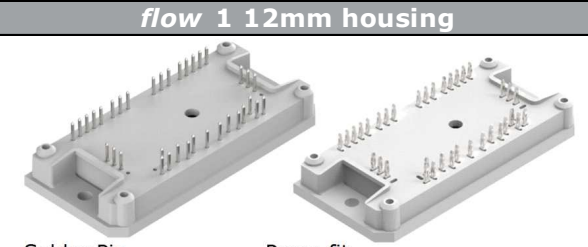
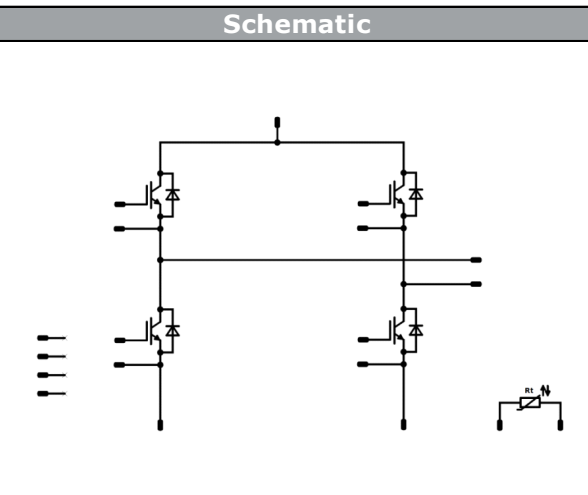




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<i>flow</i> PACK 1	1200 V / 40 A
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;">Features</p> <ul style="list-style-type: none"> High speed IGBT Fast, soft reverse Diode Open emitter topology Integrated capacitors Integrated thermistor </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;">Target applications</p> <ul style="list-style-type: none"> Charger SMPS Solar Welding ESS </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;">Types</p> <ul style="list-style-type: none"> 10-PY124PA040SH-L588F48Y 10-FY124PA040SH-L588F48 </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;"><i>flow</i> 1 12mm housing</p>  <p style="display: flex; justify-content: space-around; margin: 0;"> Solder Pin Press-fit </p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;">Schematic</p>  </div>

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	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	55	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	160	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	130	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	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	19	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	43	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 Voltage $t_p=2s$	4000	V
Creepage distance			min. 12,7	mm
Clearance			7,92	mm
Comparative Tracking Index	CTI		> 200	



Characteristic Values

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

H-Bridge Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,0015	25 125	5,3	5,8	6,3	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		40	25 125	1,78	1,96 2,29	2,42	V
Collector-emitter cut-off current	I_{CES}		0	1200		25 125			5	µA
Gate-emitter leakage current	I_{GES}		20	0		25 125			120	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}							2330		pF
Output capacitance	C_{oes}	f = 1 MHz	0	25		25		150		
Reverse transfer capacitance	C_{res}							130		
Gate charge	Q_g		15	960	40	25		185		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,84		K/W
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H-Bridge Diode

