Vincotech

10-PY12B2A040MS-LP25L08Y

target datasheet

for virtual products created by Vincotech Product Creator, only for evaluation purposes, no commitment for product development!

_flow_BOOST 1 dual **1200 V / 40 mOhm**

Features

- Dual Booster
- High Performance Flying Capacitor Topology
- Latest SiC Technology
- Integrated flying capacitors
- Integrated DC link capacitors
- Integrated NTC
- Low inductance housing

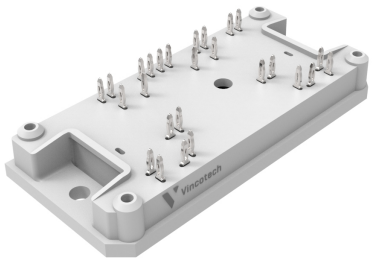
Target applications

- Power Supply
- Solar Inverters
- UPS

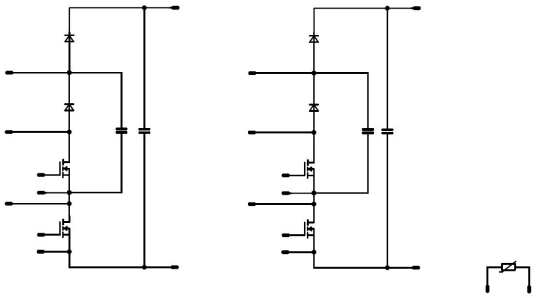
Types

- 10-PY12B2A040MS-LP25L08Y

flow 1 12 mm housing



Schematic



Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Boost Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current	I_D	T_j = T_{jmax}	30	A
Total power dissipation	P_{tot}	T_j = T_{jmax}, T_s = 80 °C	87	W
Gate-source voltage	V_{GSS}		0 / 20	V
Maximum Junction Temperature	T_{jmax}		175	°C
Boost Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F		30	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms, T_j = 25 °C	210	A
Surge current capability	I^2t	Single Half Sine Wave, t_p = 8,3 ms, T_j = 25 °C	225	A^2s
Total power dissipation	P_{tot}	T_j = T_{jmax}, T_s = 80 °C	102	W
Maximum junction temperature	T_{jmax}		175	°C
Flying Capacitor				
Maximum DC voltage	V_{MAX}		1000	V
Operation Temperature	T_{op}		0 ... 125	°C
Capacitor (DC)				
Maximum DC voltage	V_{MAX}		1500	V
Operation Temperature	T_{op}		0 ... 125	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
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
Isolation voltage	V_{isol}	AC Voltage t_p = 1 min	2500	V
Creepage distance			min. 12,7	mm
Clearance			12,02	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	
Boost Switch										
Static										
Drain-source on-state resistance	$r_{DS(on)}$		18		15	25 150		40 49,1		mΩ
Gate-source threshold voltage	$V_{GS(th)}$		0		0,0015	25	4,1	4,9	5,7	V
Zero Gate Voltage Drain Current	I_{DSS}		0	0	0	25		2	20	µA
Internal gate resistance	r_g								2,5	Ω
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						1,1		K/W
Boost Diode										
Static										
Forward voltage	V_F				30	25 150		1,35 1,6	1,5	V
Reverse leakage current	I_R			1200		25 150		120 480	900	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,93		K/W
Flying Capacitor										
Static										
Capacitance	C							47		nF
Tolerance							-10		10	%

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	
Capacitor (DC)										
Static										
Capacitance	C							33		nF
Tolerance							-10		10	%
Dissipation factor		f = 1 kHz				25		2,5		%
Thermistor										
Static										
Rated resistance	R					25		22		kΩ
Deviation of R100	$\Delta_{R/R}$	R_{100} = 1484 Ω				100	-5		5	%
Power dissipation	P							5		mW
Power dissipation constant						25		1,5		mW/K
B-value	$B_{(25/50)}$					25		3962		K
B-value	$B_{(25/100)}$					25		4000		K
Vincotech Thermistor Reference									I	

Ordering Code & Marking

Version	Ordering Code
without thermal paste with 12 mm housing with press-fit pins	10-PY12B2A040MS-LP25L08Y
with thermal paste with 12 mm housing with press-fit pins	10-PY12B2A040MS-LP25L08Y-/3/

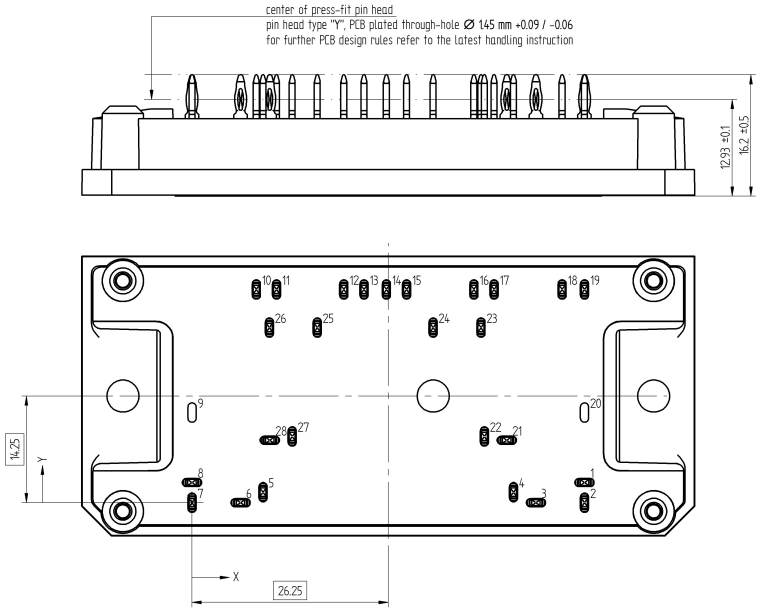
NN-NNNNNNNNNNNNNN
TTTTTTVV WWYY UL
VIN LLLLL SSSS

