



Vincotech

<i>flow</i> PACK 1 H	1200 V / 40 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-PY124PA040SH-L588F48Y 10-FY124PA040SH-L588F48 	

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



Vincotech

10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
 target datasheet

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	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	25	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	61	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] V_r [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	5,3	5,8	6,3	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		40	25 125	1,78	2,05 2,50	2,42	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			5	μA
Gate-emitter leakage current	I_{GES}		20	0		25			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
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----

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						1,56		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----



Vincotech

10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
 target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit	
		V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	V_{GS} [V]	V_r [V]	I_C [A]	I_D [A]	I_F [A]		T_i [°C]


Thermistor

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



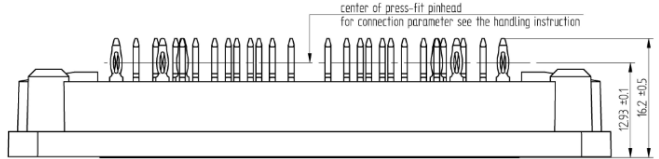
10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
 target datasheet

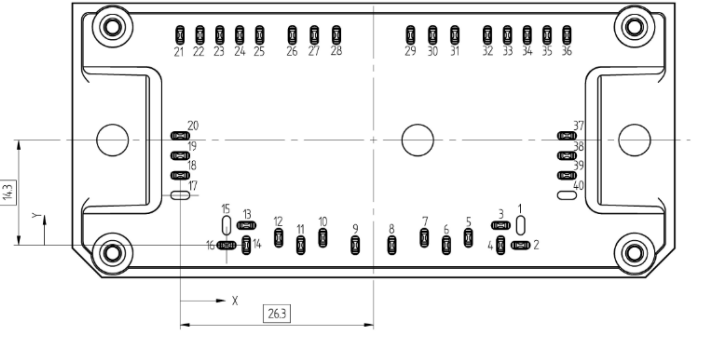
Vincotech

Ordering Code & Marking						
Version			Ordering Code			
without thermal paste 12 mm housing with press-fit pins			10-PY124PA040SH-L588F48Y			
without thermal paste 12 mm housing with solder pins			10-FY124PA040SH-L588F48			
NN-NNNNNNNNNNNNNN TTTTITVVWWYY UL VIN LLLLL SSSS						
Text	Name		Date code	UL & Vinco	Lot	Serial
	NN-NNNNNNNNNNNNNN-TTTTITVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTITVV	LLLLL	SSSS	WWYY		

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]			
Pin	X	Y	Function
18	0	9,5	DC+
19	0	12,2	DC+
20	0	14,9	DC+
21	0	28,6	Ph1
22	2,7	28,6	Ph1
23	5,4	28,6	Ph1
24	8,1	28,6	Ph1
25	10,8	28,6	Ph1
26	15,25	28,6	G12
27	18,25	28,6	S12
28	21,25	28,6	NC
29	31,35	28,6	NC
30	34,35	28,6	S14
31	37,35	28,6	G14
32	41,8	28,6	Ph2
33	44,5	28,6	Ph2
34	47,2	28,6	Ph2
35	49,9	28,6	Ph2
36	52,6	28,6	Ph2
37	52,6	14,9	DC+
38	52,6	12,2	DC+
39	52,6	9,5	DC+
40			Not assembled





