Vincotech

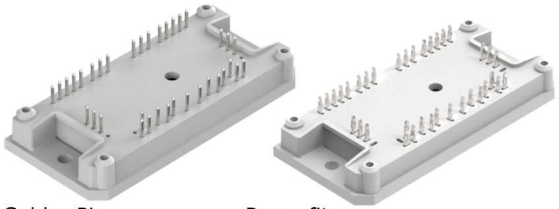
10-PY124PA040SH-L588F48Y
10-FY124PA040SH-L588F48
target datasheet

flow PACK 1 — **1200 V / 40 A**

Features

- High speed IGBT
- Fast, soft reverse Diode
- Open emitter topology
- Integrated capacitors
- Integrated thermistor

flow 1 12mm housing

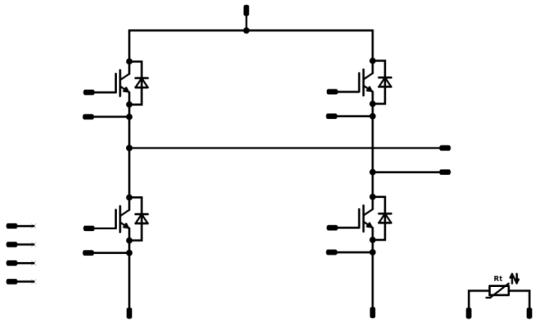


Solder Pin Press-fit

Target applications

- Charger
- SMPS
- Solar
- Welding
- ESS

Schematic



Types

- 10-PY124PA040SH-L588F48Y
- 10-FY124PA040SH-L588F48

Maximum Ratings

T_j = 25 °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 °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 °C	130	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum Junction Temperature	T_{jmax}		175	°C

Maximum Ratings

T_j = 25 °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°C	19	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80°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_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	25 125	5,3	5,8	6,3	V
Collector-emitter saturation voltage	V_{CEsat}		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}	f = 1 MHz	0	25		25		2330		pF
Output capacitance	C_{oes}							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 λ = 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 λ = 3,4 W/mK						2,22		K/W

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	
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	

Vincotech

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Ordering Code & Marking

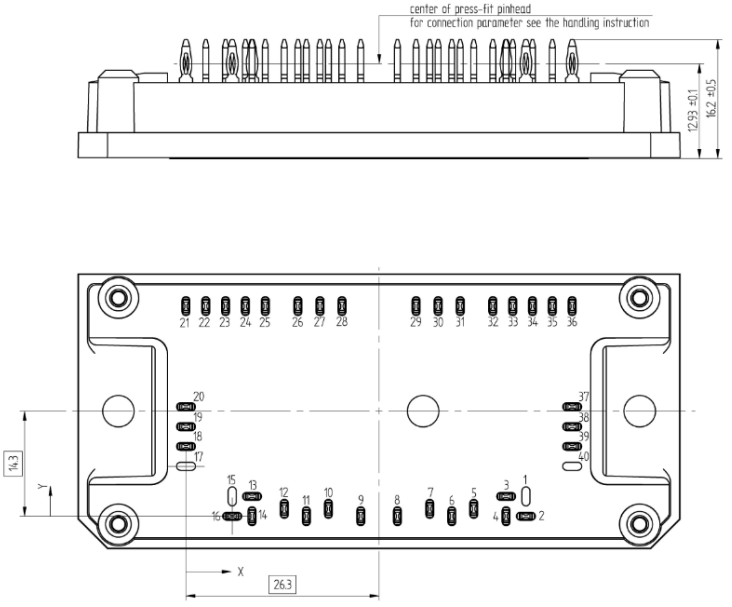
Version	Ordering Code
without thermal paste 12mm Press-fit housing	10-PY124PA040SH-L588F48Y
without thermal paste 12mm Solder Pin housing	10-FY124PA040SH-L588F48

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

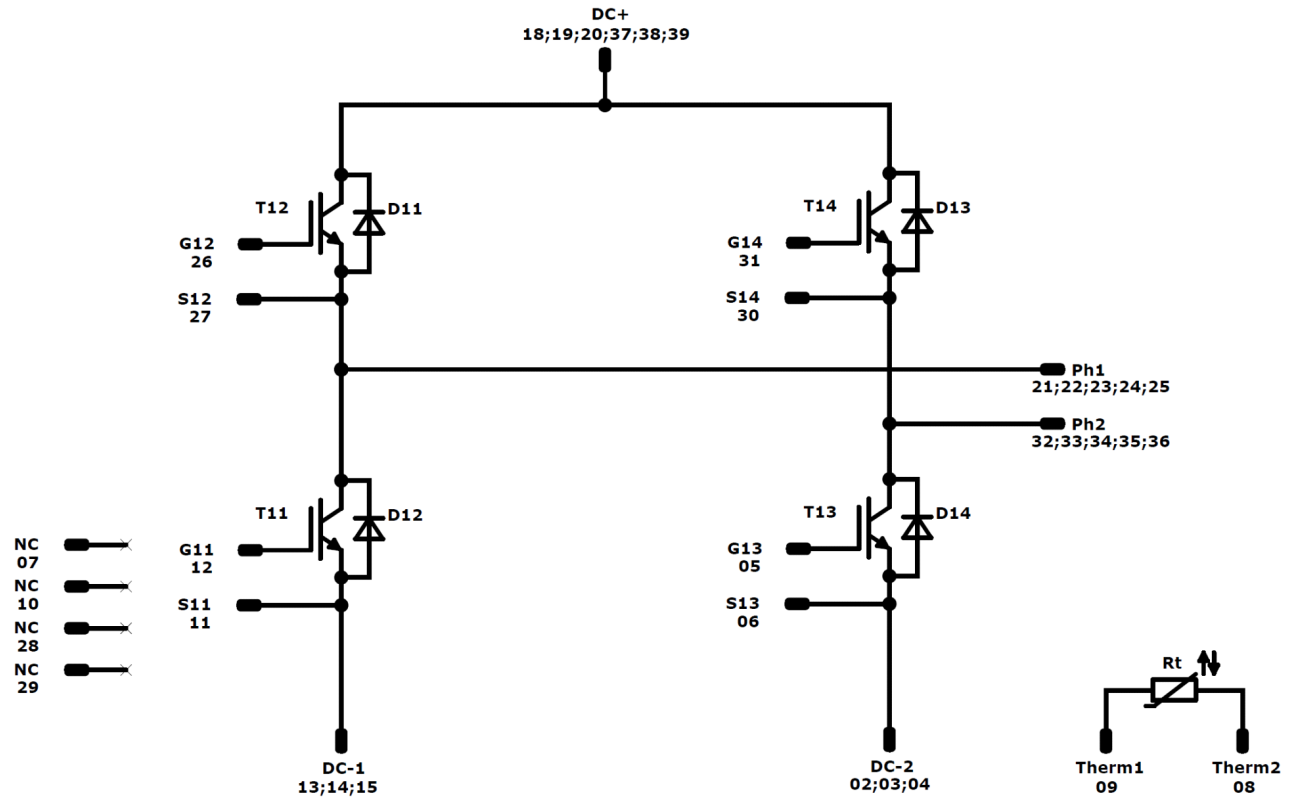
Outline

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		
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

Pin table [mm]			
Pin	X	Y	Function
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		



Pinout



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	

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
Package data for *flow* 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.