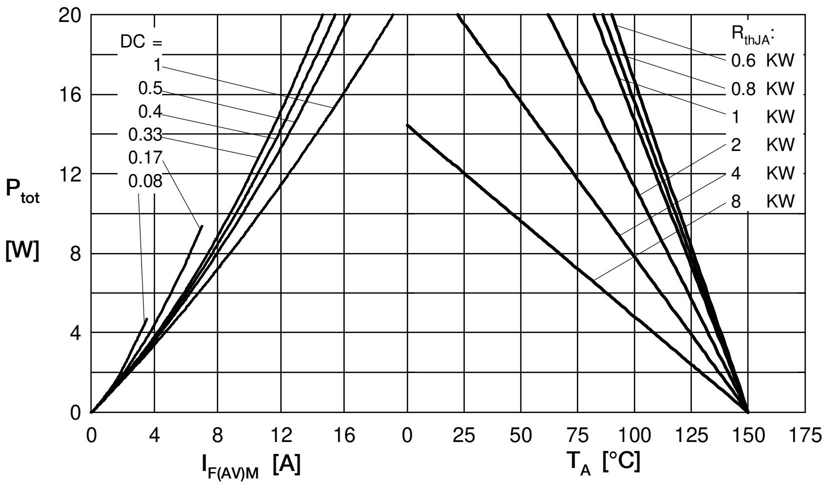


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

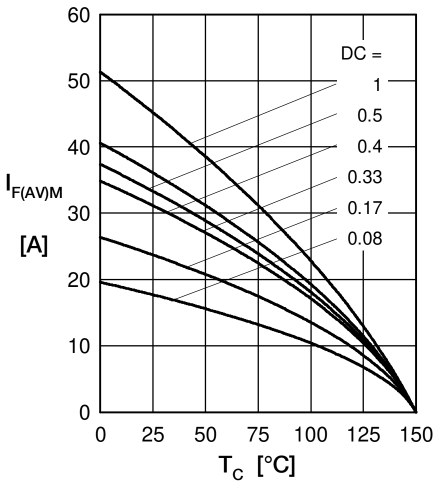


Fig. 5 Max. forward current vs. case temperature per diode

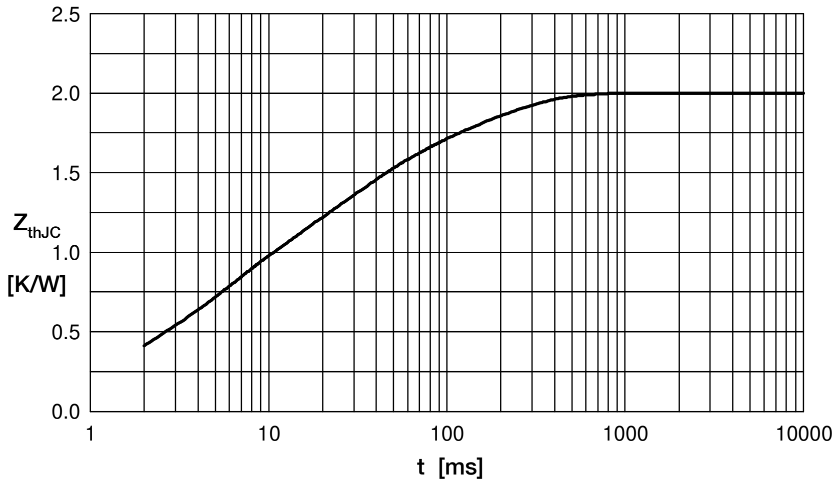


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.0607	0.00040
2	0.2030	0.00256
3	0.5005	0.00450
4	0.7030	0.02420
5	0.5328	0.15000