Vincotech

10-EY186RA110RW-PL78H08T
datasheet

flowCON E2 **1800 V / 110 A**

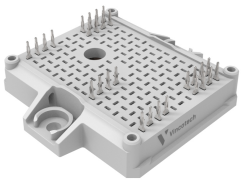
Topology features
- Three-phase Rectifier

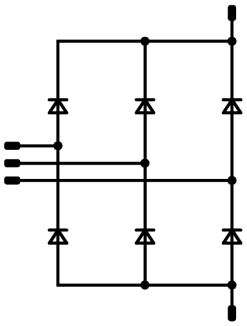
Component features
- High inrush current capability

Housing features
- Base isolation: Al_2O_3
- Convex shaped substrate for superior thermal contact
- Compact housing
- CTI600 housing material
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

Target applications
- Industrial Drives
- Welding & Cutting

Types
- 10-EY186RA110RW-PL78H08T

flow E2 12 mm housing


Schematic


Maximum Ratings

T_j = 25 °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 °C	149	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 8,3 ms	T_j = 25 °C	1320	A
Surge current capability	I^2t			8710	A^2s
Total power dissipation	P_{tot}	T_j = T_{jmax}	T_s = 80 °C	170	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 s	6000	V
Creepage distance				>12,7	mm
Clearance				9,68	mm
Comparative Tracking Index	CTI			≥ 600	

*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				110	25 125		1,06 1,05	1,2[1]	V
Reverse leakage current	I_R	V_r = 1800 V				25 150			10 2000	µA
Thermal										
Thermal resistance junction to sink[2]	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,41		K/W

[1] Value at chip level

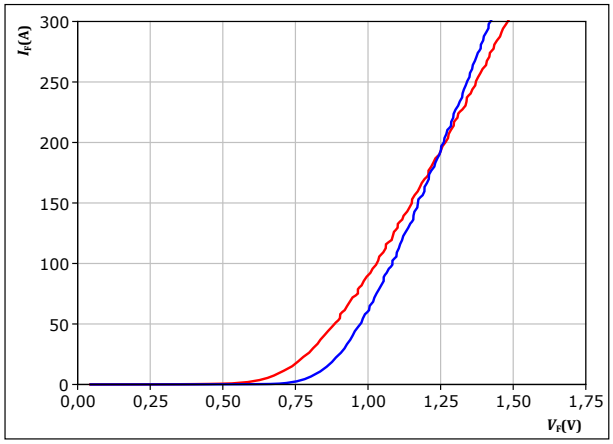
[2] Only valid with pre-applied Vincotech thermal interface material.

Rectifier Diode Characteristics

figure 1. **Rectifier**

Typical forward characteristics

$I_F = f(V_F)$



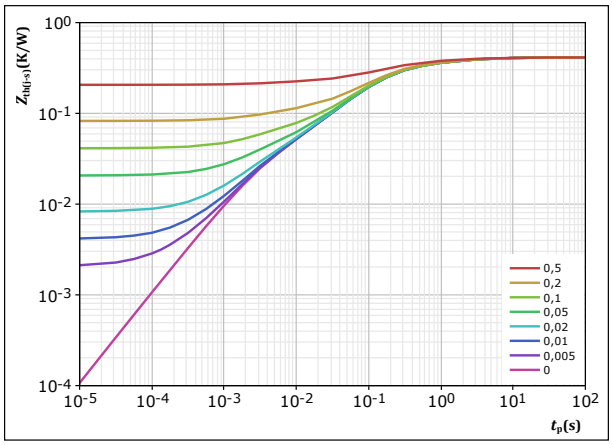
t_p = 250 µs

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

$R_{th(j-s)}$ = 0,413 K/W

Rectifier thermal model values

R (K/W)	τ (s)
2,38E-02	6,49E+00
7,61E-02	1,10E+00
2,07E-01	1,72E-01
8,13E-02	4,62E-02
2,49E-02	3,22E-03

Ordering Code	
Version	**Ordering Code**
Without thermal paste	10-EY186RA110RW-PL78H08T
With thermal paste (3,4 W/mK, PSX-P7)	10-EY186RA110RW-PL78H08T-/3/

