Vincotech

10-EY126RA040CD-PJ17J98T
datasheet

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: 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

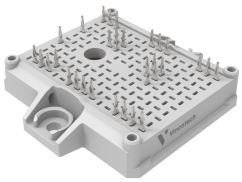
Target applications

- Charging Stations

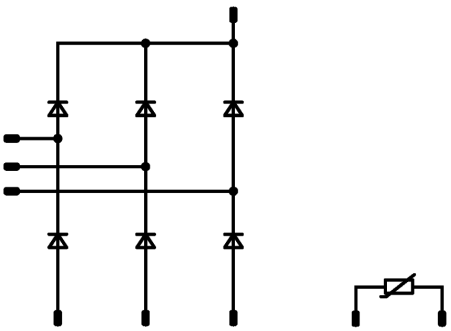
Types

- 10-EY126RA040CD-PJ17J98T

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}		1200	V
Forward current (DC current)	I_F	T_j = T_{jmax} T_s = 80 °C	57	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	128	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms T_j = 110 °C	324	A
Total power dissipation	P_{tot}	T_j = T_{jmax} T_s = 80 °C	113	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 s	6000	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		1,34 1,54 1,61	1,8[1]	V
Reverse leakage current	I_R	V_r = 1200 V				25		11,2	2000	µA
Thermal										
Thermal resistance junction to sink[2]	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,84		K/W
Thermistor										
Static										
Rated resistance	R					25		5		kΩ
Deviation of R100	$\Delta_{R/R}$	R_{100} = 499 Ω				100	3,2		3,3	%
Power dissipation	P					25		130		mW
Power dissipation constant	d					25		1,3		mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %						3380		K
Vincotech Thermistor Reference									V	

[1] Value at chip level

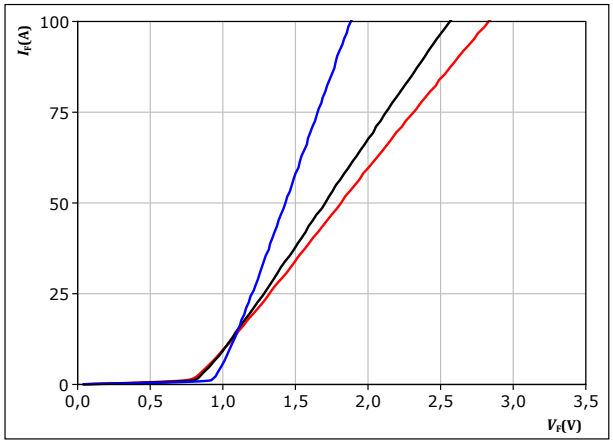
[2] Only valid with pre-applied Vincotech thermal interface material.

Rectifier Diode Characteristics

figure 1. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



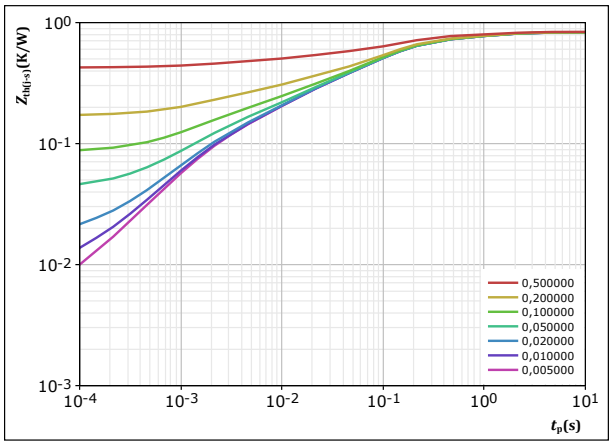
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 2. **FWD**

Transient thermal impedance as a function of pulse width

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



D = t_p / T

$R_{th(j-s)}$ = 0,839 K/W

FWD thermal model values

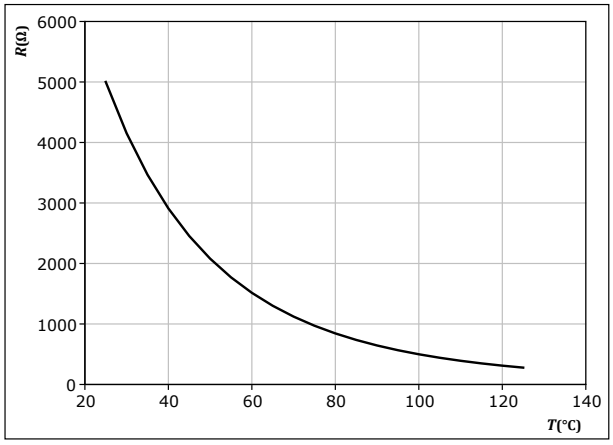
R (K/W)	τ (s)
2,33E-02	4,04E+01
1,52E-01	9,20E-01
4,54E-01	1,08E-01
1,37E-01	1,14E-02
8,28E-02	1,55E-03