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

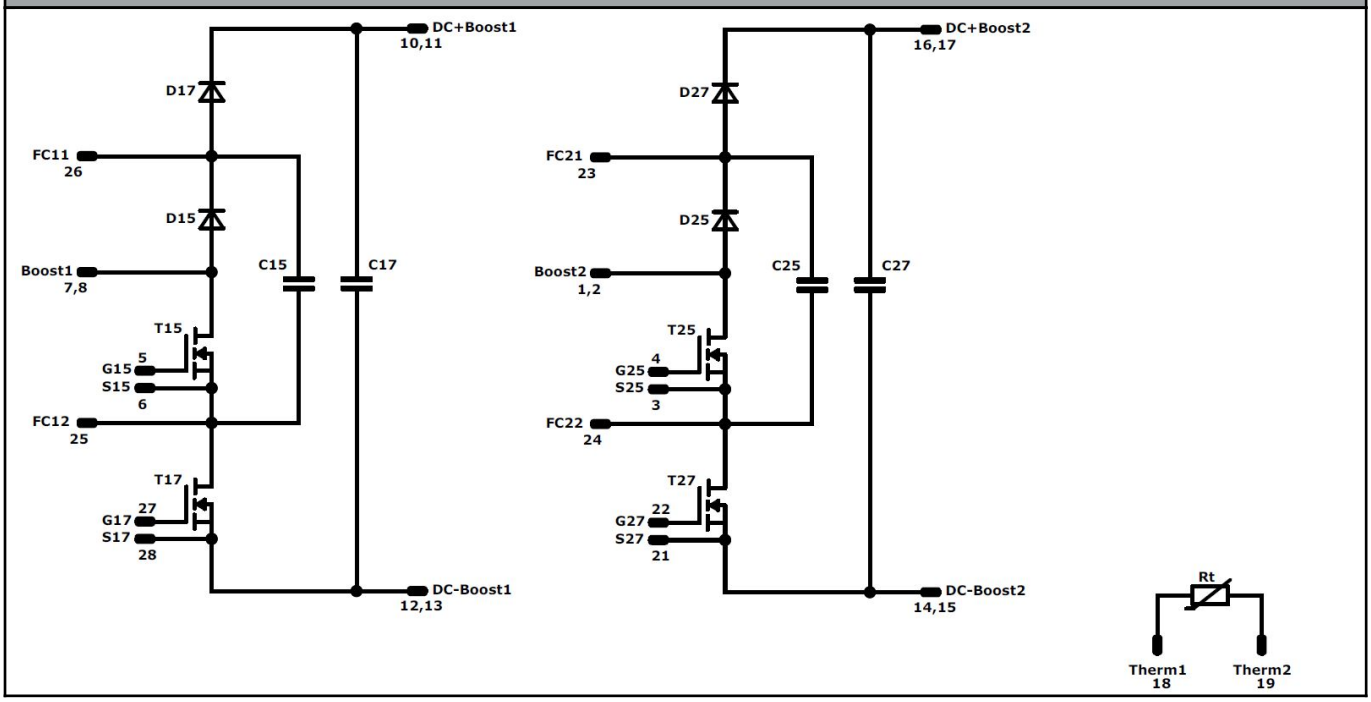
Outline

Pin table [mm]

Pin	X	Y	Function
1	52,5	2,7	Boost2
2	52,5	0	Boost2
3	46	0	S25
4	43	1,4	G25
5	9,5	1,4	G15
6	6,5	0	S15
7	0	0	Boost1
8	0	2,7	Boost1
9	not assembled		
10	8,6	28,5	DC+Boost1
11	11,3	28,5	DC+Boost1
12	20,3	28,5	DC-Boost1
13	23	28,5	DC-Boost1
14	26	28,5	DC-Boost2
15	28,7	28,5	DC-Boost2
16	37,7	28,5	DC+Boost2
17	40,4	28,5	DC+Boost2
18	49,5	28,5	Therm1
19	52,5	28,5	Therm2
20	not assembled		
21	42,1	8,35	S27
22	39,1	8,85	G27
23	38,65	23,4	FC21
24	32,25	23,4	FC22
25	16,75	23,4	FC12
26	10,35	23,4	FC11
27	13,4	8,85	G17
28	10,4	8,35	S17



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T15, T17, T25, T27	MOSFET	1200 V	30 A	Boost Switch	
D15, D17, D25, D27	FWD	1200 V	30 A	Boost Diode	
C15, C25	Capacitor	1000 V		Flying Capacitor	
C17, C27	Capacitor	1500 V		Capacitor (DC)	
Rt	Thermistor			Thermistor	

Packaging instruction				
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for *flow* 1 packages see vincotech.com website.

Package data
Packaging data for *flow* 1 packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
10-PY12B2A040MS-LP25L08Y-T1-14	25 Nov. 2019	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.