



flowCON E2 SiC

1200 V / 40 A

Topology features

- Temperature sensor
- Three-phase Rectifier
- splitted DC-

Component features

- No diode recovery losses
- Very fast switching

Housing features

- Base isolation: Al₂O₃
- 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

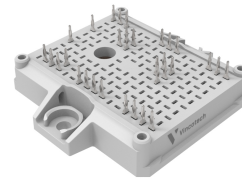
Target applications

- Charging Stations

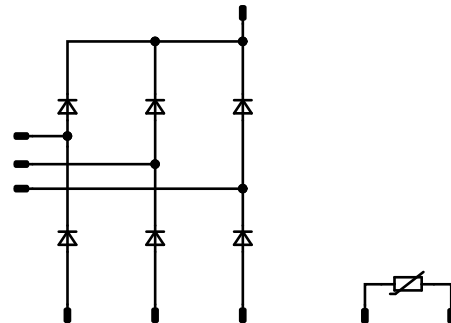
Types

- 10-EY126RA040CD-PJ17J98T

flow E2 12 mm housing



Schematic





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10-EY126RA040CD-PJ17J98T
datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	50	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	188	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 25\text{ °C}$	284	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	132	W
Maximum junction temperature	T_{jmax}		175	°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
Isolation voltage	V_{isol}	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			>12,7	mm
Clearance			9,11	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			40	25 125 150		1,51 2,03 2,13	1,8 ⁽¹⁾	V
Reverse leakage current	I_R	$V_r = 1200$ V			25		120	1000	μA

Thermal

Thermal resistance junction to sink ⁽²⁾	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					0,72		K/W
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Thermistor

Static

Rated resistance	R				25		22		kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 1484$ Ω			100	-5		5	%
Power dissipation	P				25		130		mW
Power dissipation constant	d				25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %					3962		K
B-value	$B_{(25/100)}$	Tol. ±1 %					4000		K
Vincotech Thermistor Reference								I	

⁽¹⁾ Value at chip level

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



Rectifier Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

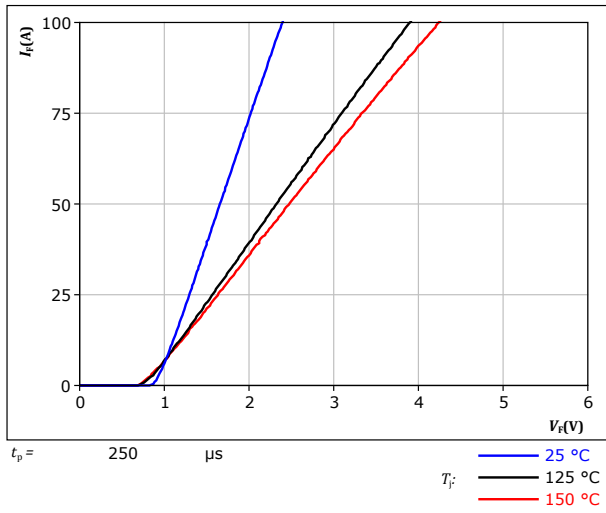
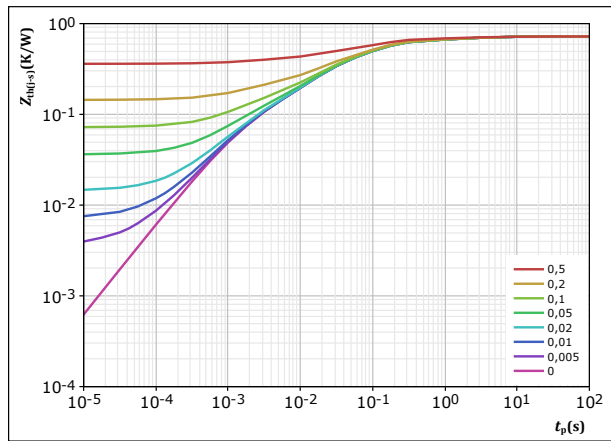


figure 2. FWD

Transient thermal impedance as a function of pulse width

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



$D =$	t_p / T	
$R_{th(j-s)} =$	0,721	K/W
FWD thermal model values		
R (K/W)	τ (s)	
4,07E-02	4,56E+00	
5,95E-02	9,33E-01	
3,42E-01	1,03E-01	
2,12E-01	1,65E-02	
6,68E-02	1,45E-03	

