



Vincotech

# 10-F0186RA060RW-L619H09

datasheet

flowCON 0

1800 V / 60 A

## Topology features

- Three-phase Rectifier

## Component features

- High inrush current capability

## Housing features

- Base isolation:  $\text{Al}_2\text{O}_3$
- Clip-in, reliable mechanical connection, qualified for wave soldering
- Convex shaped substrate for superior thermal contact
- Thermo-mechanical push-and-pull force relief
- Solder pin

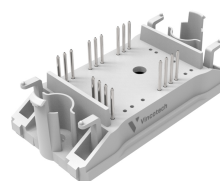
## Target applications

- Embedded Drives
- Industrial Drives

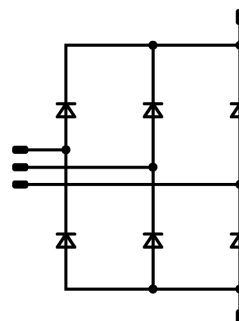
## Types

- 10-F0186RA060RW-L619H09

## flow 0 17 mm housing



## Schematic





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## Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
<b>Rectifier Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		1800	V
Forward current (DC current)	$I_F$	$T_j = T_{jmax}$ $T_a = 80\text{ °C}$	81	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 <sup>2</sup> s
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_a = 80\text{ °C}$	92	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			>12,7	mm
Comparative Tracking Index	CTI		≥ 200	

\*100 % tested in production



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**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		1,18 1,15	1,23 <sup>(1)</sup> 1,17 <sup>(1)</sup>	V
Reverse leakage current	$I_R$	$V_r = 1800$ V				25 150			50 1500	µA

**Thermal**

Thermal resistance junction to sink <sup>(2)</sup>	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,76		K/W
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<sup>(1)</sup> Value at chip level

<sup>(2)</sup> Only valid with pre-applied Vincotech thermal interface material.



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## Rectifier Diode Characteristics

figure 1.

Rectifier

Typical forward characteristics

$$I_F = f(V_F)$$

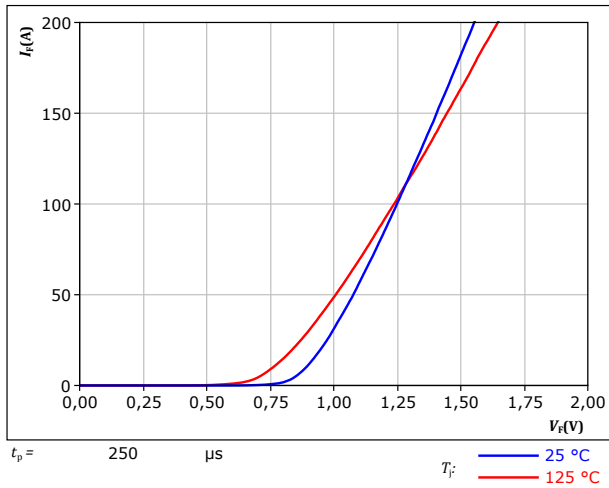
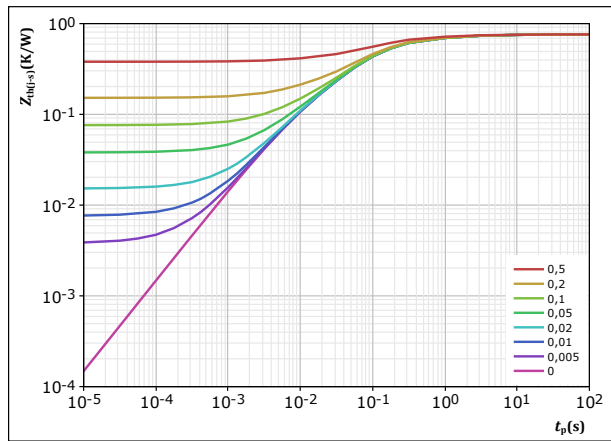


figure 2.

