Vincotech

B0-EP122PA002MS-PG88F78T
target datasheet

_flow_DUAL E3 SiC **1200 V / 2 mΩ**

Topology features

- Kelvin Emitter for improved switching performance
- Temperature sensor

Component features

- High Blocking Voltage with low drain source on state resistance
- High speed SiC-MOSFET technology
- Resistant to Latch-up

Housing features

- Base isolation: Al_2O_3
- CTI600 housing material
- Compact, baseplate-less housing
- VINcoPress Technology
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

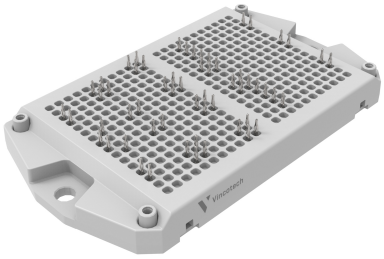
Target applications

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

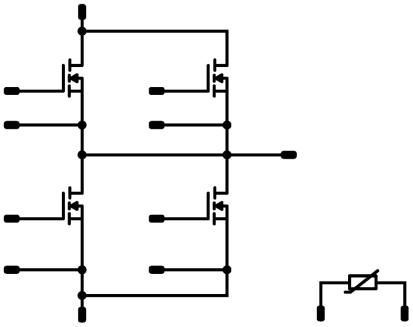
Types

- B0-EP122PA002MS-PG88F78T

flow E3 12 mm housing



Schematic



Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Half-Bridge Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current (DC current)	I_D	T_j = T_{jmax} T_s = 80 °C	1036	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	2272	A
Total power dissipation	P_{tot}	T_j = T_{jmax} T_s = 80 °C	424	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 s	6800	V
Creepage distance			>12,7	mm
Clearance			10,01	mm
Comparative Tracking Index	CTI		≥ 600	

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	
Half-Bridge Switch										
Static										
Drain-source on-state resistance	$r_{DS(on)}$		18		568	25		2,12	3,12	mΩ
Gate-source threshold voltage	$V_{GS(th)}$				0,0568	25	1,7	2,25	2,75	V
Gate to Source Leakage Current	I_{GSS}		22	0		25			800	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	1200		25			80	µA
Internal gate resistance	r_g							0,125		Ω
Gate charge	Q_g		-5/18	800	568	25		1504		nC
Short-circuit input capacitance	C_{iss}	f = 500 kHz	0	800	0	25		37440		pF
Short-circuit output capacitance	C_{oss}							1880		
Reverse transfer capacitance	C_{rss}							64		
Diode forward voltage	V_{SD}		0		568	25		4,1		V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 5,2 W/mK (PTM)						0,22		K/W
Thermistor										
Static										
Rated resistance	R					25		5		kΩ
Deviation of R100	$\Delta_{R/R}$	R_{100} = 493 Ω				100	-5		5	%
Power dissipation	P							245		mW
Power dissipation constant	d					25		1,4		mW/K
B-value	$B_{(25/50)}$	Tol. ±2 %						3375		K
B-value	$B_{(25/100)}$	Tol. ±2 %						3437		K
Vincotech Thermistor Reference									K	

Vincotech

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Ordering Code

Version	Ordering Code
Without thermal paste	B0-EP122PA002MS-PG88F78T
With thermal paste (5,2 W/mK, PTM6000HV)	B0-EP122PA002MS-PG88F78T-/7/

Marking

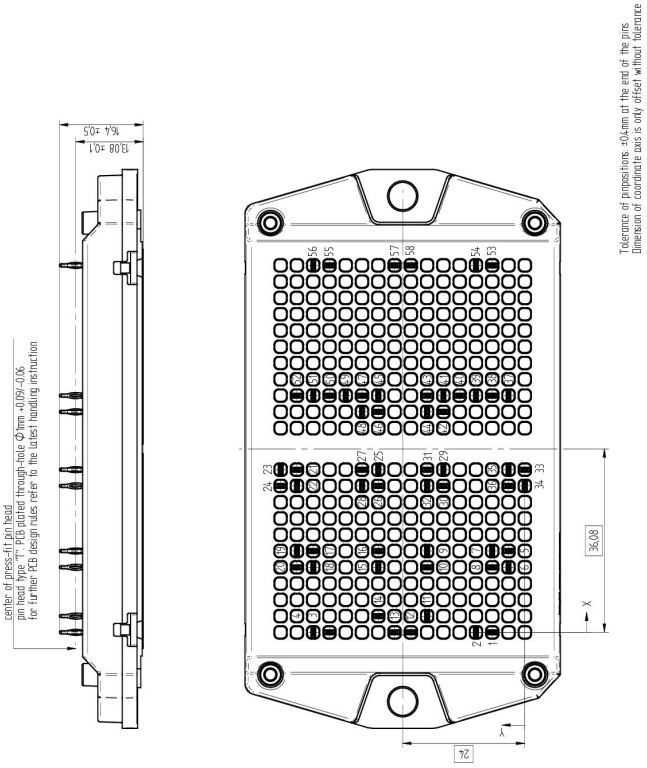
	Name	Date code	UL & VIN	Lot	Serial
Text	NN-NNNNNNNNNNNNNN-TTTTTTVV	WWYY	UL VIN	LLLLL	SSSS

Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTTTVV	LLLLL	SSSS	WWYY		

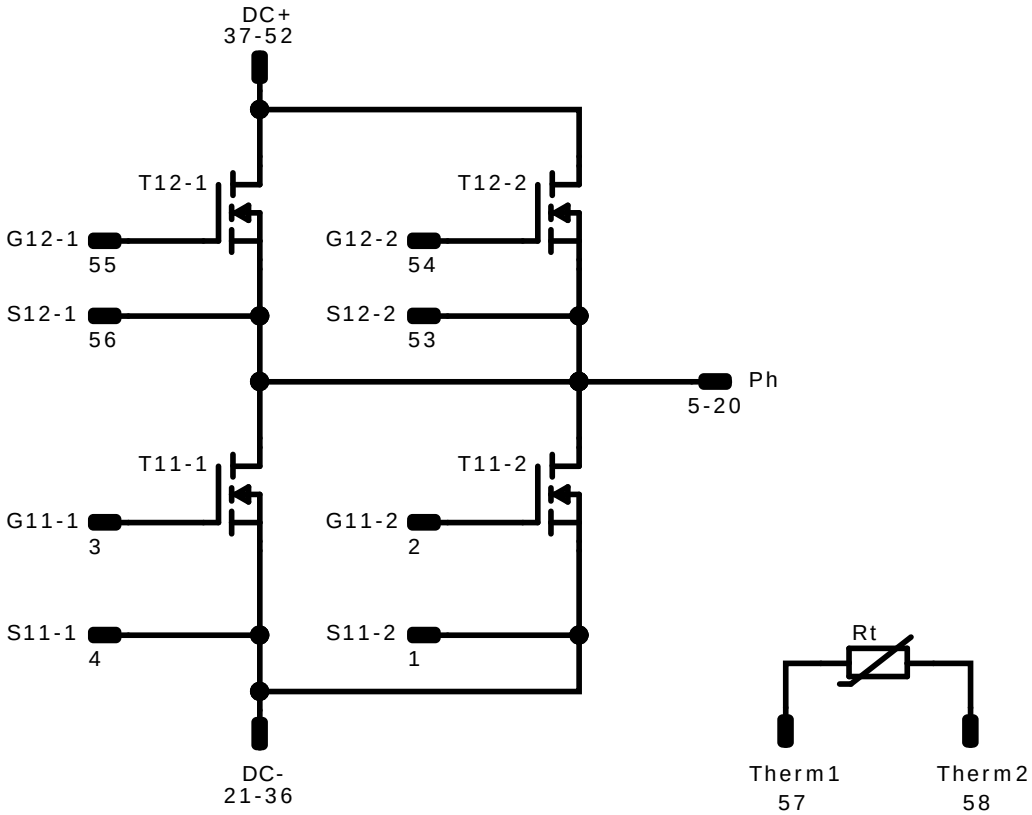
Outline

Pin table [mm]

Pin	X	Y	Function	31	32	19,2	DC-
1	0	6,4	S11-2	32	28,8	19,2	DC-
2	0	9,6	G11-2	33	32	0	DC-
3	0	38,4	G11-1	34	28,8	0	DC-
4	0	41,6	S11-1	35	32	3,2	DC-
5	16	3,2	Ph	36	28,8	3,2	DC-
6	12,8	3,2	Ph	37	46,56	3,2	DC+
7	16	6,4	Ph	38	46,56	6,4	DC+
8	12,8	6,4	Ph	39	46,56	9,6	DC+
9	16	19,2	Ph	40	46,56	12,8	DC+
10	12,8	19,2	Ph	41	46,56	16	DC+
11	3,2	19,2	Ph	42	43,36	16	DC+
12	0	22,4	Ph	43	46,56	19,2	DC+
13	0	25,6	Ph	44	43,36	19,2	DC+
14	3,2	28,8	Ph	45	46,56	28,8	DC+
15	12,8	28,8	Ph	46	43,36	28,8	DC+
16	16	28,8	Ph	47	46,56	32	DC+
17	16	41,6	Ph	48	43,36	32	DC+
18	12,8	41,6	Ph	49	46,56	35,2	DC+
19	16	44,8	Ph	50	46,56	38,4	DC+
20	12,8	44,8	Ph	51	46,56	41,6	DC+
21	32	44,8	DC-	52	46,56	44,8	DC+
22	28,8	44,8	DC-	53	72,16	6,4	S12-2
23	32	48	DC-	54	72,16	9,6	G12-2
24	28,8	48	DC-	55	72,16	38,4	G12-1
25	32	28,8	DC-	56	72,16	41,6	S12-1
26	28,8	28,8	DC-	57	72,16	25,6	Therm1
27	32	32	DC-	58	72,16	22,4	Therm2
28	28,8	32	DC-	59	not assembled		
29	32	16	DC-	60	not assembled		
30	28,8	16	DC-				



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T13, T12, T14	MOSFET	1200 V	2,12 mΩ	Half-Bridge Switch	
Rt	Thermistor			Thermistor	

Packaging instruction				
Standard packaging quantity (SPQ) 40	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for *flow* E3 packages see vincotech.com website.

Package data
Package data for *flow* E3 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 $T_{j,op}$=150°C and up to 4000VAC/1min isolation voltage. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
B0-EP122PA002MS-PG88F78T-T1-14	19 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.