

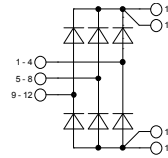
Standard Rectifier Module

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

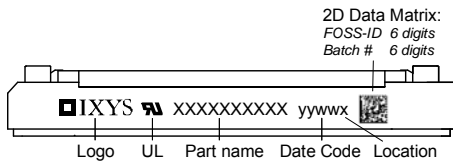
Package:



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

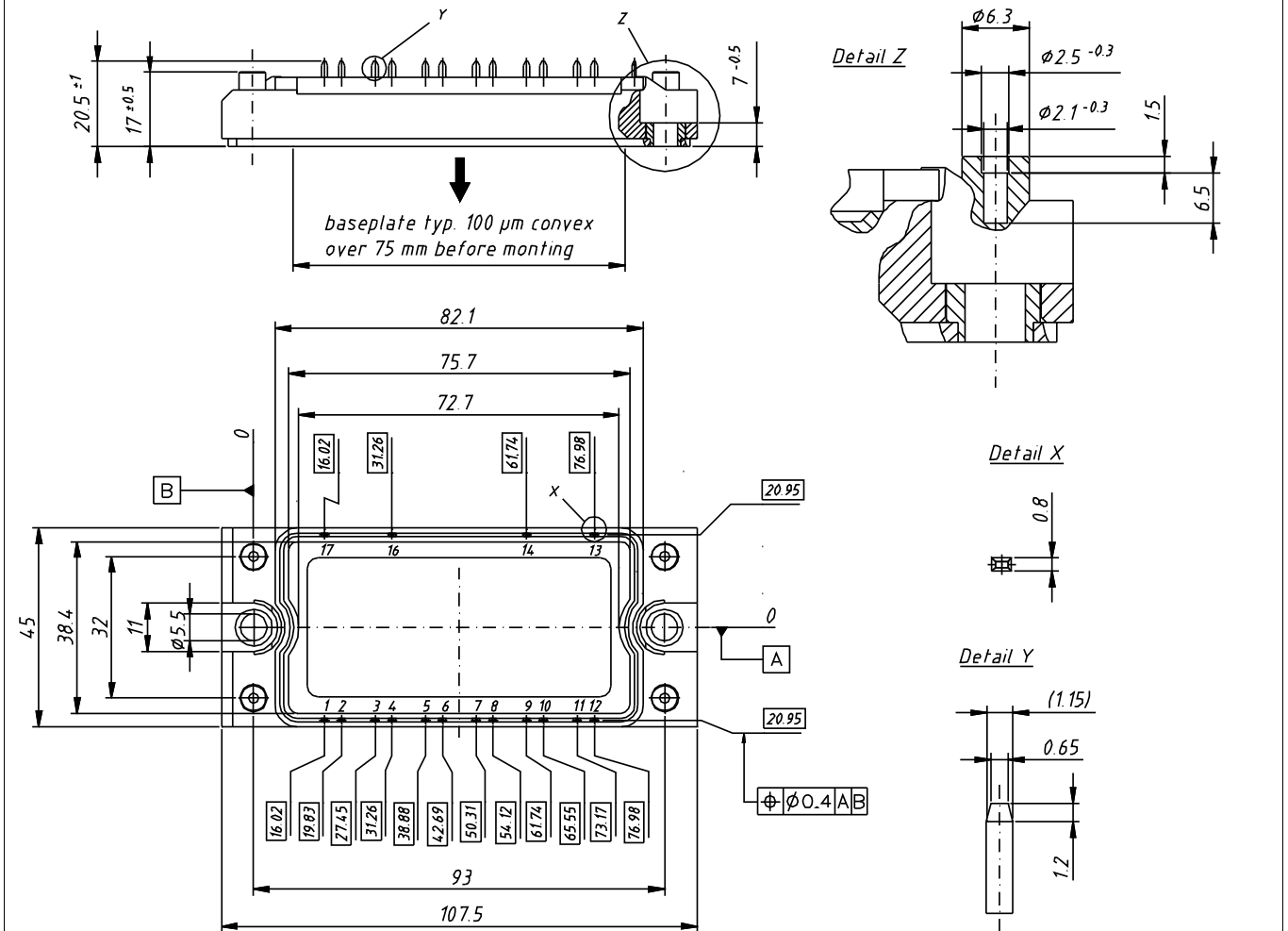
Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
V_{RRM}	<i>max. repetitive reverse voltage</i>				1600	V	
I_R	<i>reverse current</i>	$V_R = 1600 \text{ V}$			100	μA	
		$V_R = 1600 \text{ V}$			2	mA	
V_F	<i>forward voltage</i>	$I_F = 40 \text{ A}$			1.19	V	
		$I_F = 80 \text{ A}$			1.43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