Rectifier

Transient thermal impedance as a function of pulse width

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



$D =$	$t_p / T$	
$R_{th(j-s)} =$	0,76	K/W
Rectifier thermal model values		
$R$ (K/W)	$\tau$ (s)	
3,13E-02	8,05E+00	
1,13E-01	9,15E-01	
3,24E-01	1,46E-01	
2,40E-01	4,86E-02	
5,24E-02	7,00E-03	



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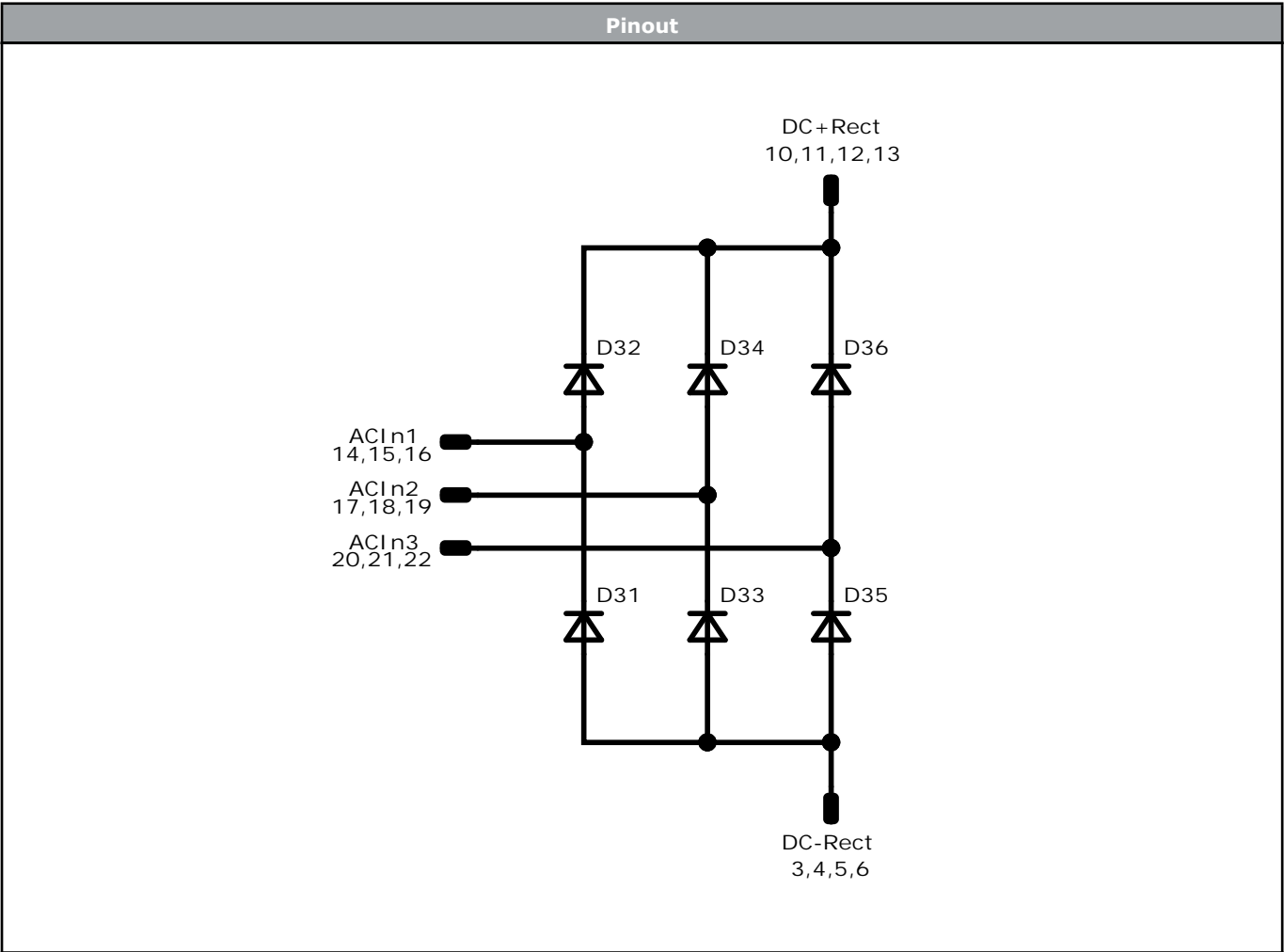
# 10-F0186RA060RW-L619H09

