

Standard Rectifier Module

3~ Bipolar Bridge

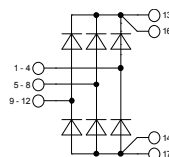
$$V_{RRM} = 1600 \text{ V}$$

$$I_{DAV} = 120 \text{ A}$$

$$V_F = 1.12 \text{ V}$$

Part number

VUO121-16NO1



Features / Advantages:

- Package with DCB ceramic base plate
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- Improved temperature and power cycling

Applications:

- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package:

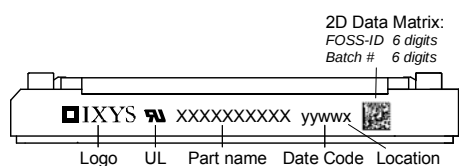
E72873

- Housing: E2-Pack
- International standard package
- RoHS compliant
- Isolation voltage: 3000 V~
- Advanced power cycling

Ratings

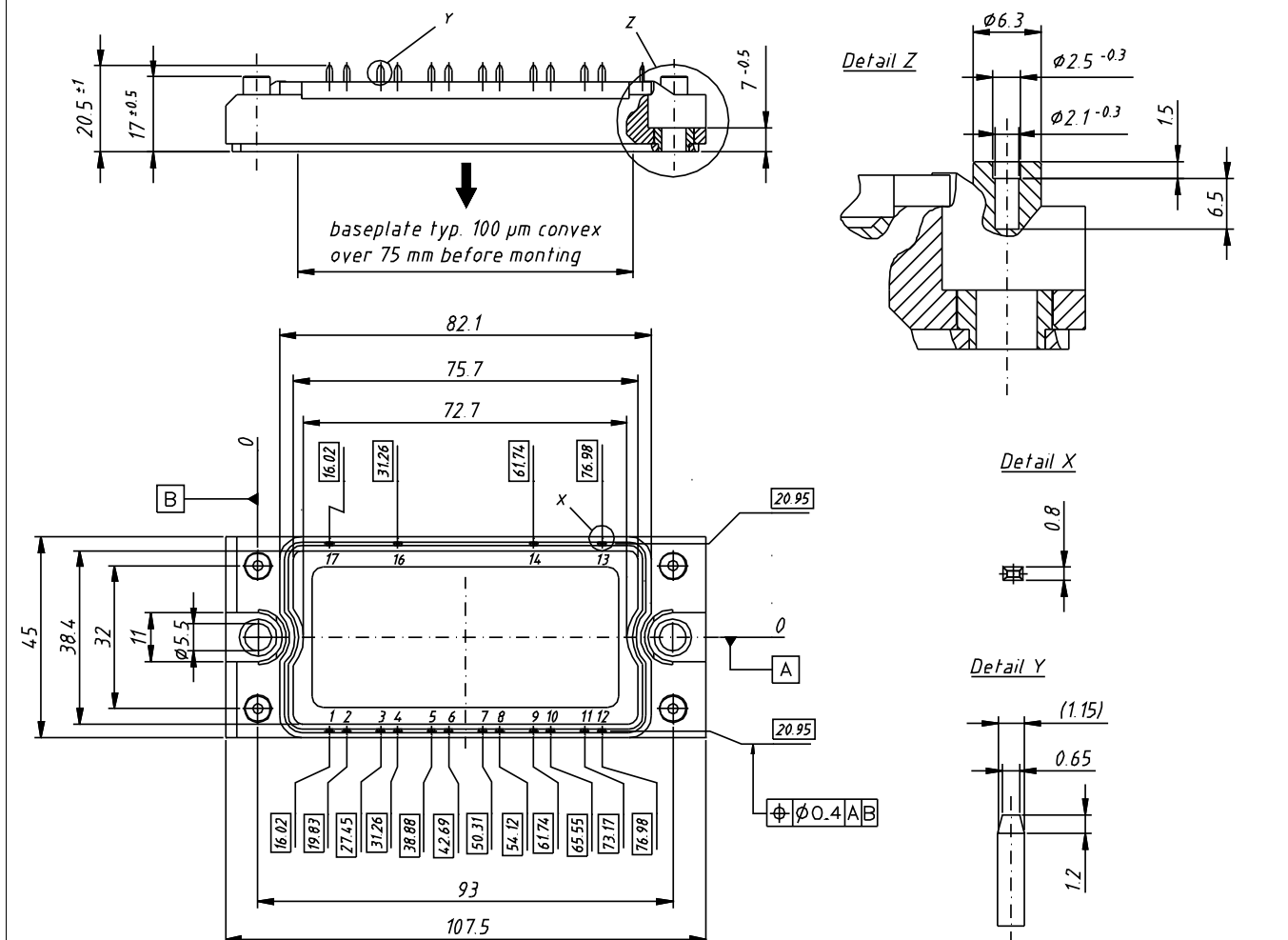
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RRM}	max. repetitive reverse voltage	$T_{VJ} = 25^{\circ}\text{C}$				1600	V
I_R	reverse current	$V_R = 1600 \text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			100	μA
		$V_R = 1600 \text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			2	mA
V_F	forward voltage	$I_F = 40 \text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.19	V
		$I_F = 80 \text{ A}$				1.43	V
		$I_F = 40 \text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.12	V
		$I_F = 80 \text{ A}$				1.42	V
I_{DAV}	bridge output current	120° sine	$T_C = 100^{\circ}\text{C}$			120	A
V_{F0}	threshold voltage	} for power loss calculation only	$T_{VJ} = 150^{\circ}\text{C}$			0.85	V
r_F	slope resistance					7.1	mΩ
R_{thJC}	thermal resistance junction to case					0.65	K/W
T_{VJ}	virtual junction temperature			-40		150	$^{\circ}\text{C}$
P_{tot}	total power dissipation		$T_C = 25^{\circ}\text{C}$			190	W
I_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			700	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$			755	A
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			595	A
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$			645	A
I^2t	value for fusing	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 45^{\circ}\text{C}$			2.45	kA^2s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$			2.37	kA^2s
		$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}$	$T_{VJ} = 150^{\circ}\text{C}$			1.77	kA^2s
		$t = 8,3 \text{ ms}; (60 \text{ Hz}), \text{ sine}$	$V_R = 0 \text{ V}$			1.73	kA^2s
C_J	junction capacitance	$V_R = 400 \text{ V}; f = 1 \text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		27		pF

