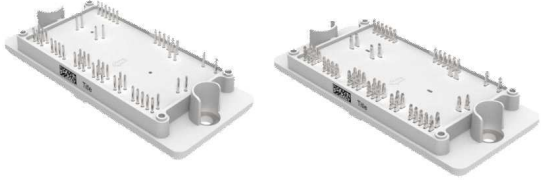
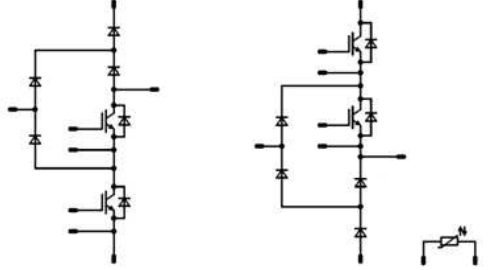




<i>flow NPC 2</i>	650 V / 200 A
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;">Features</p> <ul style="list-style-type: none"> Enhanced efficiency Enables high switching frequencies Pin compatible to <i>flowMNPC 2</i> Low inductive package </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"> Special Application UPS </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"> 30-FT07NIB200S501-LD96F58 30-PT07NIB200S501-LD96F58Y </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #ccc; margin: 0;"><i>flow 2 12 mm housing</i></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
Buck Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	181	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	600	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	263	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C



Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
-----------	--------	-----------	-------	------

Buck Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	132	A
Repetitive peak forward current	I_{FRM}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	174	W
Maximum Junction Temperature	T_{jmax}		175	°C

Boost Switch

Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	181	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	600	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	263	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C

Boost Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	132	A
Repetitive peak forward current	I_{FRM}		400	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	174	W
Maximum Junction Temperature	T_{jmax}		175	°C

Polarity Rectifier Diode

Peak Repetitive Reverse Voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	177	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	1780	A
Surge current capability	I_{t}		7920	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	194	W
Maximum Junction Temperature	T_{jmax}		150	°C



Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
-----------	--------	-----------	-------	------

Buck Sw. Protection Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	36	A
Repetitive peak forward current	I_{FRM}		60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	59	W
Maximum Junction Temperature	T_{jmax}		175	°C

Boost Sw. Protection Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	36	A
Repetitive peak forward current	I_{FRM}		60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	59	W
Maximum Junction Temperature	T_{jmax}		175	°C

Boost D. Protection Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	36	A
Repetitive peak forward current	I_{FRM}		60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	59	W
Maximum Junction Temperature	T_{jmax}		175	°C



Vincotech

30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
-----------	--------	-----------	-------	------

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
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min. 12,7	mm
Clearance			min. 12,7	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_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max		

Buck Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,008	25	3,2	4	4,8	V
Collector-emitter saturation voltage	V_{CESat}		15		200	25 125 175		1,35 1,50 1,60	1,75	V
Collector-emitter cut-off current	I_{CES}		0	650		25			200	µA
Gate-emitter leakage current	I_{GES}		20	0		25			400	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}							12400		pF
Output capacitance	C_{oes}	$f = 1$ MHz	0	25		25		352		
Reverse transfer capacitance	C_{res}							48		
Gate charge	Q_g		15	520	200	25		480		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,36		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----

Buck Diode

Static

Forward voltage	V_F				200	25 125 150		1,65 1,60 1,58	1,77	V
Reverse leakage current	I_r			650		25			10,6	µA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,55		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----



Vincotech

30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
 target datasheet

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	

Boost Switch

Static

Parameter	Symbol	$V_{GE} = V_{CE}$	V_{GS} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$				0,008	25	3,2	4	4,8	V
Collector-emitter saturation voltage	V_{CEsat}		15		200	25 125 175		1,35 1,50 1,60	1,75	V
Collector-emitter cut-off current	I_{CES}		0	650		25			200	μA
Gate-emitter leakage current	I_{GES}		20	0		25			400	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}							12400		pF
Output capacitance	C_{oes}	$f = 1$ MHz	0	25		25		352		
Reverse transfer capacitance	C_{res}							48		
Gate charge	Q_g		15	520	200	25		480		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,36		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----