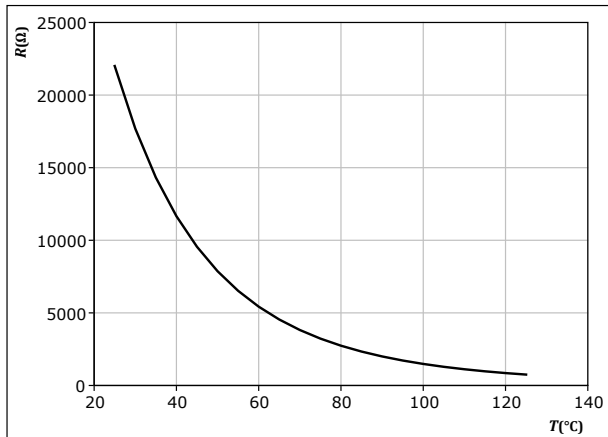


Thermistor Characteristics

figure 3. Thermistor

Typical NTC characteristic as function of temperature

$$R_T = f(T)$$





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Ordering Code	
Version	Ordering Code
Without thermal paste	10-EY126RA040CD-PJ17J98T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EY126RA040CD-PJ17J98T-/7/
With thermal paste (3,4 W/mK, PSX-P7)	10-EY126RA040CD-PJ17J98T-/3/

