



flowDUAL E2 SiC

1200 V / 6 mΩ

Topology features

- Temperature sensor
- Half Bridge

Component features

- Fast intrinsic diode with low reverse recovery
- High blocking voltage with low on-resistance
- High speed switching with low capacitance

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

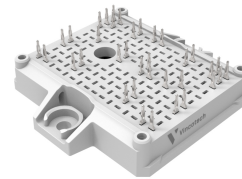
Target applications

- Charging Stations
- Energy Storage Systems
- General
- Industrial Drives
- Power Supply
- Servo Drives
- Solar Inverters
- UPS

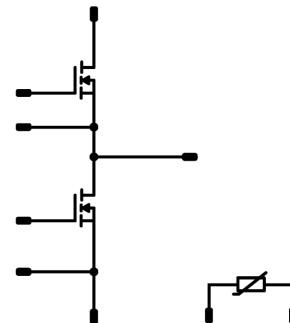
Types

- 10-EY122PA006MR-LU39F48T

flow E2 12 mm housing



Schematic





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Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Inverter Switch				
Drain-source voltage	V_{DS}		1200	V
Drain current (DC current)	I_D	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	308	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	504	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	207	W
Gate-source voltage	V_{GS}		-4 / 21	V
		dynamic	-4 / 23	
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 $t_p = 2\text{ s}$	6800	V
Creepage distance			>12,7	mm
Clearance			9,34	mm
Comparative Tracking Index	CTI		≥ 600	



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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max		

Inverter Switch

Static

Parameter	Symbol	V_{GS} [V]	V_{DS} [V]	I_D [A]	I_F [A]	T_j [°C]	Min	Typ	Max	Unit
Drain-source on-state resistance	$r_{DS(on)}$	18		126	25	150		6 12	7,5	mΩ
Gate-source threshold voltage	$V_{GS(th)}$			0,0666	25		2,8	3,5	4,8	V
Gate to Source Leakage Current	I_{GSS}	21	0		25				600	nA
Zero Gate Voltage Drain Current	I_{DSS}	0	1200		25			6	480	μA
Internal gate resistance	r_g							0,167		Ω
Gate charge	Q_g							546		nC
Gate to source charge	Q_{GS}	0/18	800	126	25			120		
Gate to drain charge	Q_{GD}							144		
Short-circuit input capacitance	C_{iss}							14010		pF
Short-circuit output capacitance	C_{oss}	$f = 1$ Mhz	0	800	0	25		420		
Reverse transfer capacitance	C_{rss}							30		
Diode forward voltage	V_{SD}	0		126	25			3,3		V

Thermal

Parameter	Symbol	λ_{paste} = 3,4 W/mK (PSX)								Unit
Thermal resistance junction to sink	$R_{th(j-s)}$							0,46		K/W



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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	V_{CE} [V]	T_j [°C]	Min	Typ	Max	

Thermistor

Static

Rated resistance	R					25		5		kΩ
Deviation of R100	$A_{R/R}$	$R_{100} = 499 \Omega$				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. $\pm 1 \%$						3380		K
Vincotech Thermistor Reference									V	




10-EY122PA006MR-LU39F48T

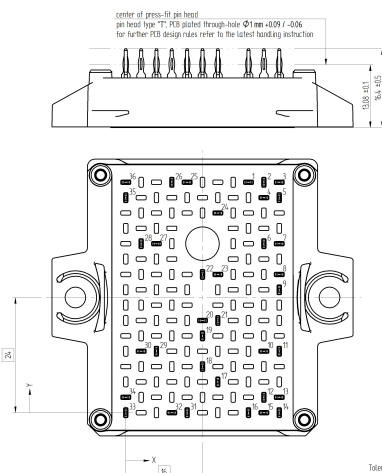
target datasheet

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Ordering Code	
Version	Ordering Code
Without thermal paste	10-EY122PA006MR-LU39F48T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EY122PA006MR-LU39F48T-/7/