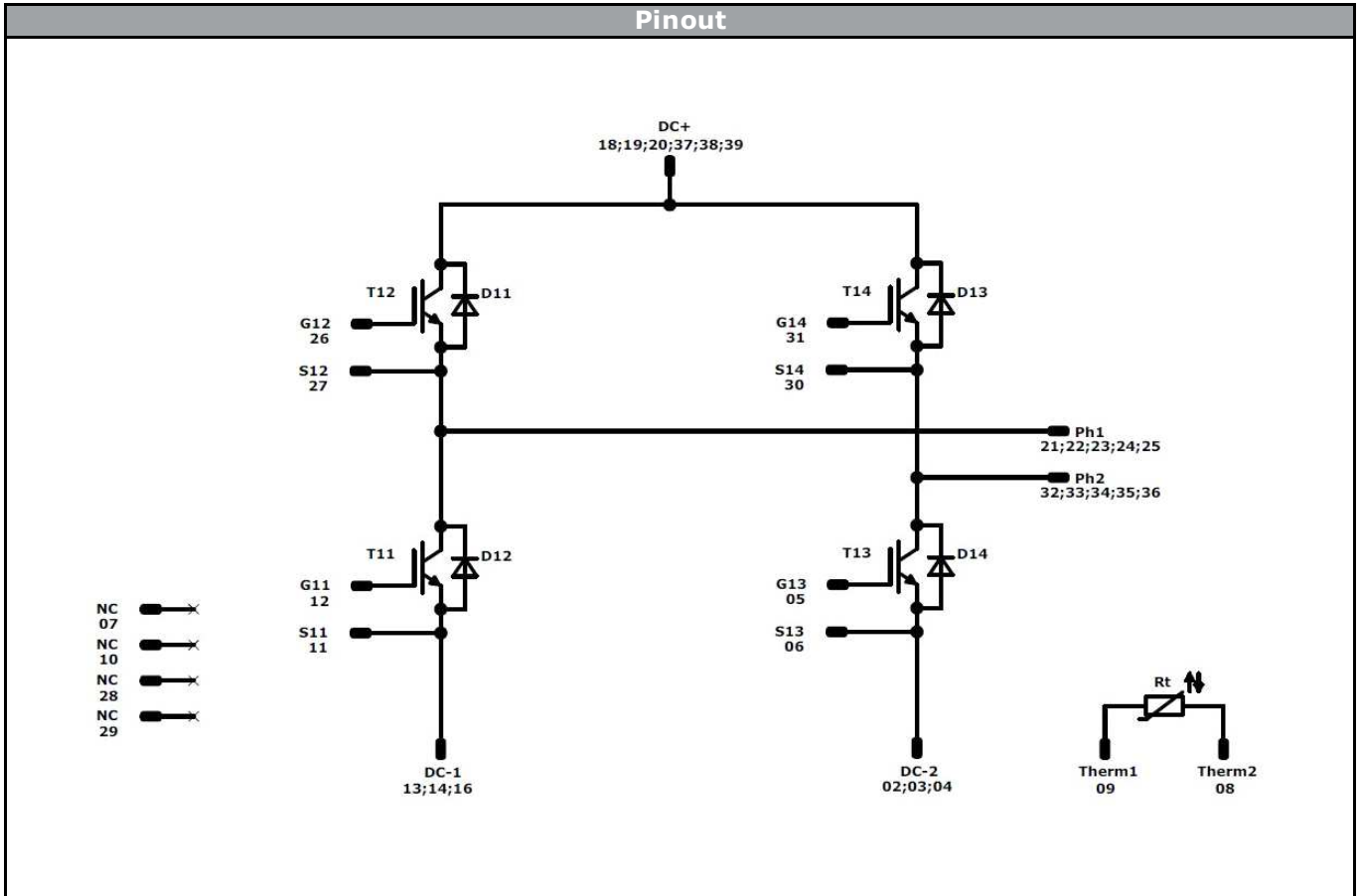
Tolerance of pinpositions: ±0,5mm at the end of pins
 Dimension of coordinate axis is only offset without tolerance



Vincotech

10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
 target datasheet

Pinout



Identification

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



Vincotech

10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
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.			
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-XY124PA040SH-L588F48x-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.

DISCLAIMER

The information, specifications, procedures, methods and recommendations herein (together "information") are presented by Vincotech to reader in good faith, are believed to be accurate and reliable, but may well be incomplete and/or not applicable to all conditions or situations that may exist or occur. Vincotech reserves the right to make any changes without further notice to any products to improve reliability, function or design. No representation, guarantee or warranty is made to reader as to the accuracy, reliability or completeness of said information or that the application or use of any of the same will avoid hazards, accidents, losses, damages or injury of any kind to persons or property or that the same will not infringe third parties rights or give desired results. It is reader's sole responsibility to test and determine the suitability of the information and the product for reader's intended use.

LIFE SUPPORT POLICY

Vincotech products are not authorised for use as critical components in life support devices or systems without the express written approval of Vincotech.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
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.