



Vincotech

<i>flow</i> PACK 1 H	1200 V / 80 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Features</div> <ul style="list-style-type: none"> High speed IGBT Fast, soft reverse Diode Open emitter topology Integrated thermistor 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">flow 1 12 mm housing</div> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p style="display: flex; justify-content: space-around; font-size: small;"> solder pins press-fit pins </p>
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Target applications</div> <ul style="list-style-type: none"> Charger SMPS Solar Welding ESS 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Schematic</div>
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Types</div> <ul style="list-style-type: none"> 10-PY124PA080FV-L589F88Y 10-FY124PA080FV-L589F88 	

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
H-Bridge Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	80	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	320	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	190	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum Junction Temperature	T_{jmax}		175	°C



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Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
H-Bridge Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{°C}$	47	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{°C}$	101	W
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* $t_p = 2\text{ s}$	6000	V
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min. 12,7	mm
Clearance		with press-fit pins / with solder pins	7,92 / 8,1	mm
Comparative Tracking Index	CTI		> 200	

*100 % tested in production



Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{GS} [V]	I_C [A] I_D [A]	T_j [°C]	Min	Typ	Max		

H-Bridge Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,08	25 125	5	6,8	7,3	V
Collector-emitter saturation voltage	V_{CEsat}		15		80	25 125	1,5	1,80	2,5	V
Collector-emitter cut-off current	I_{CES}		0	1200		25 125			100	μA
Gate-emitter leakage current	I_{GES}		20	0		25 125			500	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}							8600		pF
Output capacitance	C_{oes}	f=1000 KHz	0	30		25		360		
Reverse transfer capacitance	C_{res}							200		
Gate charge	Q_g		15	600	80	25		740		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$						0,50		K/W
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H-Bridge Diode

Static

Forward voltage	V_F				50	25 150		2,19 2,21	2,54	V
Reverse leakage current	I_r			1200		25 150			60 8800	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4 W/mK$						0,94		K/W
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Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{GS} [V]	I_C [A] I_D [A]	T_j [°C]	Min	Typ	Max		

Thermistor

Rated resistance	R				25		22		kΩ
Deviation of R100	$\Delta_{R/R}$	R100=1484 Ω			100	-5		5	%
Power dissipation	P				25		5		mW
Power dissipation constant					25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1%			25		3962		K
B-value	$B_{(25/100)}$	Tol. ±1%			25		4000		K
Vincotech NTC Reference								I	



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Ordering Code & Marking						
Version			Ordering Code			
without thermal paste 12 mm housing with press-fit pins			10-PY124PA080FV-L589F88Y			
without thermal paste 12 mm housing solder pins			10-FY124PA080FV-L589F88			
NN-NNNNNNNNNNNNNN TTTTUVVWWYY UL VIN LLLLL SSSS						
Text	Name		Date code	UL & Vinco	Lot	Serial
	NN-NNNNNNNNNNNNNN-TTTTUVV		WWYY	UL VIN	LLLLL	SSSS
	Datamatrix	Type&Ver	Lot number	Serial	Date code	
	TTTTTUVV	LLLLL	SSSS	WWYY		

Outline											
Pin table [mm]											
Pin	X	Y	Function								
1			Not assembled								
2	46,3	0	DC-2								
3	43,6	2,7	DC-2								
4	43,6	0	DC-2								
5	39,2	1	G13-a								
6	36,2	0	S13								
7	33,2	1	G13-b								
8	28,8	0	Therm2								
9	23,8	0	Therm1								
10	19,4	1	G11-b								
11	16,4	0	S11								
12	13,4	1	G11-a								
13	9	2,7	DC-1								
14	9	0	DC-1								
15			Not assembled								
16	6,3	0	DC-1								
Not assembled								Pin table [mm]			
17	0	9,5	DC+					Pin	X	Y	Function
18	0	12,2	DC+	30	34,35	28,6	S14				
19	0	14,9	DC+	31	37,35	28,6	G14-a				
20	0	28,6	Ph1	32	41,8	28,6	Ph2				
21	0	28,6	Ph1	33	44,5	28,6	Ph2				
22	2,7	28,6	Ph1	34	47,2	28,6	Ph2				
23	5,4	28,6	Ph1	35	49,9	28,6	Ph2				
24	8,1	28,6	Ph1	36	52,6	28,6	Ph2				
25	10,8	28,6	Ph1	37	52,6	14,9	DC+				
26	15,25	28,6	G12-a	38	52,6	12,2	DC+				
27	18,25	28,6	S12	39	52,6	9,5	DC+				
28	21,25	28,6	G12-b	40			Not assembled				
29	31,35	28,6	G14-b								

