

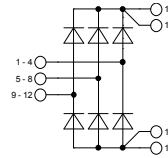
# Standard Rectifier Module

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

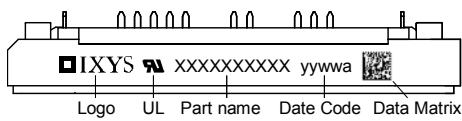
**Package:**



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

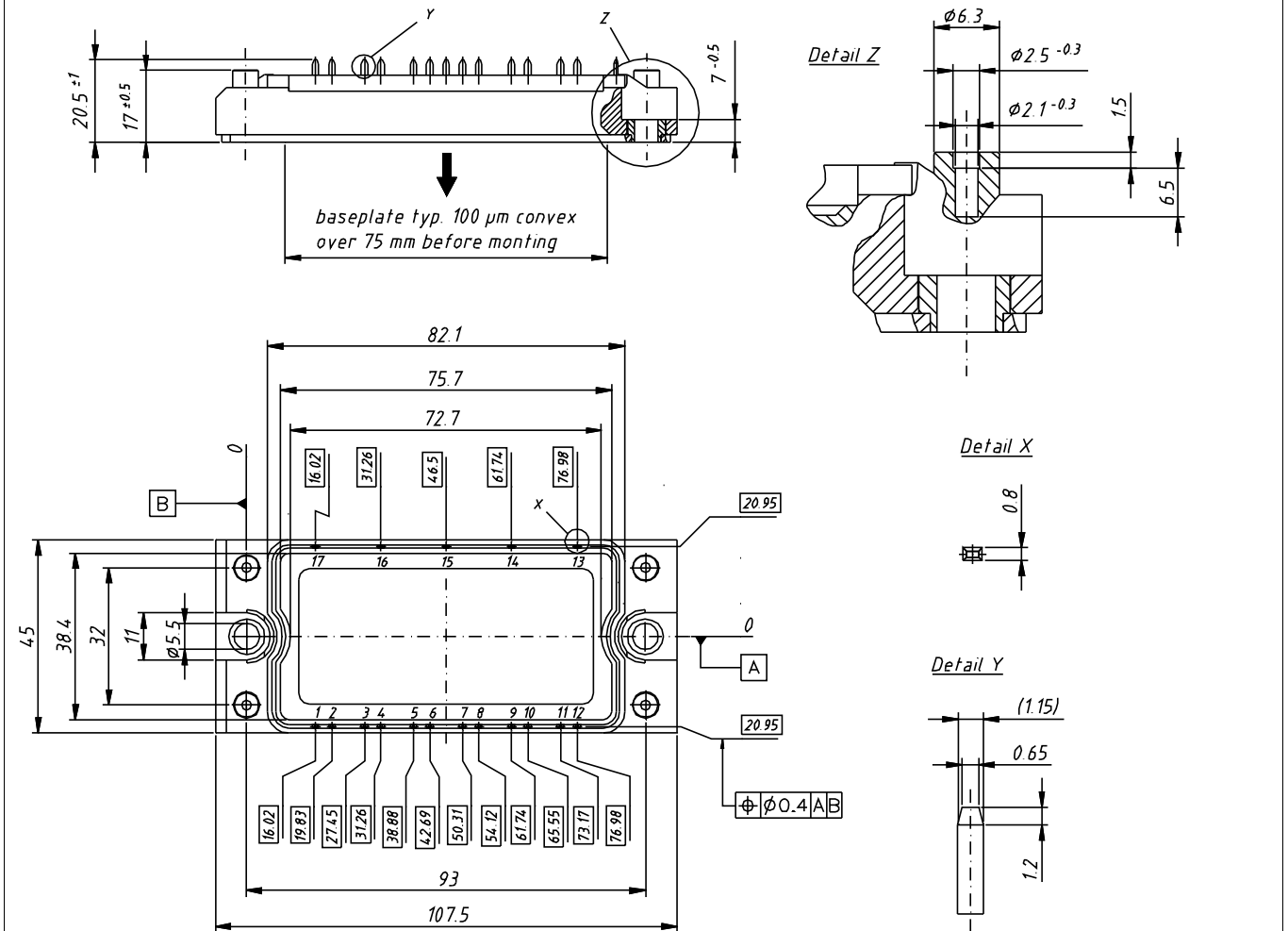
Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
$V_{RRM}$	max. repetitive reverse voltage				1600	V	
$I_R$	reverse current	$V_R = 1600\text{ V}$			100	$\mu\text{A}$	
		$V_R = 1600\text{ V}$			2	mA	
$V_F$	forward voltage	$I_F = 40\text{ A}$			1.19	V	
		$I_F = 80\text{ A}$			1.43	V	
	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



