



flow90CON 1

1600 V / 52 A

Features

- 3~ phase input rectifier
- Compatible with *flow* 90PACK 1
- Support designs with 90° mounting angle between heatsink and PCB
- Clip-in PCB mounting

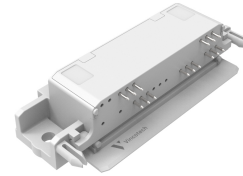
Target applications

- Motor drives
- Servo drives

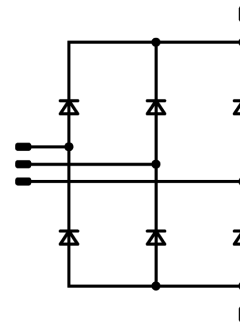
Types

- V23990-P718-H-PM

flow90 1 housing



Schematic





Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1600	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	69	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	740	A
Surge current capability	I^2t		2740	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	88	W
Maximum junction temperature	T_{jmax}		150	°C

Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation temperature under switching condition	T_{jop}		-40...+($T_{jmax} - 25$)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
Creepage distance			>12,7	mm
Clearance			11,84	mm
Comparative Tracking Index	CTI		≥ 200	

*100 % tested in production



Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max		

Rectifier Diode

Static

Forward voltage	V_F				80	25 125 150		1,33 1,35	1,23 ⁽¹⁾ 1,17 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 1600$ V				25 150			50 1500	μA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,79		K/W
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⁽¹⁾ Value at chip level

⁽²⁾ Only valid with pre-applied Vincotech thermal interface material.



Rectifier Diode Characteristics

figure 1. Rectifier

Typical forward characteristics

$$I_F = f(V_F)$$

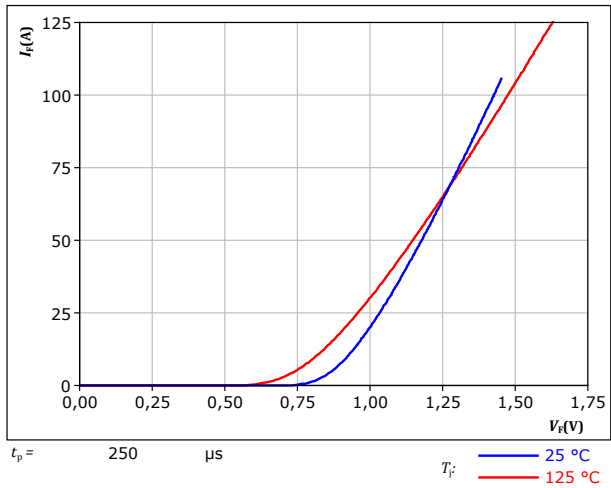
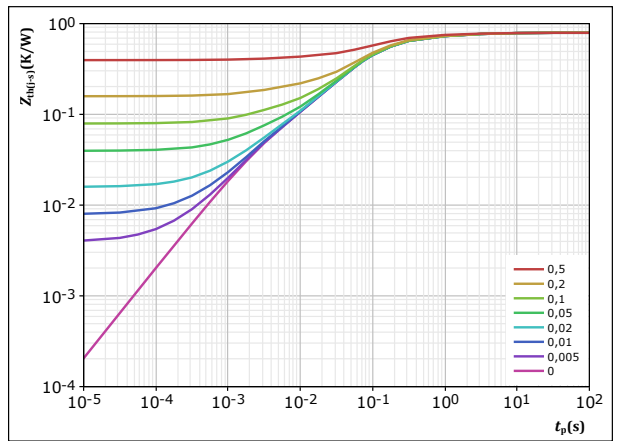


figure 2. Rectifier

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$

$R_{th(j-s)} = 0,792 \text{ K/W}$

Rectifier thermal model values

$R \text{ (K/W)}$	$\tau \text{ (s)}$
3,05E-02	5,90E+00
8,93E-02	1,13E+00
2,82E-01	1,79E-01
3,51E-01	6,17E-02
3,93E-02	3,00E-03