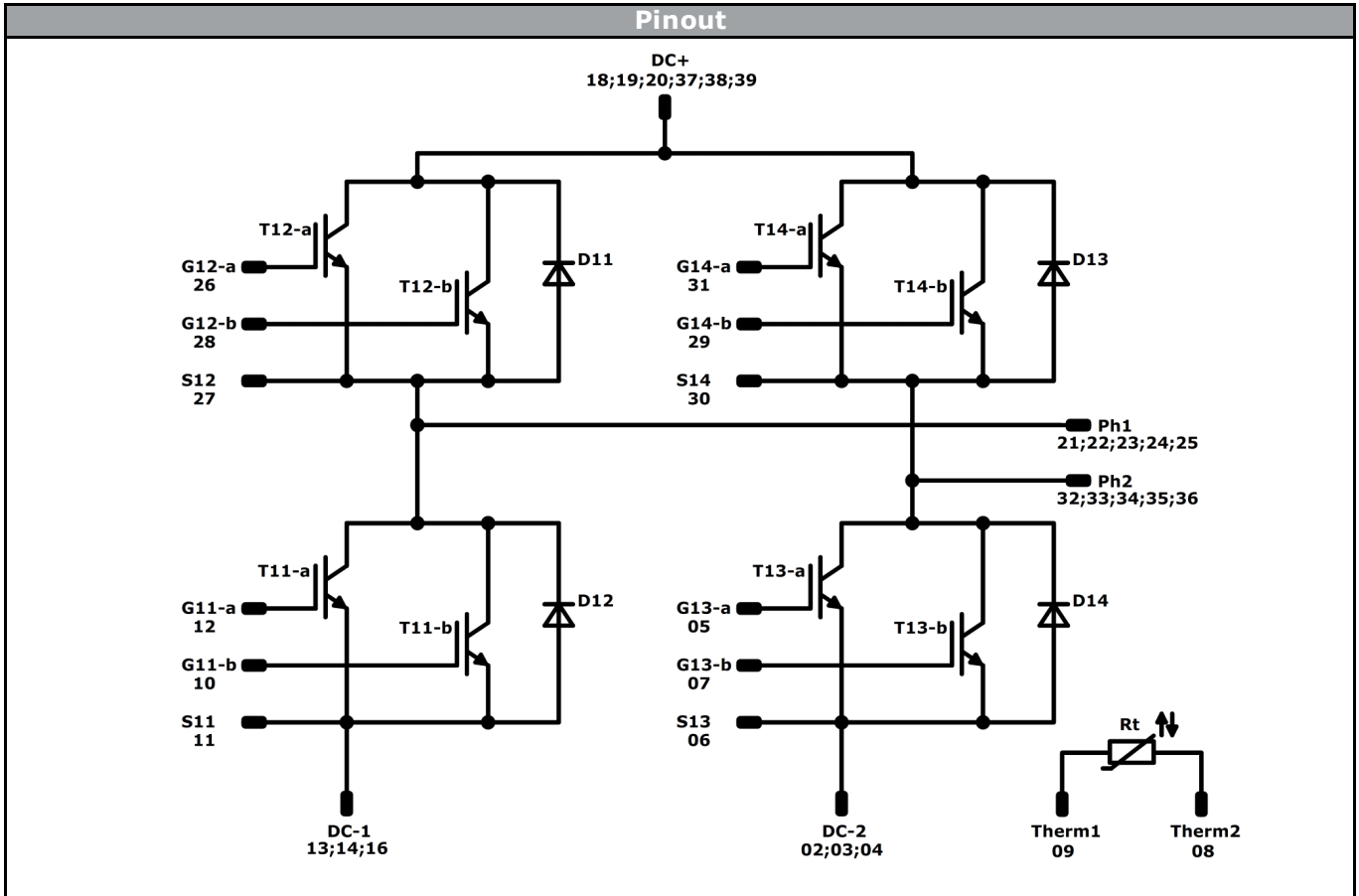
Tolerance of pinpositions: ±0,5mm at the end of pins
 Dimension of coordinate axis is only offset without tolerance



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Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14	IGBT	1200 V	80 A	H-Bridge Switch	Paralell devices with separate control.
D11, D12, D13, D14	FWD	1200 V	50 A	H-Bridge Diode	
Rt	NTC			Thermistor	




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

Handling instruction
Handling instructions for <i>flow</i> 1 packages see vincotech.com website.

Package data
Package data for <i>flow</i> 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-xY124PA080FV-L589F88x-T3-14	5 Jul. 2017	Corrected schematic	1, 6

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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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.