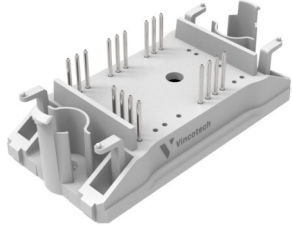
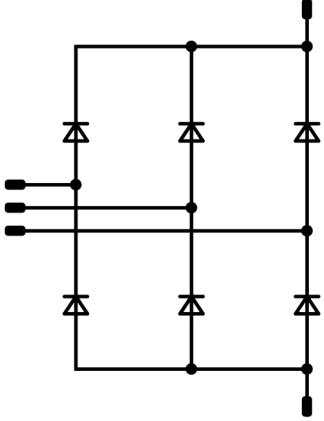




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<i>flowCON 0</i>	<b>1600 V / 50 A</b>
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Features</b></div> <ul style="list-style-type: none"> <li>Three-phase input rectifier</li> <li>2-clip housing</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><i>flow 0 17 mm housing</i></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Target applications</b></div> <ul style="list-style-type: none"> <li>Industrial Drives</li> <li>Embedded Drives</li> <li>UPS</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Schematic</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Types</b></div> <ul style="list-style-type: none"> <li>V23990-P649-H09-PM</li> </ul>	

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>Rectifier Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		1600	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	59	A
Surge (non-repetitive) forward current	$I_{FSM}$	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	520	A
Surge current capability	$I^2t$		1350	A <sup>2</sup> s
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	73	W
Maximum junction temperature	$T_{jmax}$		150	°C



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## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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### Module Properties

#### Thermal Properties

Storage temperature	$T_{stg}$		-40...+125	°C
Operation temperature under switching condition	$T_{top}$		-40...(T <sub>max</sub> - 25)	°C

#### Isolation Properties

Isolation voltage	$V_{isol}$	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min. 12,7	mm
Clearance			min. 12,7	mm
Comparative Tracking Index	CTI		> 200	

\*100 % tested in production



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## Characteristic Values

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

### Rectifier Diode

Static

Forward voltage	$V_F$			42	25 125		1,10 1,04		V
Reverse leakage current	$I_R$		1600		25 150			20 1500	$\mu$ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					0,97		K/W
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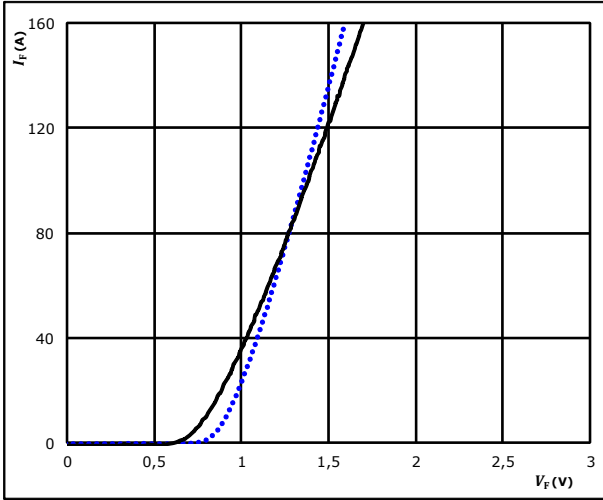


## Rectifier Diode Characteristics

**figure 1. Rectifier Diode**

Typical forward characteristics

$$I_F = f(V_F)$$

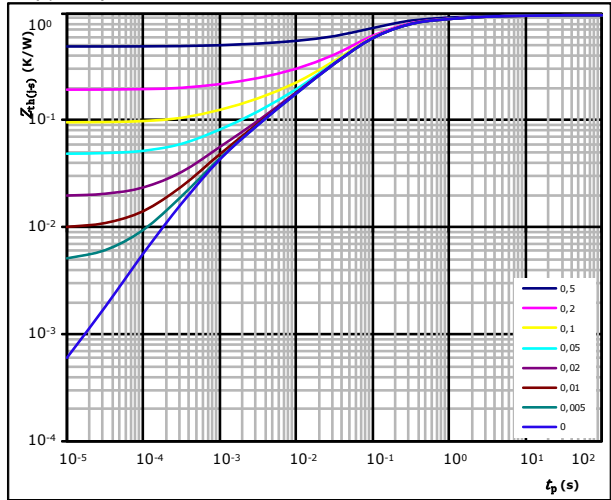


$t_p = 250 \mu\text{s}$   $T_j: 25 \text{ }^\circ\text{C}$  (blue dotted line)  
 $125 \text{ }^\circ\text{C}$  (black solid line)

