

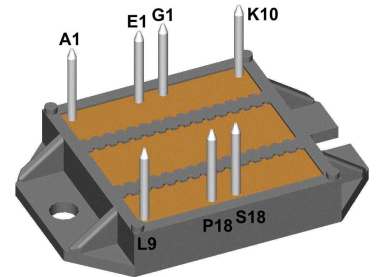
Standard Rectifier Module

3~ Rectifier	
$V_{RRM} =$	800 V
$I_{DAV} =$	125 A
$I_{FSM} =$	1000 A

3~ Rectifier Bridge

Part number

VUO122-08NO7



 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: ECO-PAC2

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Height: 9 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

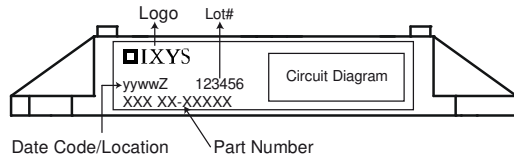
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Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage			$T_{VJ} = 25^{\circ}C$		900	V
V_{RRM}	max. repetitive reverse blocking voltage			$T_{VJ} = 25^{\circ}C$		800	V
I_R	reverse current	$V_R = 800 V$		$T_{VJ} = 25^{\circ}C$		100	μA
		$V_R = 800 V$		$T_{VJ} = 150^{\circ}C$		2	mA
V_F	forward voltage drop	$I_F = 50 A$		$T_{VJ} = 25^{\circ}C$		1.13	V
		$I_F = 150 A$				1.47	V
		$I_F = 50 A$		$T_{VJ} = 125^{\circ}C$		1.05	V
		$I_F = 150 A$				1.49	V
I_{DAV}	bridge output current	$T_C = 115^{\circ}C$	rectangular	$T_{VJ} = 150^{\circ}C$		125	A
			$d = \frac{1}{3}$				
V_{FO}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}C$		0.80	V
r_F	slope resistance					4.6	m Ω
R_{thJC}	thermal resistance junction to case					0.6	K/W
R_{thCH}	thermal resistance case to heatsink				0.3		K/W
P_{tot}	total power dissipation			$T_C = 25^{\circ}C$		205	W
I_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$		$T_{VJ} = 45^{\circ}C$		1.00	kA
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$		$V_R = 0 V$		1.08	kA
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$		$T_{VJ} = 150^{\circ}C$		850	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$		$V_R = 0 V$		920	A
I^2t	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$		$T_{VJ} = 45^{\circ}C$		5.00	kA ² s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$		$V_R = 0 V$		4.85	kA ² s
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$		$T_{VJ} = 150^{\circ}C$		3.62	kA ² s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$		$V_R = 0 V$		3.52	kA ² s
C_J	junction capacitance	$V_R = 400 V; f = 1 \text{ MHz}$		$T_{VJ} = 25^{\circ}C$		35	pF



Package ECO-PAC2		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				24		g
M_D	mounting torque		1.4		2	Nm
$d_{Spp/App}$	creepage distance on surface / striking distance through air	terminal to terminal	6.0			mm
$d_{Spb/Apb}$		terminal to backside	10.0			mm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	VUO122-08NO7	VUO122-08NO7	Box	25	494429

