



flowCON 0

1800 V / 40 A

Topology features

- Three-phase Rectifier

Component features

- High inrush current capability

Housing features

- Base isolation: Al₂O₃
- 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

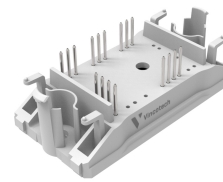
Target applications

- Embedded Drives
- Industrial Drives

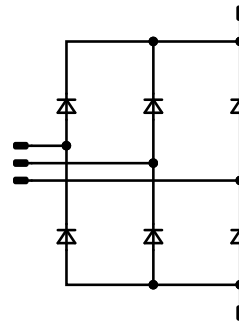
Types

- 10-F0186RA040RW-L617H09

flow 0 17 mm 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}		1800	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	63	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	520	A
Surge current capability	I^2t		1350	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	75	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* $t_p = 2\text{ s}$	4000	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		1,28 1,28	1,33 ⁽¹⁾ 1,31 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 1800$ V				25 150			20 1500	μA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,93		K/W
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⁽¹⁾ Value at chip level

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

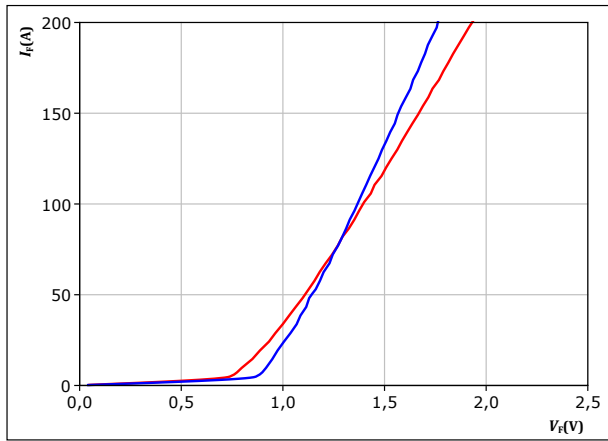


Rectifier Diode Characteristics

figure 1. Rectifier

Typical forward characteristics

$$I_F = f(V_F)$$



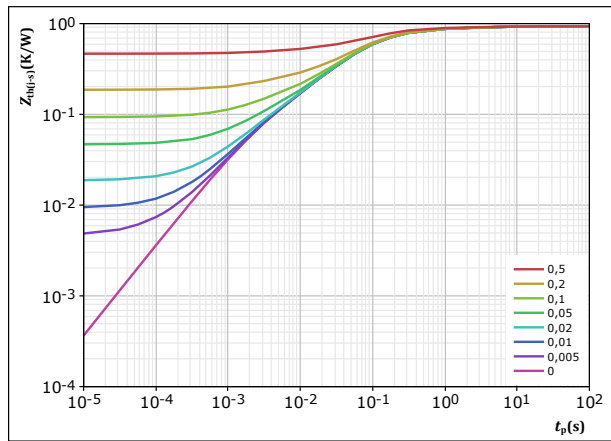
$t_p = 250 \mu s$

T_j : — 25 °C
— 125 °C