Thermistor Characteristics

figure 3. **Thermistor**

Typical NTC characteristic as function of temperature

$R_T = f(T)$



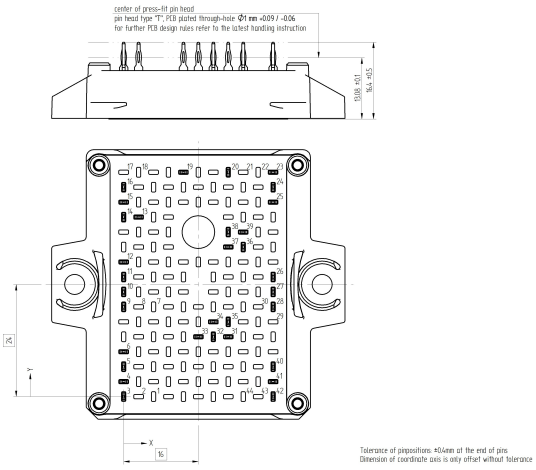
Ordering Code	
Version	**Ordering Code**
Without thermal paste	10-EY126RA040CD-PJ17J98T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EY126RA040CD-PJ17J98T-/7/

Marking

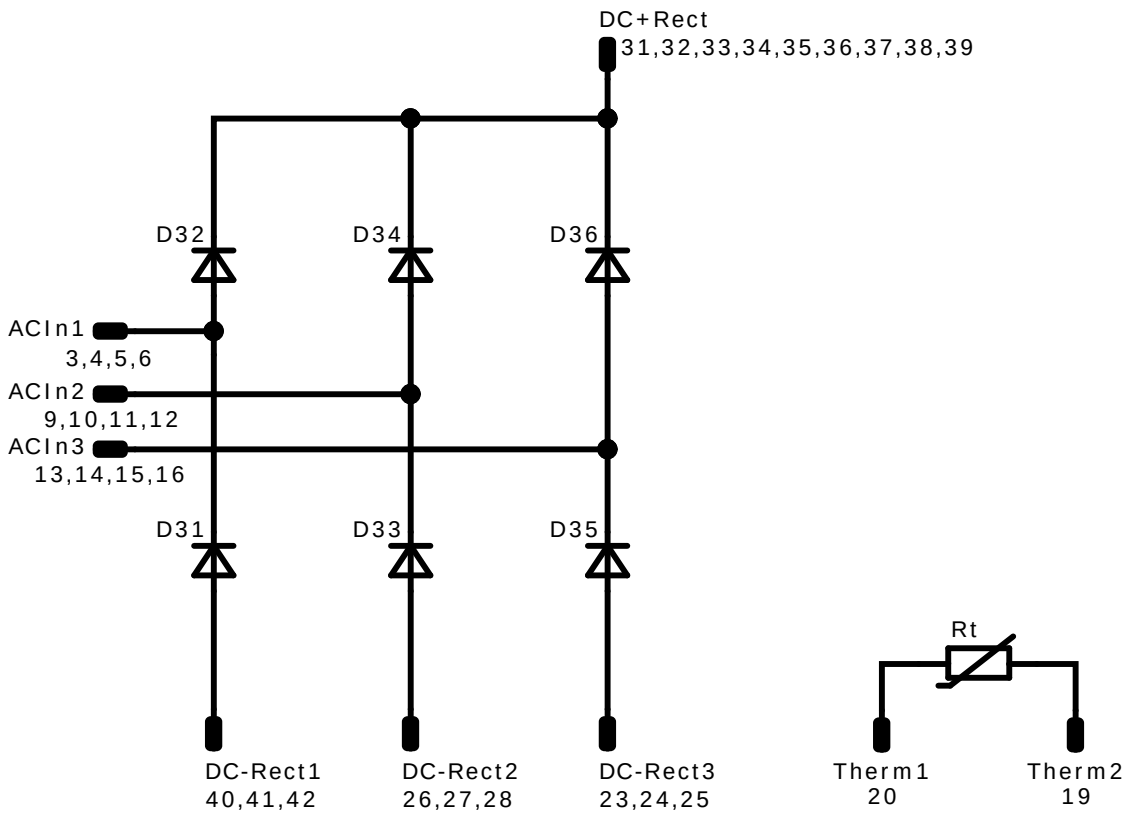
	Name		Date code	UL & VIN	Lot	Serial
Text	NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	**Type&Ver**	**Lot number**	**Serial**	**Date code**		
	TTTTTTVV	LLLLL	SSSS	WWYY		

Outline

Pin table [mm]			
Pin	X	Y	Function
1	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		



Pinout



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 *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-EY126RA040CD-PJ17J98T-D1-14	22 Nov. 2023	Initial Release	
10-EY126RA040CD-PJ17J98T-D2-14	22 Feb. 2025	Change Rectifier Diode	