Equivalent Circuits for Simulation

* on die level

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

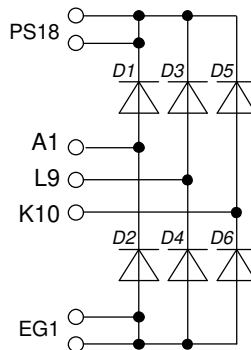
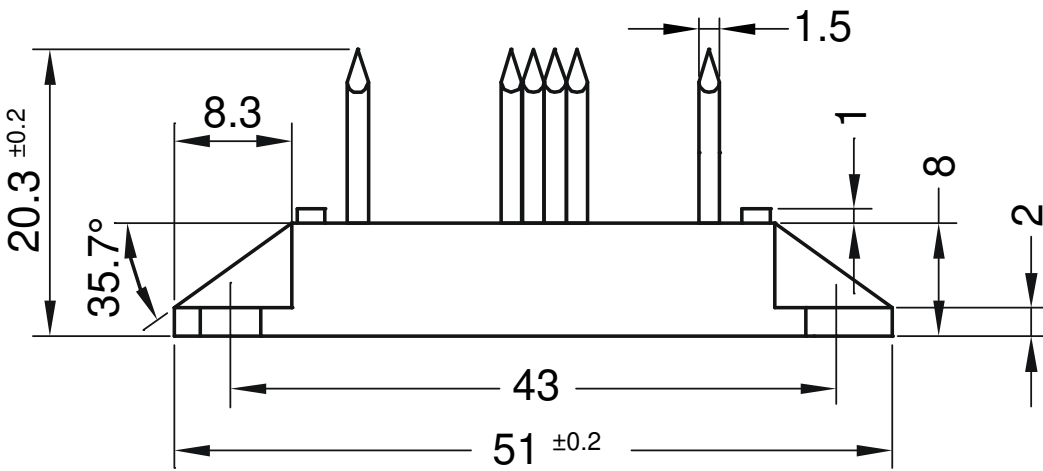
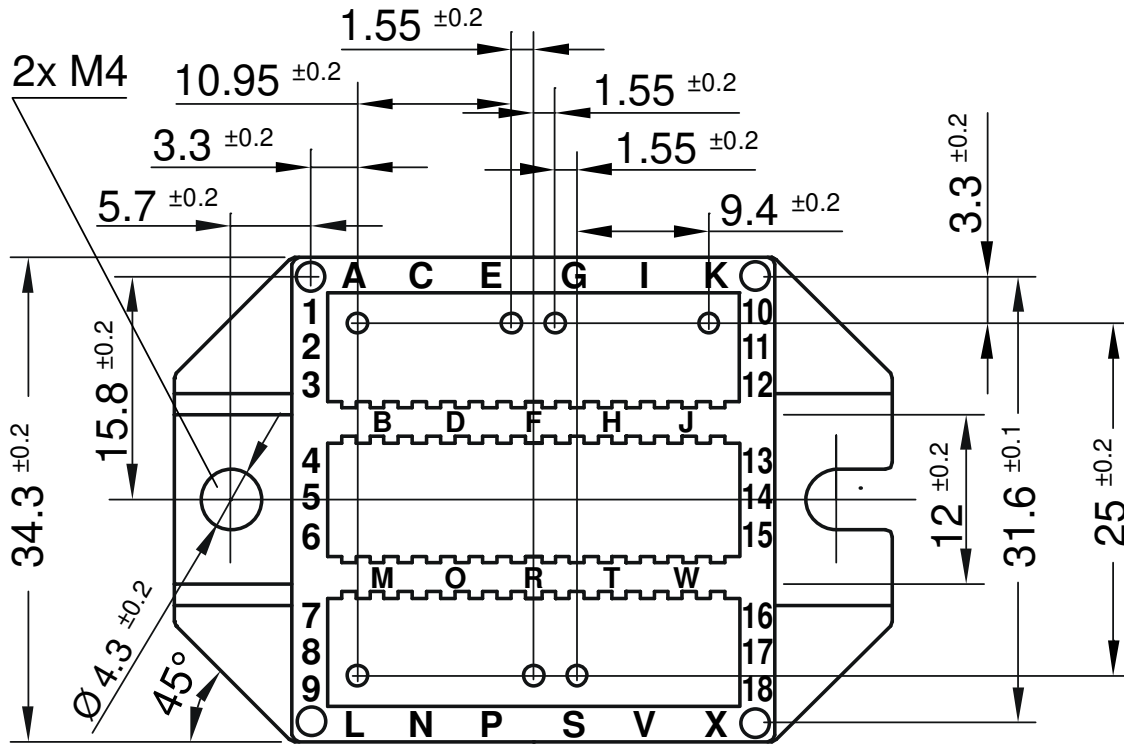