Static

Forward voltage	V_F				25	25 150		2,47 2,49	2,74	V
Reverse leakage current	I_r			1200		25 150			60 3300	µA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						2,22		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] V_T [V]	I_C [A] I_D [A] I_F [A]	T_i [°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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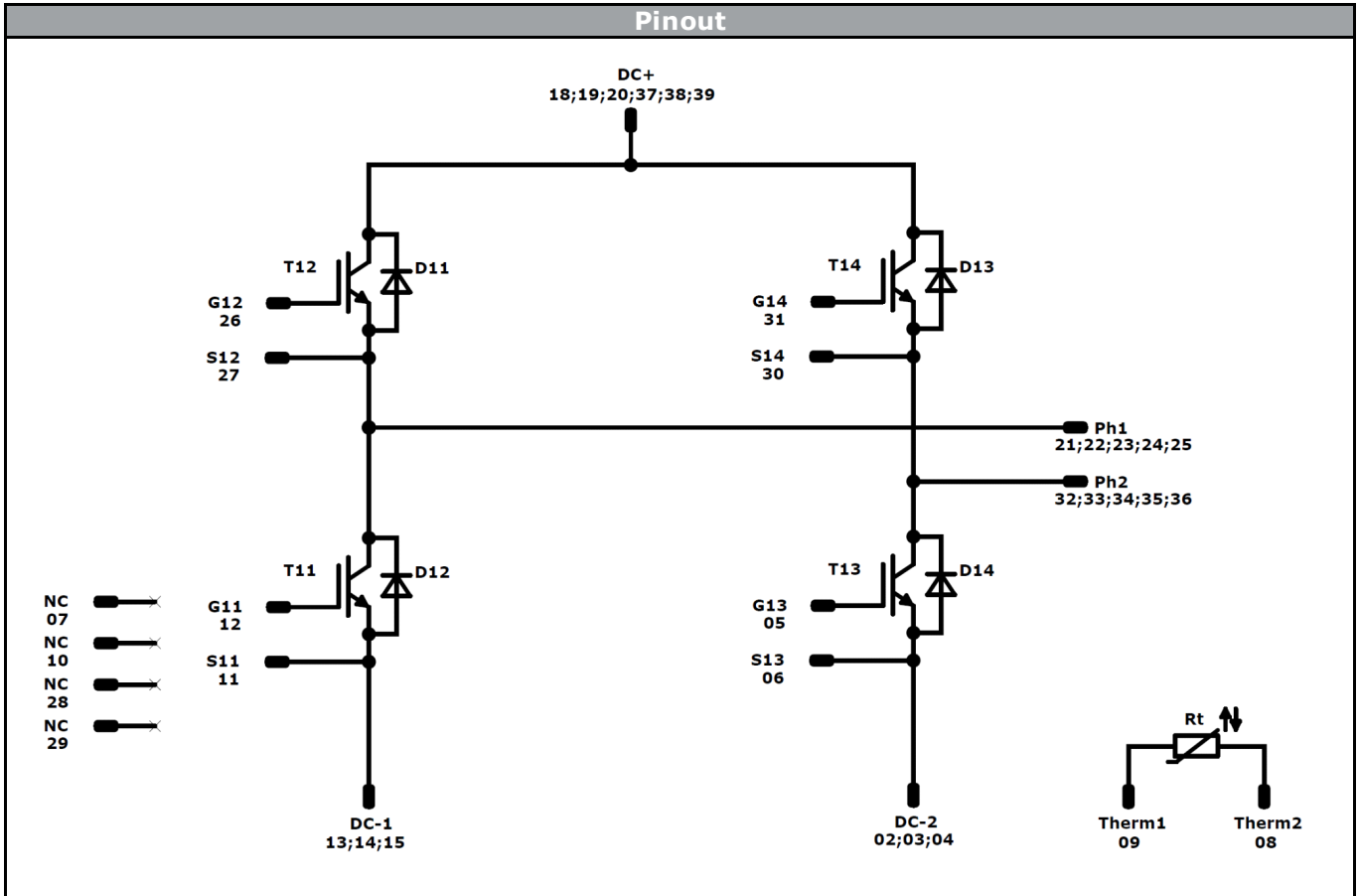
Ordering Code & Marking						
Version			Ordering Code			
without thermal paste 12mm Press-fit housing			10-PY124PA040SH-L588F48Y			
without thermal paste 12mm Solder Pin housing			10-FY124PA040SH-L588F48			
NN-NNNNNNNN NNNN-TTTTTVV Vinco LLLLL WWY SSS UL						
Text	Name		Type&Ver	Date code	Vinco&Lot	Serial&UL
	NN-NNNNNNNNNNNNNN		TTTTTTVV	WWYY	Vinco LLLLL	SSSS UL
Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTTTVV	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				
6	36,2	0	S13				
7	33,2	1	NC				
8	28,8	0	Therm2				
9	23,8	0	Therm1				
10	19,4	1	NC				
11	16,4	0	S11				
12	13,4	1	G11				
13	9	2,7	DC-1				
14	9	0	DC-1				
15	Not assembled						
16	6,3	0	DC-1				
17	Not assembled			Pin table [mm]			
18	0	9,5	DC+	Pin	X	Y	Function
19	0	12,2	DC+	30	34,35	28,6	S14
20	0	14,9	DC+	31	37,35	28,6	G14
21	0	28,6	Ph1	32	41,8	28,6	Ph2
22	2,7	28,6	Ph1	33	44,5	28,6	Ph2
23	5,4	28,6	Ph1	34	47,2	28,6	Ph2
24	8,1	28,6	Ph1	35	49,9	28,6	Ph2
25	10,8	28,6	Ph1	36	52,6	28,6	Ph2
26	15,25	28,6	G12	37	52,6	14,9	DC+
27	18,25	28,6	S12	38	52,6	12,2	DC+
28	21,25	28,6	NC	39	52,6	9,5	DC+
29	31,35	28,6	NC	40	Not assembled		
				Tolerance of pinpositions: ±0,5mm at the end of pins Dimension of coordinate axis is only offset without tolerance			



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Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14	IGBT	1200V	40A	H-Bridge Switch	
D11, D12, D13, D14	FWD	1200V	25A	H-Bridge Diode	
Rt	NTC	-	-	Thermistor	



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target datasheet

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.

Document No.:	Date:	Modification:	Pages
10-PY124PA040SH-L588F48Y -T2-14	10 Feb. 2016		

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.