**figure 2. Rectifier Diode**

Transient thermal impedance as a function of pulse width

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




$D = t_p / T$   
 $R_{th(j-s)} = 0,97 \text{ K/W}$

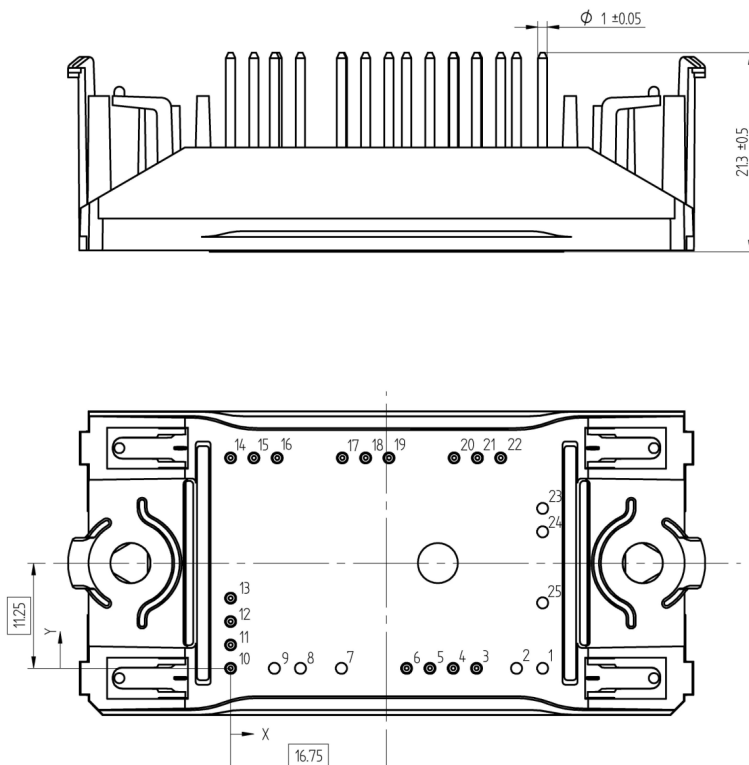
Diode thermal model values

$R$ (K/W)	$\tau$ (s)
3,98E-02	7,88E+00
1,29E-01	8,64E-01
4,20E-01	1,32E-01
2,76E-01	4,24E-02
6,63E-02	5,80E-03
3,37E-02	8,90E-04