Rectifier

$V_{0\ max}$	threshold voltage	0.8	V
$R_{0\ max}$	slope resistance *	3.4	mΩ



Outlines ECO-PAC2



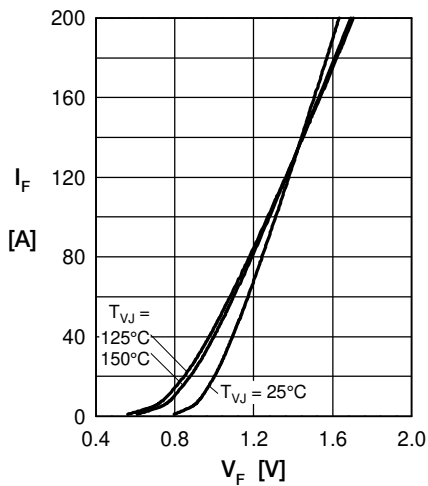
Rectifier


Fig. 1 Forward current vs. voltage drop per diode

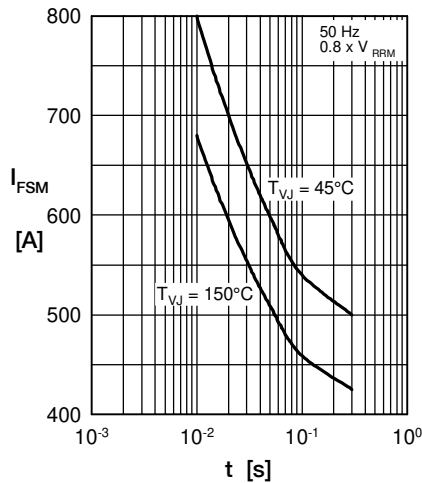


Fig. 2 Surge overload current vs. time per diode

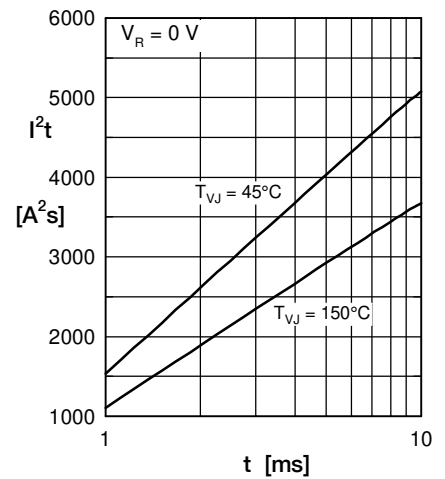
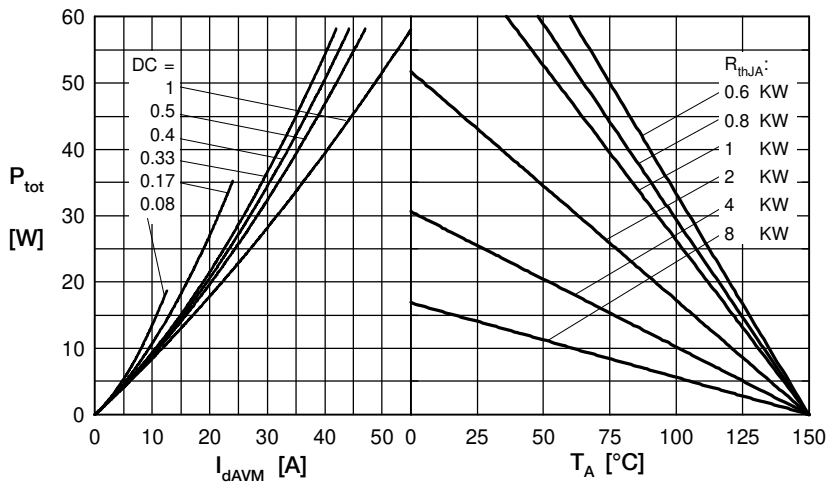

 Fig. 3 I^2t vs. time per diode


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

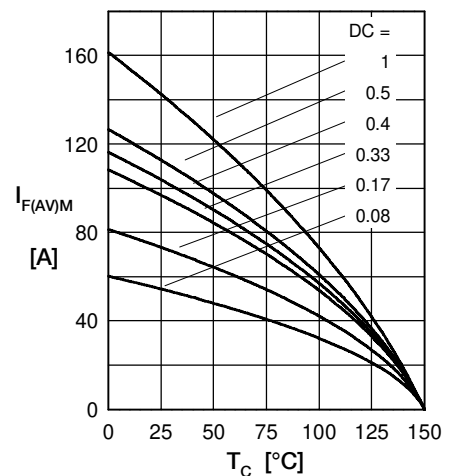


Fig. 5 Max. forward current vs. case temperature per diode

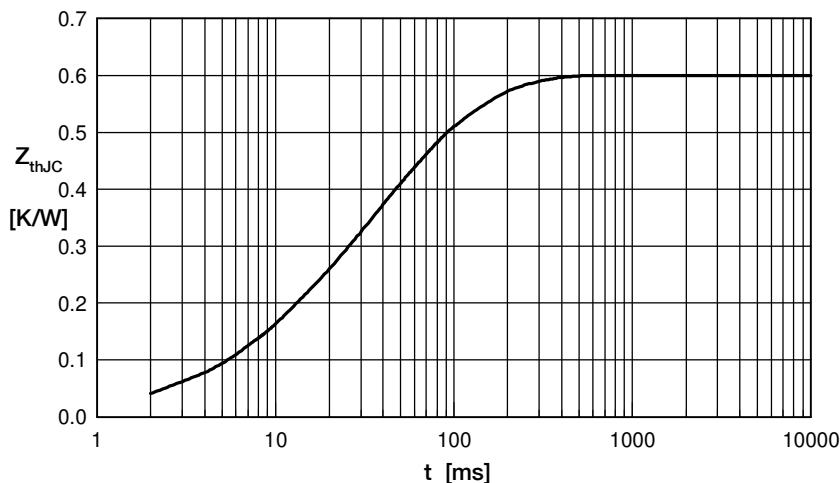


Fig. 6 Transient thermal impedance junction to case vs. time per diode

 Constants for Z_{thJC} calculation:

i	R_{th} (K/W)	t_i (s)
1	0.08	0.012
2	0.04	0.007
3	0.29	0.036
4	0.19	0.102