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

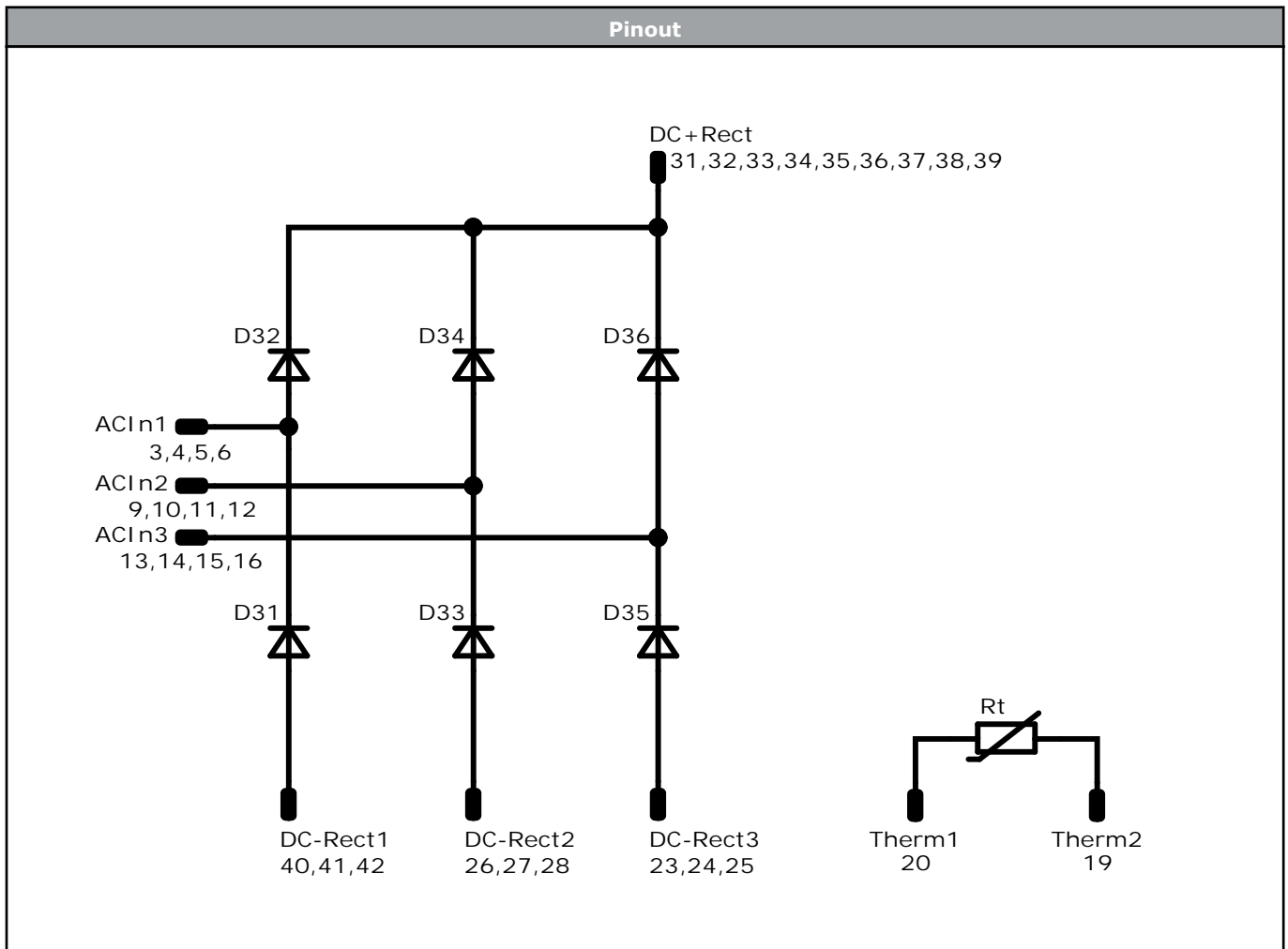
Outline				
Pin table [mm]				
Pin	X	Y	Function	
1			not assembled	
2			not assembled	
3	0	0	ACIn1	
4	0	3,2	ACIn1	
5	0	6,4	ACIn1	
6	0	9,6	ACIn1	
7			not assembled	
8			not assembled	
9	0	19,2	ACIn2	
10	0	22,4	ACIn2	
11	0	25,6	ACIn2	
12	0	28,8	ACIn2	
13	3,2	38,4	ACIn3	
14	0	38,4	ACIn3	
15	0	41,6	ACIn3	
16	0	44,8	ACIn3	
17			not assembled	
18			not assembled	
19	12,8	48	Therm2	
20	22,4	48	Therm1	
21			not assembled	
22			not assembled	
23	32	48	DC-Rect3	
24	32	44,8	DC-Rect3	
25	32	41,6	DC-Rect3	
26	32	25,6	DC-Rect2	
27	32	22,4	DC-Rect2	
28	32	19,2	DC-Rect2	
29			not assembled	
30			not assembled	
31	22,4	12,8	DC+Rect	
32	19,2	12,8	DC+Rect	
33	16	12,8	DC+Rect	
34	19,2	16	DC+Rect	
35	22,4	16	DC+Rect	
36	25,6	32	DC+Rect	
37	22,4	32	DC+Rect	
38	22,4	35,2	DC+Rect	
39	25,6	35,2	DC+Rect	
40	32	6,4	DC-Rect1	
41	32	3,2	DC-Rect1	
42	32	0	DC-Rect1	
43			not assembled	
44			not assembled	

center of press-fit pin head
pin head type "P", PCB plated through-hole Ø1 mm, 4099° 40K
For further PCB design rules refer to the latest bonding instruction

Tolerance of positions: ±0.05mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



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Identification					
ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34, D35, D36	FWD	1200 V	40 A	Rectifier Diode	
Rt	Thermistor			Thermistor	




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

Handling instruction
Handling instructions for <i>flow</i> E2 packages see vincotech.com website.

Package data
Package data for <i>flow</i> 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 certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
10-EY126RA040CD-PJ17J98T-D1-14	22 Nov. 2023	Initial Release	

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