



flowPACK S3

1200 V / 200 A

Features

- IGBT M7 with low VCEsat and improved EMC behavior
- New low inductive package
- Enhanced thermal performance

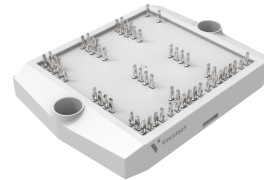
Target applications

- Embedded Drives
- Industrial Drives

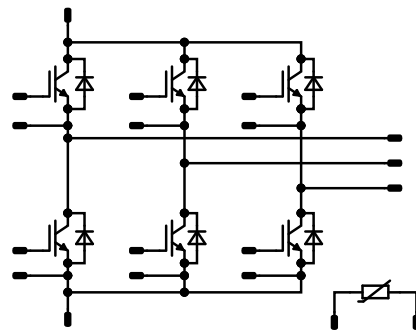
Types

- B0-SP126PA200M7-LR40F78Y

flow S3 12 mm housing



Schematic





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B0-SP126PA200M7-LR40F78Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Inverter Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	200	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	328	W
Gate-emitter voltage	V_{GES}		± 20	V
Short circuit ratings	t_{SC}	$V_{GE} = 15\text{ V}$, $V_{CC} = 800\text{ V}$ $T_j = 150\text{ °C}$	9,5	μs
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Inverter Diode

Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	200	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	211	W
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	$^{\circ}\text{C}$
Operation temperature under switching condition	T_{jop}		-40...+($T_{jmax} - 25$)	$^{\circ}\text{C}$

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage $t_p = 2\text{ s}$	6000	V
Isolation voltage	V_{isol}	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			9,37	mm
Clearance			7,87	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

Gate-emitter threshold voltage	$V_{GE(th)}$			10	0,02	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 150		1,55 1,75 1,8	1,85	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			100	μA
Gate-emitter leakage current	I_{GES}		20	0		25			500	nA
Internal gate resistance	r_g							2		Ω
Input capacitance	C_{ies}							37000		pF
Output capacitance	C_{oes}		0	10		25		1100		pF
Reverse transfer capacitance	C_{res}							420		pF
Gate charge	Q_g	$V_{CC} = 600$ V	15		200	25		1200		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3$ W/mK (TCP)						0,29		K/W
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Inverter Diode

Static

Forward voltage	V_F				200	25 125 150		1,65 1,7 1,7	2,1	V
Reverse leakage current	I_R	$V_r = 1200$ V				25			40	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3$ W/mK (TCP)						0,45		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		22		kΩ
Deviation of R_{100}	$A_{R/R}$	$R_{100} = 1484 \Omega$				100	-5		5	%
Power dissipation	P							5		mW
Power dissipation constant	d					25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. $\pm 1 \%$						3962		K
B-value	$B_{(25/100)}$	Tol. $\pm 1 \%$						4000		K
Vincotech Thermistor Reference									I	



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Ordering Code	
Version	Ordering Code
With thermal paste	B0-SP126PA200M7-LR40F78Y-/6/

Marking						
	Text	Name	Date code	Logo	Lot	Serial
		NN-NNNNNNNNNNNNNN- TTTTTIVV	WWYY	VIN	LLLLL	SSSS
	Datamatrix	Type&Ver	Lot number	Serial	Date code	
		TTTTTIVV	LLLLL	SSSS	WWYY	