datasheet

Ordering Code	
Version	Ordering Code
Without thermal paste	10-F0186RA060RW-L619H09
With thermal paste (5,2 W/mK, PTM6000HV)	10-F0186RA060RW-L619H09-/7/

Marking						
	Text	Name	Date code	UL & VIN	Lot	Serial
		NN-NNNNNNNNNNNNNN- TTTTTVV	WWYY	UL VIN	LLLLL	SSSS
	Datamatrix	Type&Ver TTTTTTVV	Lot number LLLLL	Serial SSSS	Date code WWYY	

Outline																																																																																																											
<p>Pin table [mm]</p> <table><thead><tr><th>Pin</th><th>X</th><th>Y</th><th>Function</th></tr></thead><tbody><tr><td>1</td><td></td><td></td><td>not assembled</td></tr><tr><td>2</td><td></td><td></td><td>not assembled</td></tr><tr><td>3</td><td>26,4</td><td>0</td><td>DC-</td></tr><tr><td>4</td><td>23,9</td><td>0</td><td>DC-</td></tr><tr><td>5</td><td>21,4</td><td>0</td><td>DC-</td></tr><tr><td>6</td><td>18,9</td><td>0</td><td>DC-</td></tr><tr><td>7</td><td></td><td></td><td>not assembled</td></tr><tr><td>8</td><td></td><td></td><td>not assembled</td></tr><tr><td>9</td><td></td><td></td><td>not assembled</td></tr><tr><td>10</td><td>0</td><td>0</td><td>DC+</td></tr><tr><td>11</td><td>0</td><td>2,5</td><td>DC+</td></tr><tr><td>12</td><td>0</td><td>5</td><td>DC+</td></tr><tr><td>13</td><td>0</td><td>7,5</td><td>DC+</td></tr><tr><td>14</td><td>0</td><td>22,5</td><td>L1</td></tr><tr><td>15</td><td>2,5</td><td>22,5</td><td>L1</td></tr><tr><td>16</td><td>5</td><td>22,5</td><td>L1</td></tr><tr><td>17</td><td>12</td><td>22,5</td><td>L2</td></tr><tr><td>18</td><td>14,5</td><td>22,5</td><td>L2</td></tr><tr><td>19</td><td>17</td><td>22,5</td><td>L2</td></tr><tr><td>20</td><td>24</td><td>22,5</td><td>L3</td></tr><tr><td>21</td><td>26,5</td><td>22,5</td><td>L3</td></tr><tr><td>22</td><td>29</td><td>22,5</td><td>L3</td></tr><tr><td>23</td><td></td><td></td><td>not assembled</td></tr><tr><td>24</td><td></td><td></td><td>not assembled</td></tr><tr><td>25</td><td></td><td></td><td>not assembled</td></tr></tbody></table>				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
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<p>Tolerance of pinpositions: ±0.5mm at the end of pins Dimension of coordinate axis is only offset without tolerance</p>																																																																																																											




Identification					
ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34, D35, D36	Rectifier	1800 V	80 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</i> 0 packages see vincotech.com website.				
Package data				
Package data for <i>flow</i> 0 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 UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}=175^{\circ}\text{C}$ and up to 3500VAC/1min isolation voltage. For more information see vincotech.com website.				

Document No.:	Date:	Modification:	Pages
10-F0186RA060RW-L619H09-D2-14	1 May. 2022	New Datasheet format, module is unchanged	
10-F0186RA060RW-L619H09-D3-14	25 Apr. 2025	Visol DC Test Voltage increased	

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