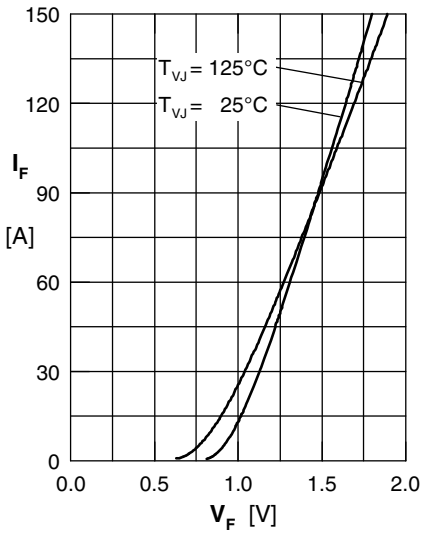


Fig. 1 Forward current vs. voltage drop per diode

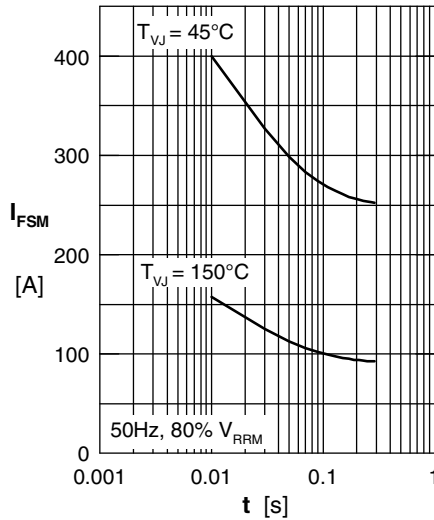


Fig. 2 Surge overload current

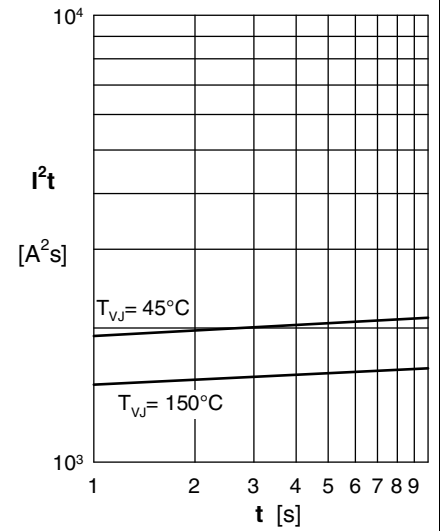


Fig. 3 I^2t versus time per diode

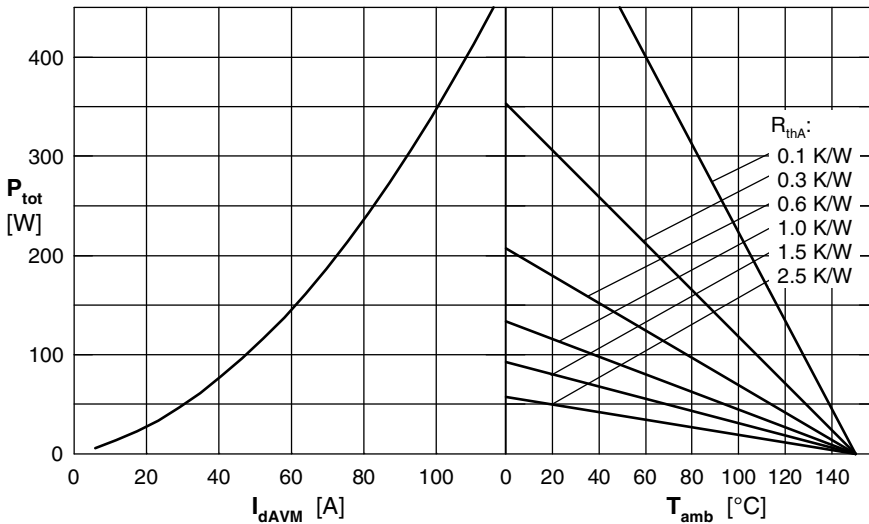


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

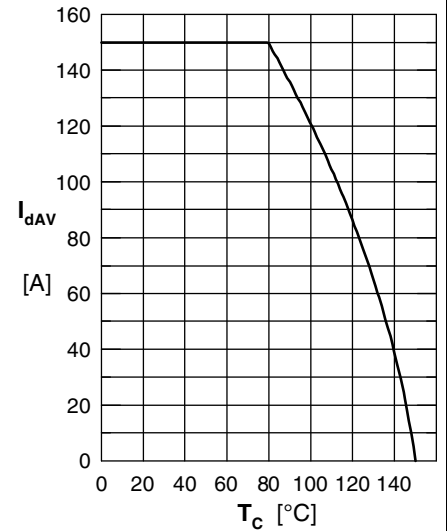


Fig. 5 Max. forward current vs. case temperature

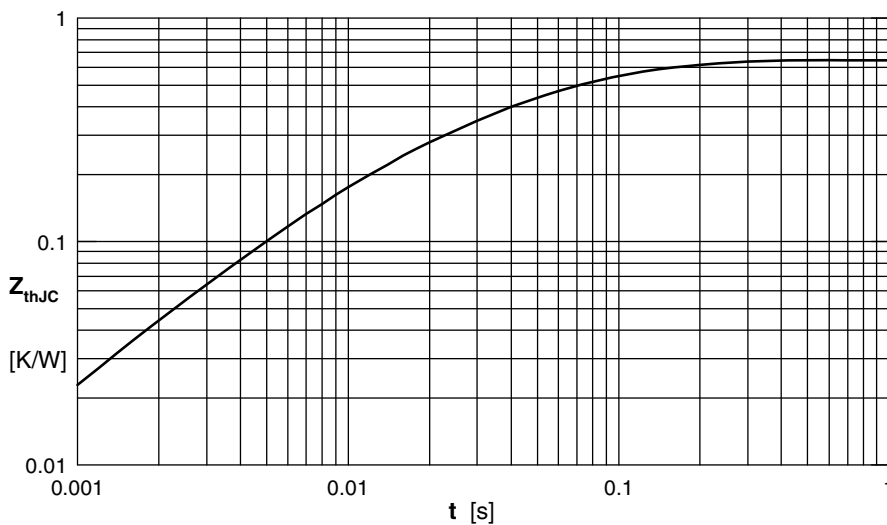


Fig. 6 Transient thermal impedance junction to case

R_i	τ_i
0.085	0.012
0.041	0.007
0.309	0.036
0.215	0.102