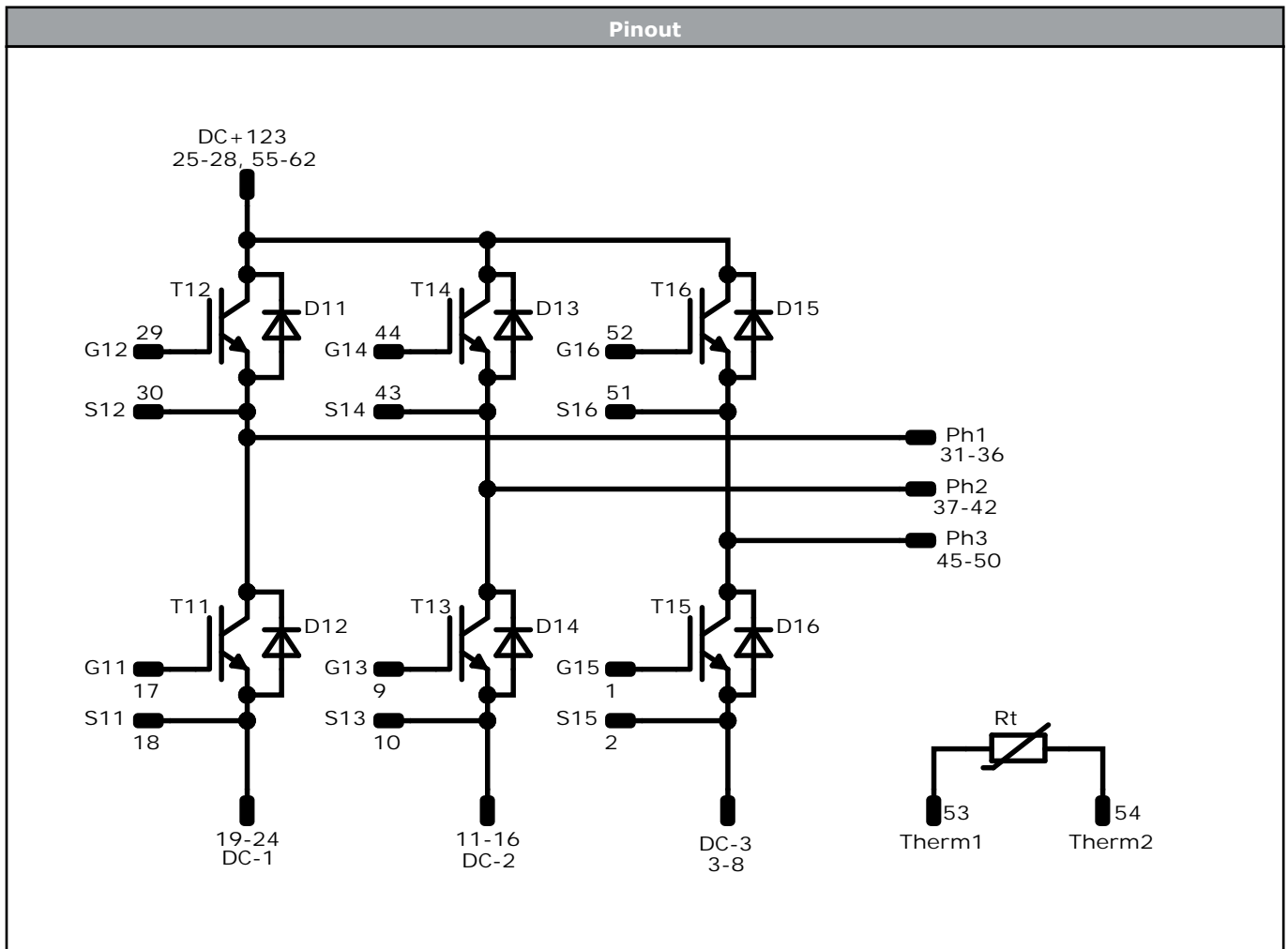
Outline*							
Pin table [mm]							
Pin	X	Y	Function	32	2,7	45	Ph1
1	52,4	0	G15	33	0	47,7	Ph1
2	49,2	0	S15	34	2,7	47,7	Ph1
3	45,2	0	DC-3	35	0	50,4	Ph1
4	42,5	0	DC-3	36	2,7	50,4	Ph1
5	39,8	0	DC-3	37	17,75	50,4	Ph2
6	37,1	0	DC-3	38	20,45	50,4	Ph2
7	37,1	2,7	DC-3	39	17,75	47,7	Ph2
8	37,1	5,4	DC-3	40	20,45	47,7	Ph2
9	33,9	0	G13	41	17,75	45	Ph2
10	30,7	0	S13	42	20,45	45	Ph2
11	26,55	0	DC-2	43	18,4	41,8	S14
12	23,85	0	DC-2	44	18,4	38,6	G14
13	21,15	0	DC-2	45	35,15	50,4	Ph3
14	18,45	0	DC-2	46	37,85	50,4	Ph3
15	18,45	2,7	DC-2	47	35,15	47,7	Ph3
16	18,45	5,4	DC-2	48	37,85	47,7	Ph3
17	15,25	0	G11	49	35,15	45	Ph3
18	12,05	0	S11	50	37,85	45	Ph3
19	8,1	0	DC-1	51	36,4	41,8	S16
20	5,4	0	DC-1	52	36,4	38,6	G16
21	2,7	0	DC-1	53	52,4	50,4	Therm1
22	0	0	DC-1	54	52,4	43,8	Therm2
23	0	2,7	DC-1	55	18,5	22,9	DC+
24	0	5,4	DC-1	56	18,5	20,2	DC+
25	0,05	14,8	DC+	57	18,5	17,5	DC+
26	0,05	17,5	DC+	58	18,5	14,8	DC+
27	0,05	20,2	DC+	59	36,9	22,9	DC+
28	0,05	22,9	DC+	60	36,9	20,2	DC+
29	0	38,6	G12	61	36,9	17,5	DC+
30	0	41,8	S12	62	36,9	14,8	DC+
31	0	45	Ph1				

Tolerance of positions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance

* Preliminary



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Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14, T15, T16	IGBT	1200 V	200 A	Inverter Switch	
D11, D12, D13, D14, D15, D16	FWD	1200 V	200 A	Inverter Diode	
Rt	Thermistor			Thermistor	



Packaging instruction				
Standard packaging quantity (SPQ) 45	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for <i>flow</i> S3 packages see vincotech.com website.

Package data
Package data for <i>flow</i> S3 packages see vincotech.com website.

Document No.:	Date:	Modification:	Pages
B0-SP126PA200M7-LR40F78Y-T2-14	20 May. 2020	Remove UL file reference	7

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