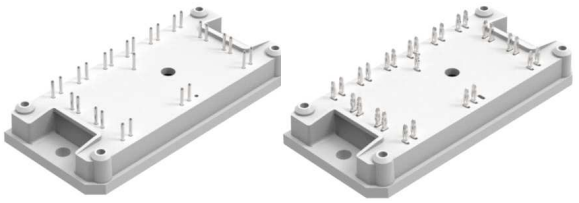
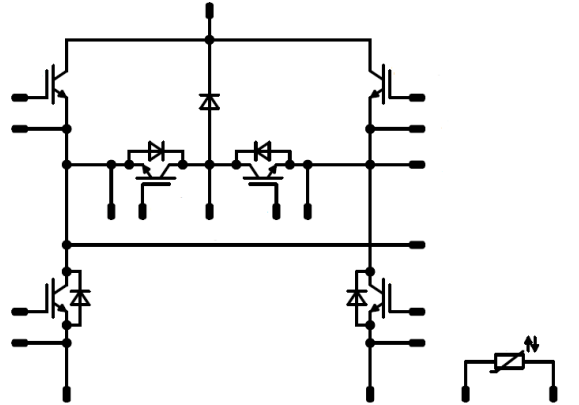




<i>flow</i> PACK 1 H6.5	650 V / 50 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Features</b></div> <ul style="list-style-type: none"> <li>For one-phase solar applications</li> <li>Innovative H6.5 topology</li> <li>LVRT (Low voltage ride through) capability</li> <li>Fast IGBT S5</li> <li>Chipset optimized for switching frequencies up to 25kHz</li> <li>NTC</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>flow1 12mm housing</b></div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>solder pin</span> <span>Press-fit pin</span> </div>
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Target applications</b></div> <ul style="list-style-type: none"> <li>Solar</li> <li>Special Application</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Schematic</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Types</b></div> <ul style="list-style-type: none"> <li>10-FY07HVA050S5-L984F08</li> <li>10-PY07HVA050S5-L984F08Y</li> </ul>	

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>High Buck Switch / Low Buck Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	48	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	150	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	73	W
Gate-emitter voltage	$V_{GES}$		±20	V
Maximum junction temperature	$T_{jmax}$		175	°C



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**10-FY07HVA050S5-L984F08**  
**10-PY07HVA050S5-L984F08Y**  
 target datasheet

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>Boost Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	50	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	90	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	65	W
Gate-emitter voltage	$V_{GES}$		$\pm 20$	V
Maximum Junction Temperature	$T_{jmax}$		175	°C

## Buck Diode / High Boost Diode / Low Boost Diode

Peak Repetitive Reverse Voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	38	A
Repetitive peak forward current	$I_{FRM}$	$t_p$ limited by $T_{jmax}$	60	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	51	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 $t_p = 2\text{ s}$	4000	V
Creepage distance			min. 12,7	mm
Clearance		solder pin / Press-fit pin 12mm housing	7,99 / 8,3	mm
Comparative Tracking Index	CTI		> 200	



## Characteristic Values

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

### High Buck Switch / Low Buck Switch

#### Static

Parameter	Symbol	$V_{GE} = V_{CE}$	$V_{GS}$ [V]	$V_{CE}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$				0,0005	25	3,2	4	4,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15		50	25 125 150		1,39 1,48 1,51	1,75	V
Collector-emitter cut-off current	$I_{CES}$		0	650		25			50	μA
Gate-emitter leakage current	$I_{GES}$		20	0		25			100	nA
Internal gate resistance	$r_g$							none		Ω
Input capacitance	$C_{ies}$							3100		pF
Output capacitance	$C_{oes}$	$f = 1$ MHz	0	25		25		88		
Reverse transfer capacitance	$C_{res}$							12		
Gate charge	$Q_g$		15	520	50	25		120		nC

#### Thermal

Parameter	Symbol	Material	$\lambda$ [W/mK]	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material	$\lambda = 3,4$ W/mK	K/W

### Boost Switch

#### Static

Parameter	Symbol	$V_{GE} = V_{CE}$	$V_{GS}$ [V]	$V_{CE}$ [V]	$I_D$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$				0,0004	25	4,2	5	5,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15		30	25 150		1,05 1,04	1,45	V
Collector-emitter cut-off current	$I_{CES}$		0	650		25			40	μA
Gate-emitter leakage current	$I_{GES}$		20	0		25			100	nA
Internal gate resistance	$r_g$							none		Ω
Input capacitance	$C_{ies}$							4650		pF
Reverse transfer capacitance	$C_{res}$	$f = 1$ MHz	0	25		25		12		