figure 2. Rectifier

Transient thermal impedance as a function of pulse width

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



$D = t_p / T$
 $R_{th(j-s)} = 0,932 \text{ K/W}$

Rectifier thermal model values

R (K/W)	τ (s)
5,44E-02	4,08E+00
1,74E-01	4,18E-01
5,49E-01	7,68E-02
1,07E-01	1,52E-02
4,90E-02	2,24E-03



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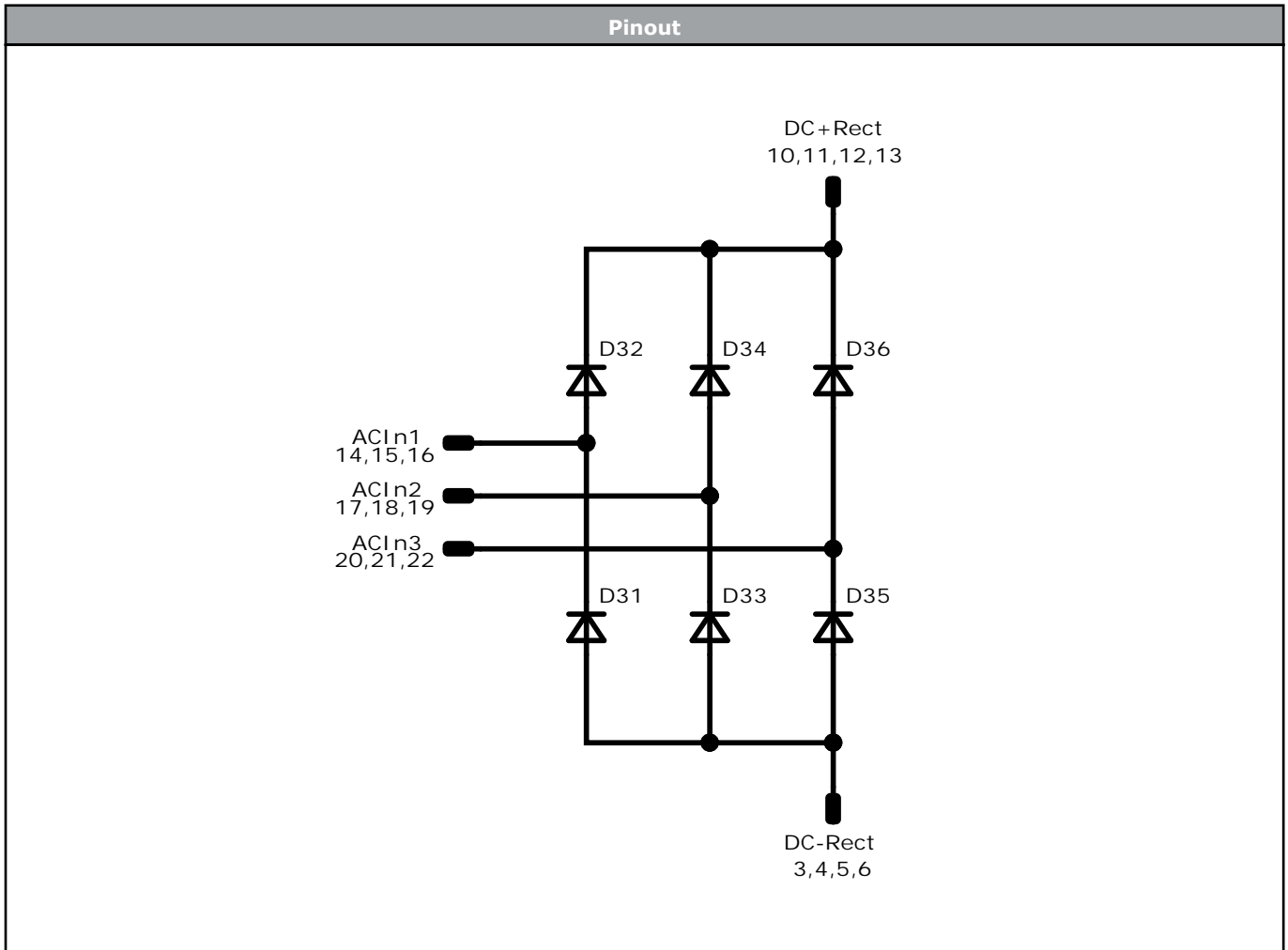
10-F0186RA040RW-L617H09
datasheet

Ordering Code	
Version	Ordering Code
Without thermal paste	10-F0186RA040RW-L617H09
With thermal paste (5,2 W/mK, PTM6000HV)	10-F0186RA040RW-L617H09-/7/
With thermal paste (3,4 W/mK, PSX-P7)	10-F0186RA040RW-L617H09-/3/

Marking						
	Text	Name	Date code	UL & VIN	Lot	Serial
		NN-NNNNNNNNNNNNNNNNNNNN- TTTTIV	WWYY	UL VIN	LLLLL	SSSS
Datamatrix		Type&Ver	Lot number	Serial	Date code	
		TTTTTIVV	LLLLL	SSSS	WWYY	

Pin table [mm]			
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: $\pm 0,05$ mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



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 0</i> packages see vincotech.com website.

Package data
Package data for <i>flow 0</i> 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
10-F0186RA040RW-L617H09-D2-14	5 May. 2022	New Datasheet format, module is unchanged Updated static characteristic	

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