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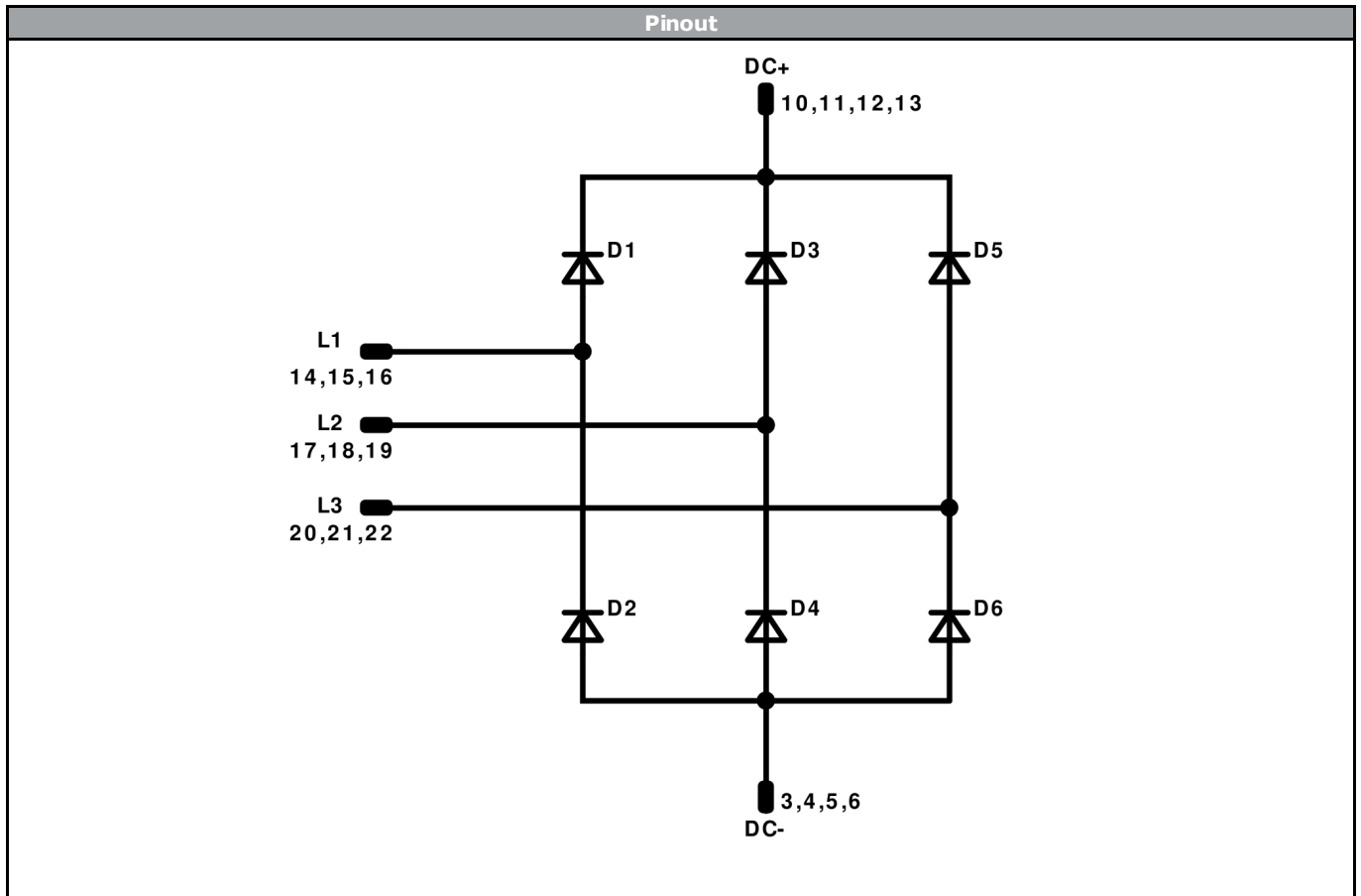
Ordering Code & Marking							
<b>Version</b>				<b>Ordering Code</b>			
without thermal paste 17 mm housing with solder pins				V23990-P649-H09-PM			
VIN WWYY NNNNNNVV UL LLLL SSSS							
<b>Text</b>	<b>VIN</b>	<b>Date code</b>	<b>Name&amp;Ver</b>	<b>UL</b>	<b>Lot</b>	<b>Serial</b>	
	VIN	WWYY	NNNNNNVV	UL	LLLL	SSSS	
<b>Datamatrix</b>	<b>Type&amp;Ver</b>	<b>Lot number</b>	<b>Serial</b>	<b>Date code</b>			
	TTTTTIVV	LLLL	SSSS	WWYY			

Pin table				Outline	
Pin	X	Y	Function		
1			Not assembled		
2			Not assembled		
3	26,4	0	DC-		
4	23,9	0	DC-		
5	21,4	0	DC-		
6	18,9	0	DC-		
7			Not assembled		
8			Not assembled		
9			Not assembled		
10	0	0	DC+		
11	0	2,5	DC+		
12	0	5	DC+		
13	0	7,5	DC+		
14	0	22,5	L1		
15	2,5	22,5	L1		
16	5	22,5	L1		
17	12	22,5	L2		
18	14,5	22,5	L2		
19	17	22,5	L2		
20	24	22,5	L3		
21	26,5	22,5	L3		
22	29	22,5	L3		
23			Not assembled		
24			Not assembled		
25			Not assembled		

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



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<b>Identification</b>					
<b>ID</b>	<b>Component</b>	<b>Voltage</b>	<b>Current</b>	<b>Function</b>	<b>Comment</b>
D1, D2, D3, D4, D5, D6	Rectifier	1600 V	42 A	Rectifier Diode	




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Packaging instruction			
Standard packaging quantity (SPQ) 135	>SPQ	Standard	<SPQ Sample

Handling instruction
Handling instructions for <i>flow 0</i> packages see vincotech.com website.

Package data
Package data for <i>flow 0</i> packages see 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-P649-H09-D2-14	29 Mar. 2019	Correction of I <sub>c</sub> /I <sub>r</sub> values	1

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.