#### Thermal

Parameter	Symbol	Material	$\lambda$ [W/mK]	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material	$\lambda = 3,4$ W/mK	K/W



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**10-FY07HVA050S5-L984F08**  
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 target datasheet

### Characteristic Values

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

#### Buck Diode / High Boost Diode / Low Boost Diode

##### Static

Parameter	Symbol	$V_{GS}$ [V]	$V_{DS}$ [V]	$I_D$ [A]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Forward voltage	$V_F$			30		25		1,35	1,7	V
Reverse leakage current	$I_r$		650			25			1,6	μA

##### Thermal

Parameter	Symbol	Conditions	$T_j$ [°C]	Min	Typ	Max	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK			1,87		K/W


#### Thermistor

Parameter	Symbol	Conditions	$T_j$ [°C]	Min	Typ	Max	Unit
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	



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**10-FY07HVA050S5-L984F08**  
**10-PY07HVA050S5-L984F08Y**  
 target datasheet

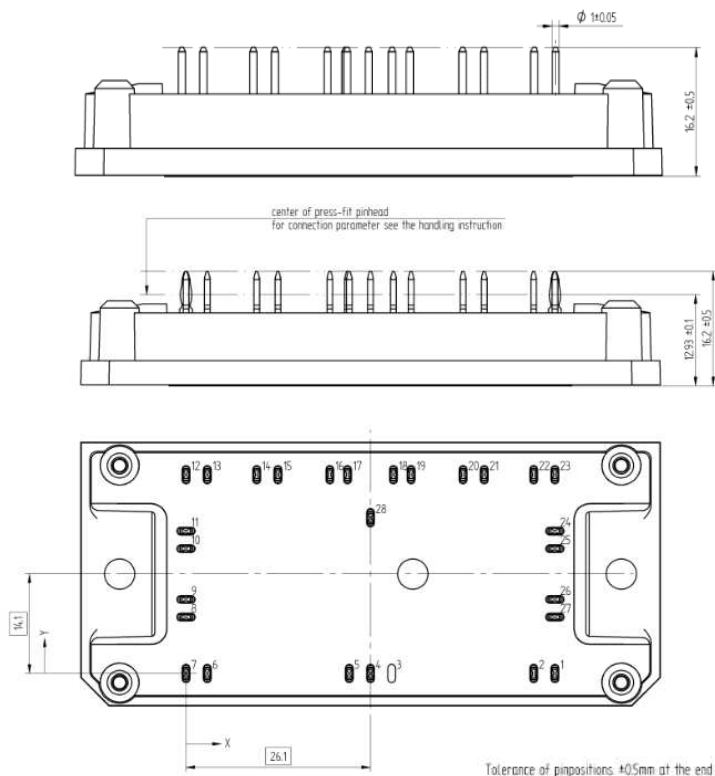
Ordering Code & Marking						
<b>Version</b>			<b>Ordering Code</b>			
without thermal paste 12mm housing with solder pins			10-FY07HVA050S5-L984F08			
without thermal paste 12mm housing with Press-fit pins			10-PY07HVA050S5-L984F08Y			
			<b>Date code</b>	<b>UL &amp; VIN</b>	<b>Lot</b>	<b>Serial</b>
<b>Text</b>	<b>Name</b>		WWYY	UL VIN	LLLLL	SSSS
<b>Datamatrix</b>	<b>Type&amp;Ver</b>	<b>Lot number</b>	<b>Serial</b>	<b>Date code</b>		
	TTTTTTVV	LLLLL	SSSS	WWYY		

Pin table [mm]				Function			Outline			
Pin	X	Y								
1	52,2	0		G14						
2	49,2	0		S14						
3	Not Assembled									
4	26,1	0		Therm2						
5	23,1	0		Therm1						
6	3	0		S12						
7	0	0		G12						
8	0	8		DC+						
9	0	10,5		DC+						
10	0	17,7		DC-1						
11	0	20,2		DC-1						
12	0	28,2		G11						
13	3	28,2		S11						
14	10	28,2		G21						
15	13	28,2		S21						
16	20,35	28,2		Ph2						
17	22,85	28,2		Ph2						
18	29,35	28,2		Ph1						
19	31,85	28,2		Ph1						
20	39,2	28,2		S22						
21	42,2	28,2		G22						
22	49,2	28,2		S13						
23	52,2	28,2		G13						
24	52,2	20,2		DC-2						
25	52,2	17,7		DC-2						
26	52,2	10,5		DC+						
27	52,2	8		DC+						
28	26,15	22,1		A20						