Vincotech

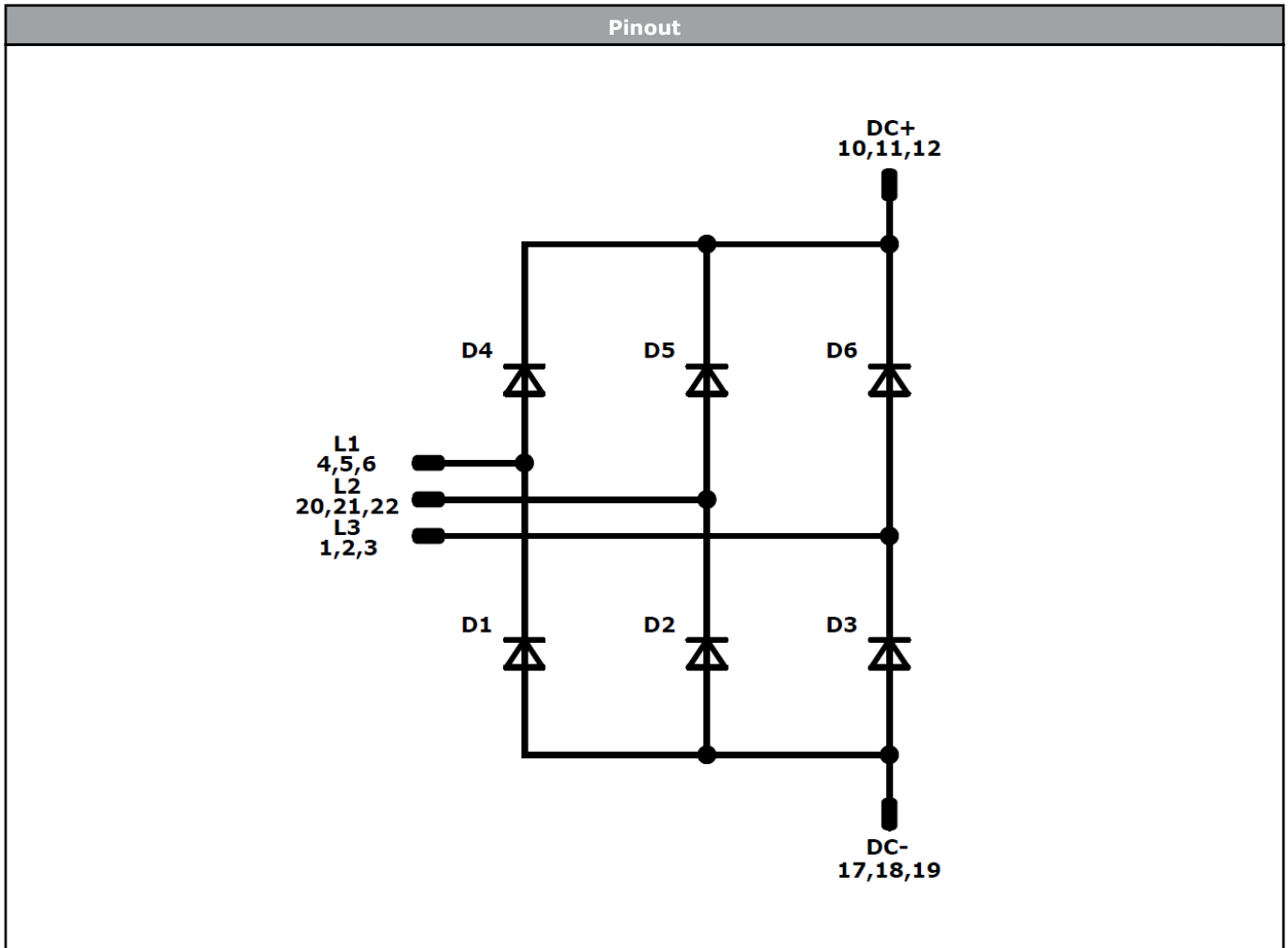
V23990-P718-H-PM
datasheet

Ordering Code	
Version	Ordering Code
Without thermal paste	V23990-P718-H-PM
With thermal paste (3,4 W/mK, PSX-P7)	V23990-P718-H-/3/-PM

Marking							
	Text	VIN	Date code	Type&Ver	UL	Lot	Serial
		VIN	WWYY	TTTTTTV	UL	LLLLL	SSSS
	Datamatrix	Type&Ver	Lot number	Serial	Date code		
		TTTTTTV	LLLLL	SSSS	WWYY		

Pin table [mm]				Function	Outline	
Pin	X	Y				
1	53	0		L3		
2	50,1	0		L3		
3	47,2	0		L3		
4	40,2	0		L1		
5	37,3	0		L1		
6	34,4	0		L1		
7	27,4	0		NA		
8	24,5	0		NA		
9	21,6	0		NA		
10	18,7	0		DC+		
11	15,8	0		DC+		
12	12,9	0		DC+		
13	7,1	0		NA		
14	0	0		NA		
15	0	7		NA		
16	3	7		NA		
17	7	7		DC-		
18	9,9	7		DC-		
19	12,8	7		DC-		
20	44	7		L2		
21	47	7		L2		
22	50	7		L2		

Tolerance of positions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



Identification					
ID	Component	Voltage	Current	Function	Comment
D1, D4, D2, D5, D3, D6	Rectifier	1600 V	80 A	Rectifier Diode	




Packaging instruction				
Standard packaging quantity (SPQ) 80	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for <i>flow90</i> 1 packages see vincotech.com website.

Package data
Package data for <i>flow90</i> 1 packages see vincotech.com website.

Vincotech thermistor reference
See Vincotech thermistor reference table at vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
V23990-P718-H-PM-D4-14	30 Sep. 2021	Change of Clearance distance Change of Isolation voltage Change of Rectifier Diode forward voltage condition Change of Rth value from P12 to PSX	

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