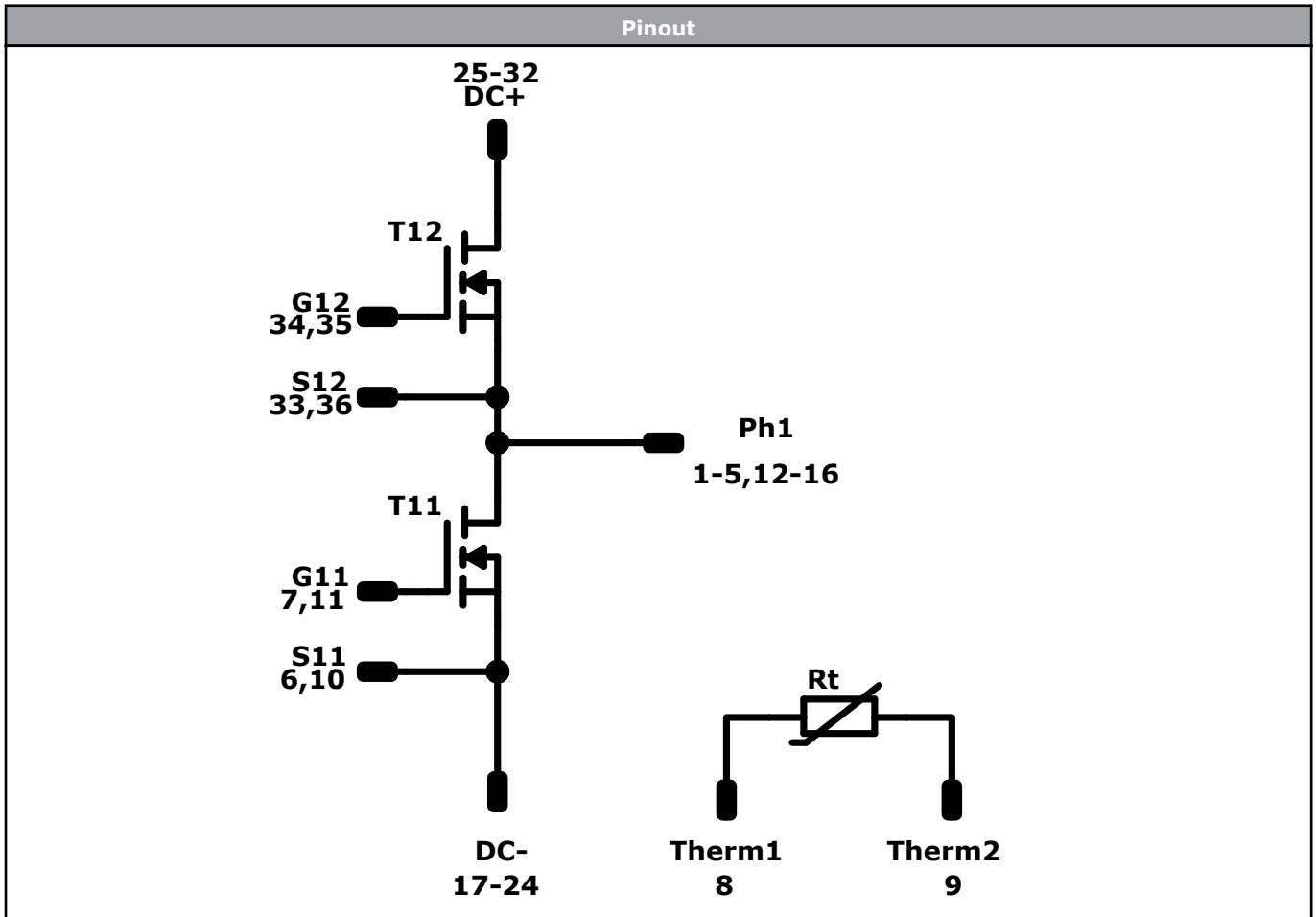
Marking						
	Text	Name NN-NNNNNNNNNNNNNNNN- TTTTTVV	Date code WWYY	UL & VIN UL VIN	Lot LLLLL	Serial SSSS
	Datamatrix	Type&Ver TTTTTTTV	Lot number LLLLL	Serial SSSS	Date code WWYY	

Outline				
Pin table [mm]				
Pin	X	Y	Function	
1	25,6	48	Ph1	
2	28,8	48	Ph1	
3	32	48	Ph1	
4	28,8	44,8	Ph1	
5	32	44,8	Ph1	
6	28,8	35,2	S11	
7	32	35,2	G11	
8	32	28,8	Therm1	
9	32	25,6	Therm2	
10	28,8	12,8	S11	
11	32	12,8	G11	
12	28,8	3,2	Ph1	
13	32	3,2	Ph1	
14	32	0	Ph1	
15	28,8	0	Ph1	
16	25,6	0	Ph1	
17	19,2	6,4	DC-	
18	16	9,6	DC-	
19	16	16	DC-	
20	16	19,2	DC-	
21	19,2	19,2	DC-	
22	16	28,8	DC-	
23	19,2	28,8	DC-	
24	19,2	41,6	DC-	
25	12,8	48	DC+	
26	9,6	48	DC+	
27	6,4	35,2	DC+	
28	3,2	35,2	DC+	
29	6,4	12,8	DC+	
30	3,2	12,8	DC+	
31	12,8	0	DC+	
32	9,6	0	DC+	
33	0	0	S12	
34	0	3,2	G12	
35	0	44,8	G12	
36	0	48	S12	



center of press-fit pin head
pin head type: TP, PCB spaced through-hole $\Phi 1mm - 0,091 - 0,06$
for further PCB design rules refer to the latest handling instruction

Tolerance of positions: $\pm 0,1mm$ at the end of pins
Dimension of coordinate axis is only offset without tolerance



Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12	MOSFET	1200 V	6 mΩ	Inverter Switch	
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 UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}=175^{\circ}C$ and up to 4000VAC/1min isolation voltage. For more information see vincotech.com website.



Document No.:	Date:	Modification:	Pages
10-EY122PA006MR-LU39F48T-T1-14	6 Apr. 2025	Initial Release	

Product status definition		
Datasheet Status	Product Status	Definition
Target	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. The data contained is exclusively intended for technically trained staff.

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