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per terminal			200	A
R_{thCH}	thermal resistance case to heatsink			0.10		K/W
T_{stg}	storage temperature		-40		125	°C
Weight				180		g
M_D	mounting torque		2.7		3.3	Nm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V
d_s	creepage distance on surface		12.7			mm
d_A	striking distance through air		9.6			mm



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	VUO121-16NO1	VUO121-16NO1	Box	6	496278

Outlines E2-Pack



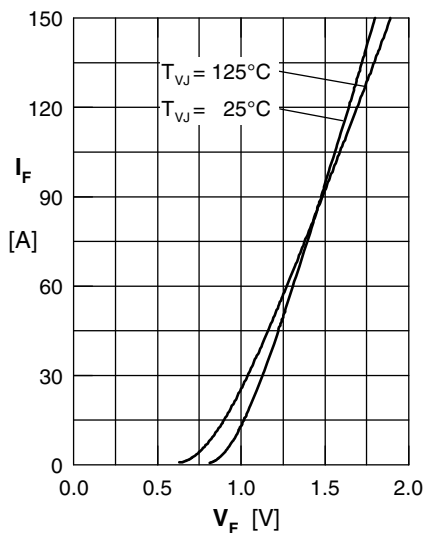


Fig. 1 Forward current vs. voltage drop per diode

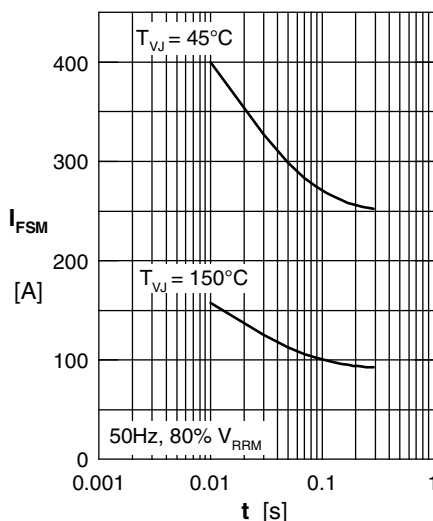


Fig. 2 Surge overload current

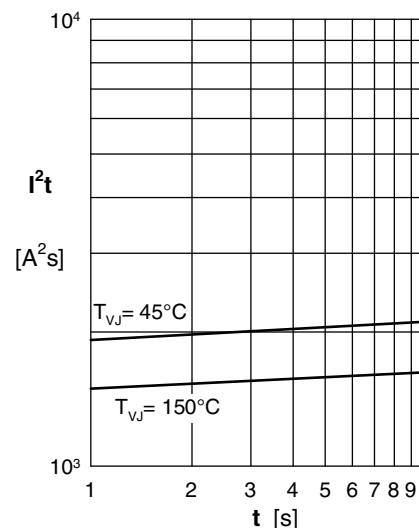


Fig. 3 I^2t versus time per diode

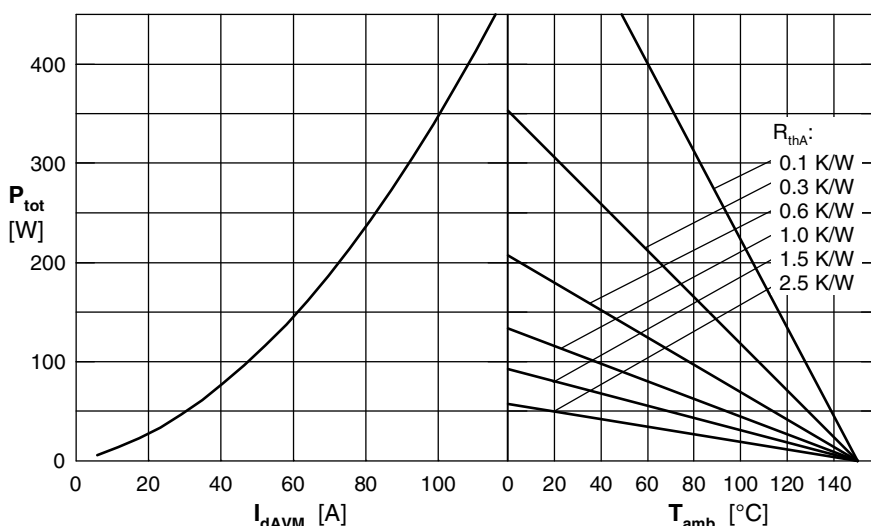


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

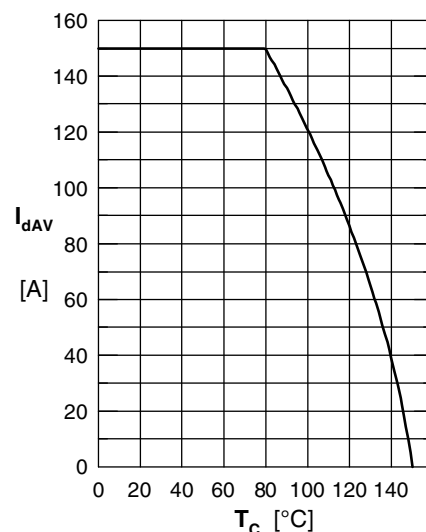


Fig. 5 Max. forward current vs. case temperature

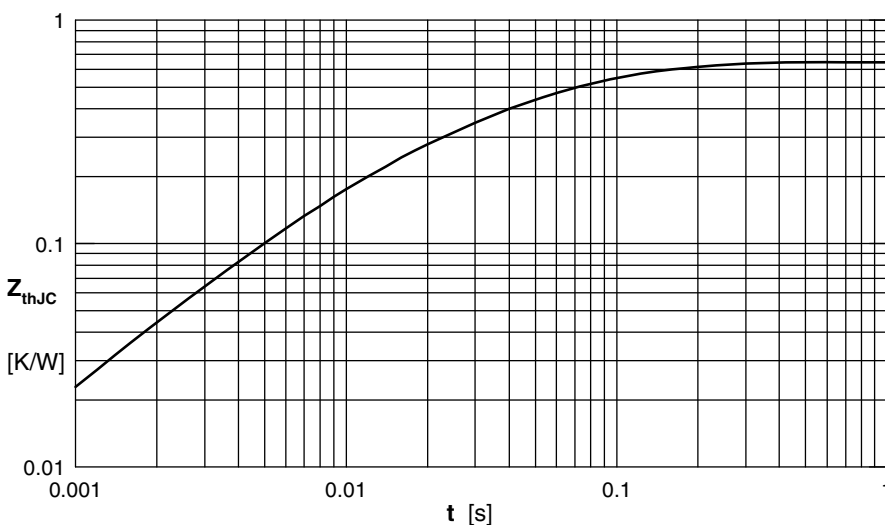


Fig. 6 Transient thermal impedance junction to case

R_i	τ_i
0.085	0.012
0.041	0.007
0.309	0.036
0.215	0.102