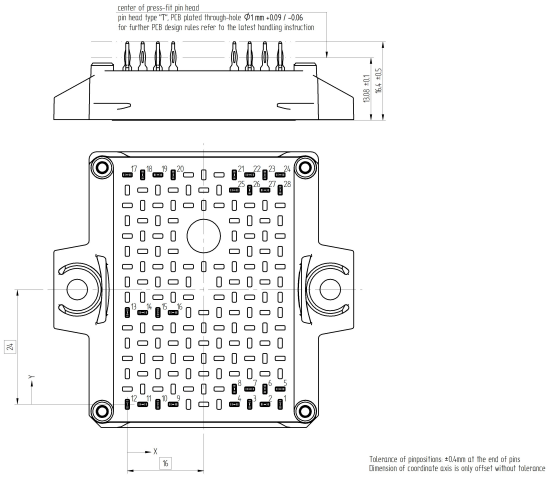
Marking

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

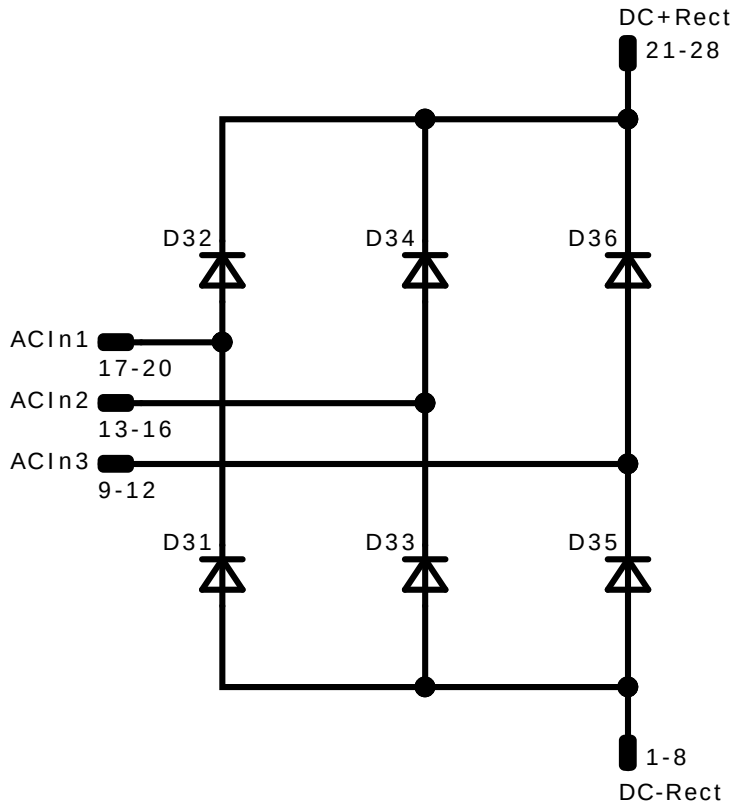
Outline

Pin table [mm]

Pin	X	Y	Function
1	32	0	DC-Rect
2	28,8	0	DC-Rect
3	25,6	0	DC-Rect
4	22,4	0	DC-Rect
5	32	3,2	DC-Rect
6	28,8	3,2	DC-Rect
7	25,6	3,2	DC-Rect
8	22,4	3,2	DC-Rect
9	9,6	0	ACIn3
10	6,4	0	ACIn3
11	3,2	0	ACIn3
12	0	0	ACIn3
13	0	19,2	ACIn2
14	3,2	19,2	ACIn2
15	6,4	19,2	ACIn2
16	9,6	19,2	ACIn2
17	0	48	ACIn1
18	3,2	48	ACIn1
19	6,4	48	ACIn1
20	9,6	48	ACIn1
21	22,4	48	DC+Rect
22	25,6	48	DC+Rect
23	28,8	48	DC+Rect
24	32	48	DC+Rect
25	22,4	44,8	DC+Rect
26	25,6	44,8	DC+Rect
27	28,8	44,8	DC+Rect
28	32	44,8	DC+Rect



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34, D35, D36	Rectifier	1800 V	110 A	Rectifier Diode	

Packaging instruction				
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for *flow* E2 packages see vincotech.com website.

Package data
Package data for *flow* E2 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°C and up to 3500VAC/1min isolation voltage. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
10-EY186RA110RW-PL78H08T-D1-14	21 May. 2024		