



Vincotech

10-EY122PA005MS-LU39F78T

target datasheet

flowDUAL E2 SiC

1200 V / 5 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

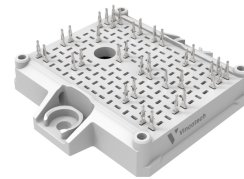
Target applications

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

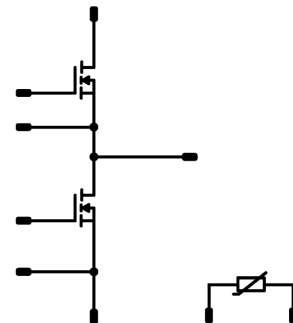
Types

- 10-EY122PA005MS-LU39F78T

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	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	435	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	960	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	271	W
Gate-source voltage	V_{GSS}		-5 / 18	V
		dynamic	-10 / 22	
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_{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	

Inverter Switch

Static

Drain-source on-state resistance	$r_{DS(on)}$		18		240	25		5	7,5	mΩ
Gate-source threshold voltage	$V_{GS(th)}$				0,024	25	1,7	2,25	2,75	V
Gate to Source Leakage Current	I_{GSS}		22	0		25			600	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	1200		25			60	μA
Internal gate resistance	r_g							0,333		Ω
Gate charge	Q_g		-5/18	800	240	25		648		nC
Short-circuit input capacitance	C_{iss}	$f = 500 \text{ kHz}$	0	800	0	25		15600		pF
Short-circuit output capacitance	C_{oss}							810		
Reverse transfer capacitance	C_{rss}							36		
Diode forward voltage	V_{SD}		0		240	25		4,1		V

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4 \text{ W/mK}$ (PSX)						0,35		K/W
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Thermistor

Static

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



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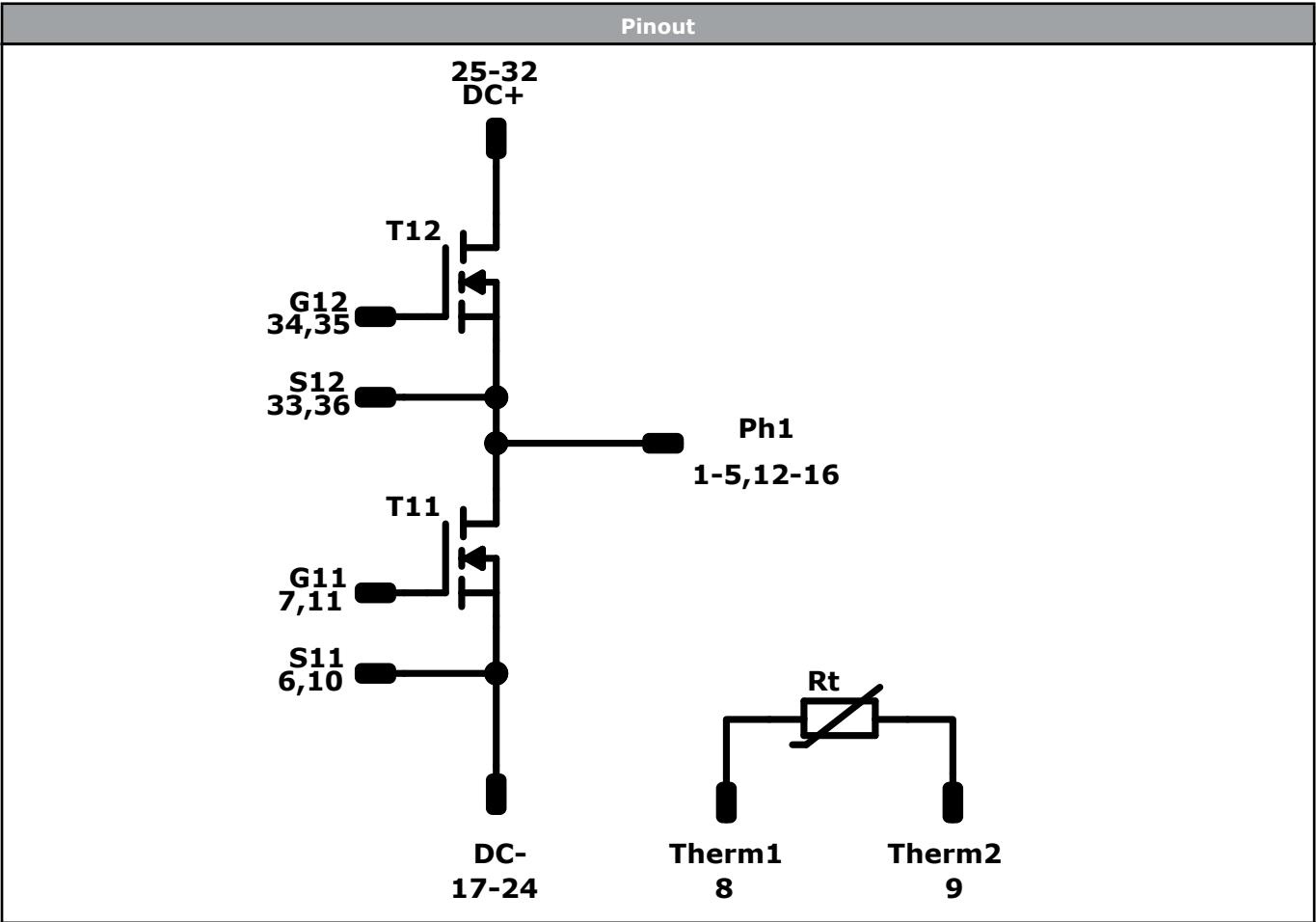
Ordering Code	
Version	Ordering Code
Without thermal paste	10-EY122PA005MS-LU39F78T
With thermal paste (5.2 W/mK. PTM6000HV)	10-EY122PA005MS-LU39F78T-/7/

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

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



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Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12	MOSFET	1200 V	5 mΩ	Inverter Switch	
Rt	Thermistor			Thermistor	



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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 $T_{j,op}=175^{\circ}\text{C}$ and up to 4000VAC/1min isolation voltage. For more information see vincotech.com website.				

Document No.:	Date:	Modification:	Pages
10-EY122PA005MS-LU39F78T-T1-14	25 Mar. 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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