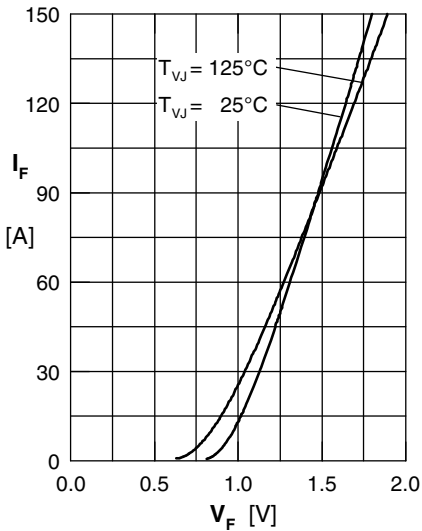


Fig. 1 Forward current vs. voltage drop per diode

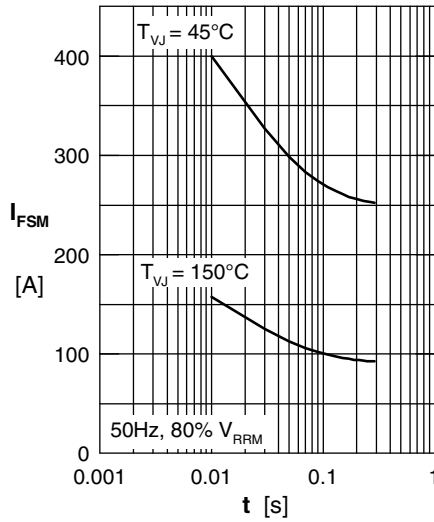


Fig. 2 Surge overload current

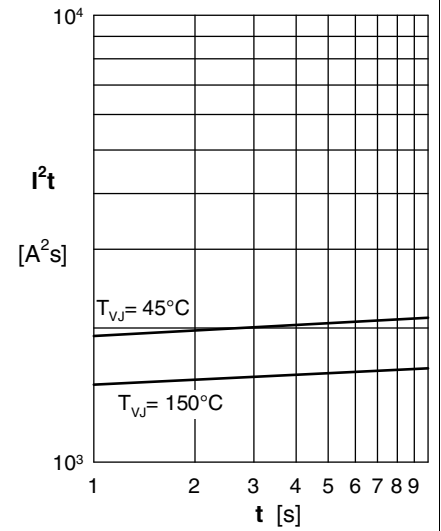


Fig. 3  $I^2t$  versus time per diode

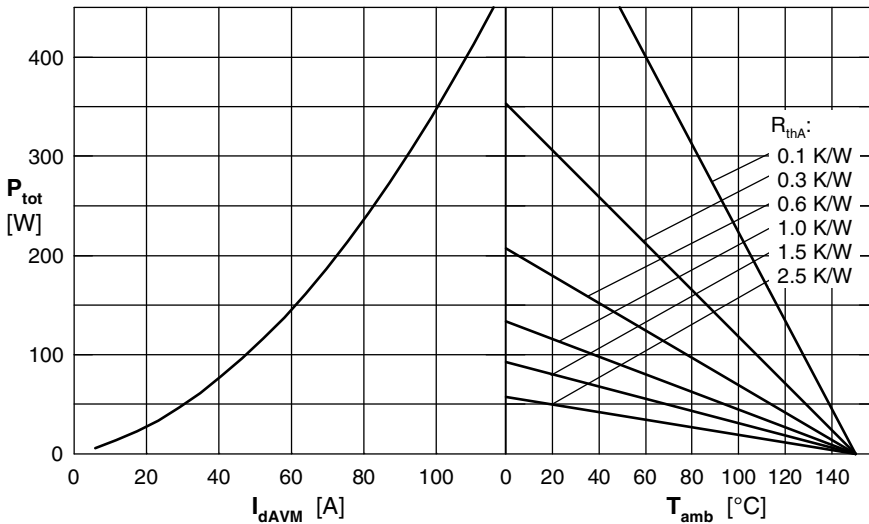


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

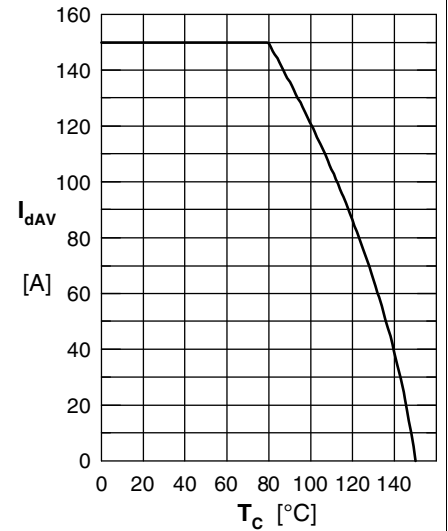


Fig. 5 Max. forward current vs. case temperature

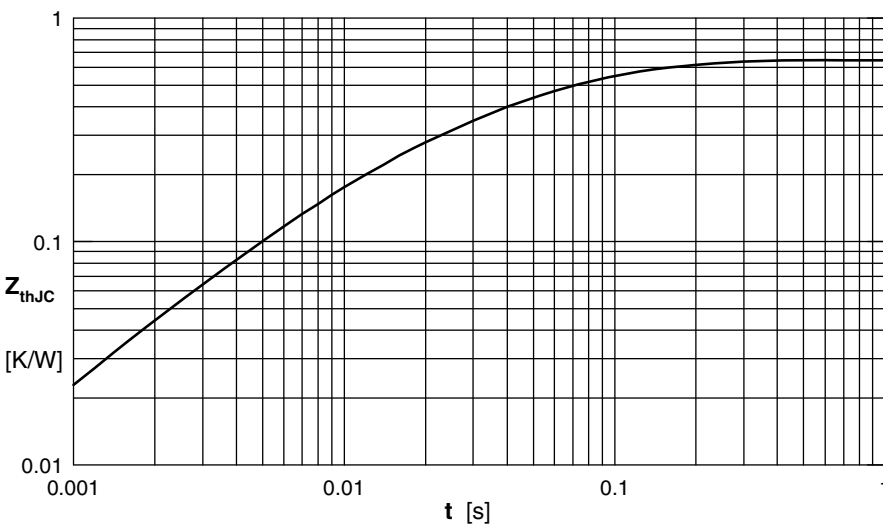


Fig. 6 Transient thermal impedance junction to case

$R_i$	$\tau_i$
0.085	0.012
0.041	0.007
0.309	0.036
0.215	0.102