solder pin

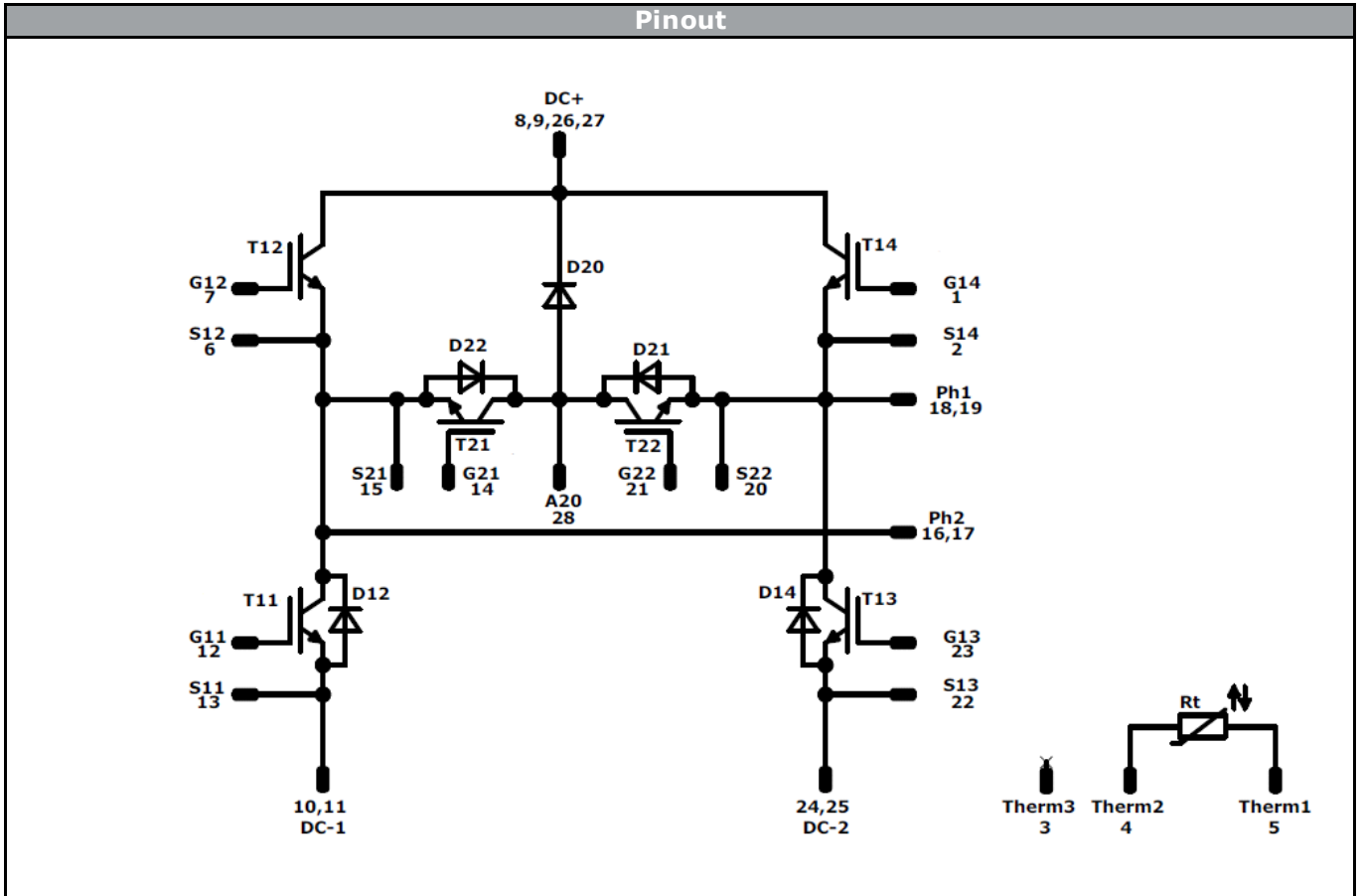
Press-fit pin



Tolerance of pinpositions: ±0,05mm at the end of pins  
Dimension of coordinate axis is only offset without tolerance.



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<b>Identification</b>					
<b>ID</b>	<b>Component</b>	<b>Voltage</b>	<b>Current</b>	<b>Function</b>	<b>Comment</b>
T11-T14	IGBT	650 V	50 A	High Buck Switch / Low Buck Switch	
D21, D22	FWD	650 V	30 A	Buck Diode	
T21, T22	IGBT	650 V	50 A	Boost Switch	
D20	FWD	650 V	30 A	High Boost Diode	
D12, D14	FWD	650 V	30 A	Low Boost Diode	
Rt	Thermistor			Thermistor	




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

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

Package data
Package data for <i>flow 1</i> 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-xy07HVA050S5-L984F08x-T1-14	26 Jul. 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.