Vincotech

10-EY12SAA003MS-PT49F78T
target datasheet

flowDUAL E2 SiC **1200 V / 2,8 mΩ**

Topology features

- Common emitter point Half Bridge
- SiC MOSFET
- 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
- 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

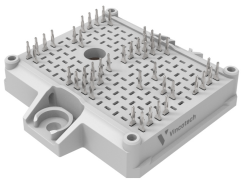
Target applications

- Solid-State Circuit Breakers
- Embedded Drives
- General Purpose Drives
- Industrial Drives

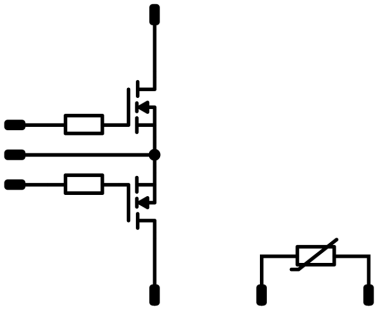
Types

- 10-EY12SAA003MS-PT49F78T

flow E2 12 mm housing



Schematic



Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
AC Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current (DC current)	I_D	T_j = T_{jmax} T_s = 80 °C	718	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	1704	A
Total power dissipation	P_{tot}	T_j = T_{jmax} T_s = 80 °C	353	W
Gate-source voltage	V_{GSS}	static	-5 / 18	V
		dynamic	-10 / 22	V
Maximum Junction Temperature	T_{jmax}		175	°C
Gate resistor (Half-Bridge)				
DC current	I	terminal temperature Tk = 90 C°	2121	mA
Power dissipation	P_{tot}	T_j = T_{jmax} T_s = 80 °C	1,5	W
Operation Temperature	T_{op}		-55 ... 155	°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			9,1	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	
AC Switch										
Static										
Drain-source on-state resistance	$r_{DS(on)}$		18		426	25		2,83	4,17	mΩ
Gate-source threshold voltage	$V_{GS(th)}$				0,0426	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							0,167		Ω
Gate charge	Q_g		-5/18	800	426	25		1128		nC
Short-circuit input capacitance	C_{iss}	f = 500 kHz	0	800	0	25		28080		pF
Short-circuit output capacitance	C_{oss}							1410		
Reverse transfer capacitance	C_{rss}							48		
Diode forward voltage	V_{SD}		0		426	25		4,1		V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,27		K/W
Gate resistor (Half-Bridge)										
Static										
Resistance	R							0,333		Ω
Tolerance							-1		1	%
Temperature coeficient	tc							100		ppm/K

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	
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	

Ordering Code

Version	Ordering Code
Without thermal paste	10-EY12SAA003MS-PT49F78T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EY12SAA003MS-PT49F78T-/7/

Marking

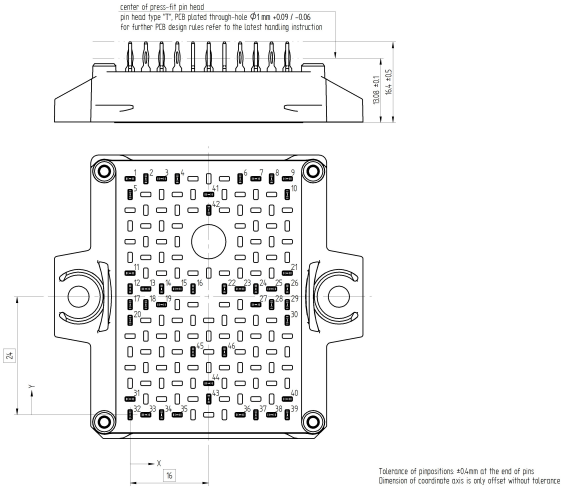


	Name		Date code	UL & VIN	Lot	Serial
Text	NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	**Type&Ver**	**Lot number**	**Serial**	**Date code**		
	TTTTTTVV	LLLLL	SSSS	WWYY		

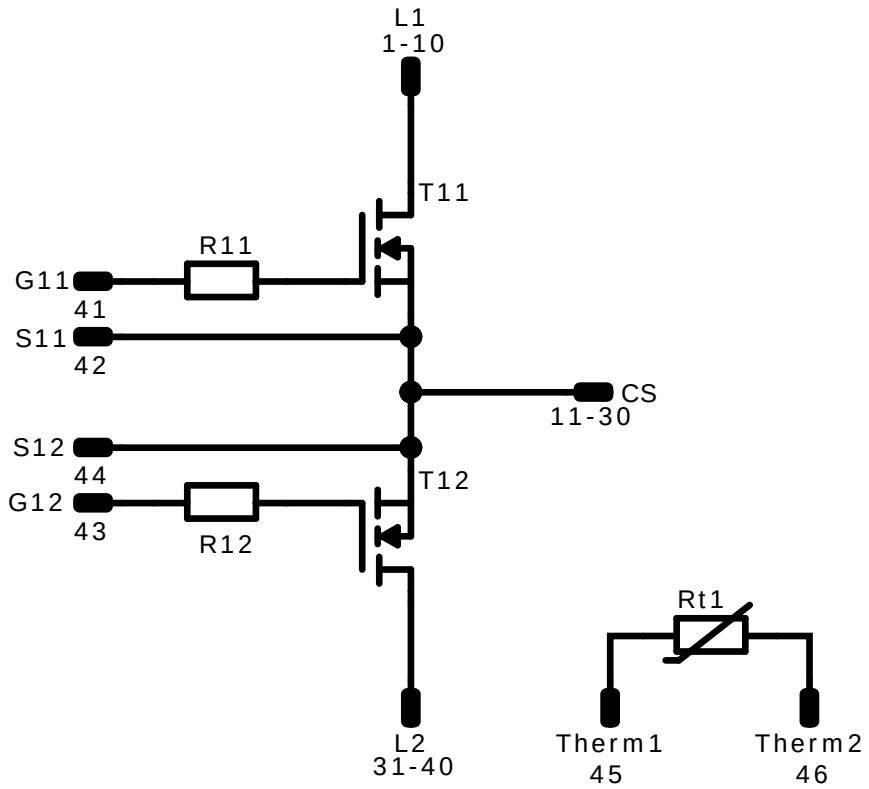
Outline

Pin table [mm]

Pin	X	Y	Function
1	0	48	L1
2	3,2	48	L1
3	6,4	48	L1
4	9,6	48	L1
5	0	44,8	L1
6	22,4	48	L1
7	25,6	48	L1
8	28,8	48	L1
9	32	48	L1
10	32	44,8	L1
11	0	28,8	CS
12	0	25,6	CS
13	3,2	25,6	CS
14	6,4	25,6	CS
15	9,6	25,6	CS
16	12,8	25,6	CS
17	0	22,4	CS
18	3,2	22,4	CS
19	6,4	22,4	CS
20	0	19,2	CS
21	32	28,8	CS
22	19,2	25,6	CS
23	22,4	25,6	CS
24	25,6	25,6	CS
25	28,8	25,6	CS
26	32	25,6	CS
27	25,6	22,4	CS
28	28,8	22,4	CS
29	32	22,4	CS
30	32	19,2	CS
31	0	3,2	L2
32	0	0	L2
33	3,2	0	L2
34	6,4	0	L2
35	9,6	0	L2
36	22,4	0	L2
37	25,6	0	L2
38	28,8	0	L2
39	32	0	L2
40	32	3,2	L2
41	16	44,8	G11
42	16	41,6	S11
43	16	3,2	G12
44	16	6,4	S12
45	12,8	12,8	Therm1
46	19,2	12,8	Therm2



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T12	MOSFET	1200 V	2,83 mΩ	AC Switch	
R11, R12	Resistor			Gate resistor (Half-Bridge)	
Rt1	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-EY12SAA003MS-PT49F78T-T1-14	3 Nov. 2026	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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