Boost Diode

Static

Parameter	Symbol	V_{GS} [V]	V_{CE} [V]	I_D [A]	T_j [°C]	Min	Typ	Max	Unit
Forward voltage	V_F			200	25 125 150		1,65 1,60 1,58	1,77	V
Reverse leakage current	I_r			650	25			10,6	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,55		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----



Vincotech

30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
 target datasheet

Characteristic Values

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

Polarity Rectifier Diode

Static

Forward voltage	V_F			150	25 125 150		1,10 1,05 1,05	1,3		V
Reverse leakage current	I_r		1600		25 150			100 2200		μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK					0,36			K/W
-------------------------------------	---------------	---	--	--	--	--	------	--	--	-----

Buck Sw. Protection Diode

Static

Forward voltage	V_F			30	25 150		1,64 1,56	1,87		V
Reverse leakage current	I_r		650		25			0,36		μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK					1,61			K/W
-------------------------------------	---------------	---	--	--	--	--	------	--	--	-----

Boost Sw. Protection Diode

Static

Forward voltage	V_F			30	25 150		1,64 1,56	1,87		V
Reverse leakage current	I_r		650		25			0,36		μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK					1,61			K/W
-------------------------------------	---------------	---	--	--	--	--	------	--	--	-----

Boost D. Protection Diode

Static

Forward voltage	V_F			30	25 150		1,64 1,56	1,87		V
Reverse leakage current	I_r		650		25			0,36		μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK					1,61			K/W
-------------------------------------	---------------	---	--	--	--	--	------	--	--	-----



Vincotech

30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
 target datasheet

Characteristic Values

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

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	



30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
 target datasheet

Vincotech

Ordering Code & Marking						
Version			Ordering Code			
without thermal paste with solder pins			30-FT07NIB200S501-LD96F58			
without thermal paste with Press-fit pins			30-PT07NIB200S501-LD96F58Y			
NN-NNNNNNNNNNNN TTTTWWWWYY UL VIN LLLL SSSS						
Text	Name		Date code	UL & VIN	Lot	Serial
	NN-NNNNNNNNNNNN-TTTTWW		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	Type&Ver	Lot number	Serial	Date code		
	TTTTTWW	LLLLL	SSSS	WWYY		

Outline							
Pin table [mm]				Pin table [mm]			
Pin	X	Y	Function	Pin	X	Y	Function
1	70	3	DC+2	52	Not assembled		
2	70	0	DC+2	53	64,2	36,6	Therm1
3	67,5	0	DC+2	54	70,6	36,55	Therm2
4	65	0	DC+2	55	70	18,9	S11
5	62,5	0	DC+2	56	68,55	15,9	G11
6	60	0	DC+2				
7	52,75	3	GND2				
8	52,75	0	GND2				
9	50,25	3	GND2				
10	50,25	0	GND2				
11	43	3	DC-2				
12	43	0	DC-2				
13	40,5	3	DC-2				
14	40,5	0	DC-2				
15	38	3	DC-2				
16	38	0	DC-2				
17	32	3	DC-1				
18	32	0	DC-1				
19	29,5	3	DC-1				
20	29,5	0	DC-1				
21	27	3	DC-1				
22	27	0	DC-1				
23	19,75	0	GND1				
24	17,25	0	GND1				
25	14,75	0	GND1				
26	12,25	0	GND1				
27	5	3	DC+1				
28	5	0	DC+1				
29	2,5	3	DC+1				
30	2,5	0	DC+1				
31	0	3	DC+1				
32	0	0	DC+1				
33	5,75	19,45	G14				
34	5,75	22,45	S14				
35	Not assembled						
36	19,25	22,85	G12				
37	17,85	19,85	S12				
38	2	36	Ph1				
39	4,5	36	Ph1				
40	7	36	Ph1				
41	9,5	36	Ph1				
42	12	36	Ph1				
43	14,5	36	Ph1				
44	38	36	Ph2				
45	40,5	36	Ph2				
46	43	36	Ph2				
47	45,5	36	Ph2				
48	48	36	Ph2				
49	50,5	36	Ph2				
50	49,9	32	G13				
51	52,9	32	S13				

Solder Pin

Solder Pin

Tolerance of pinpositions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance

Press-fit

Press-fit

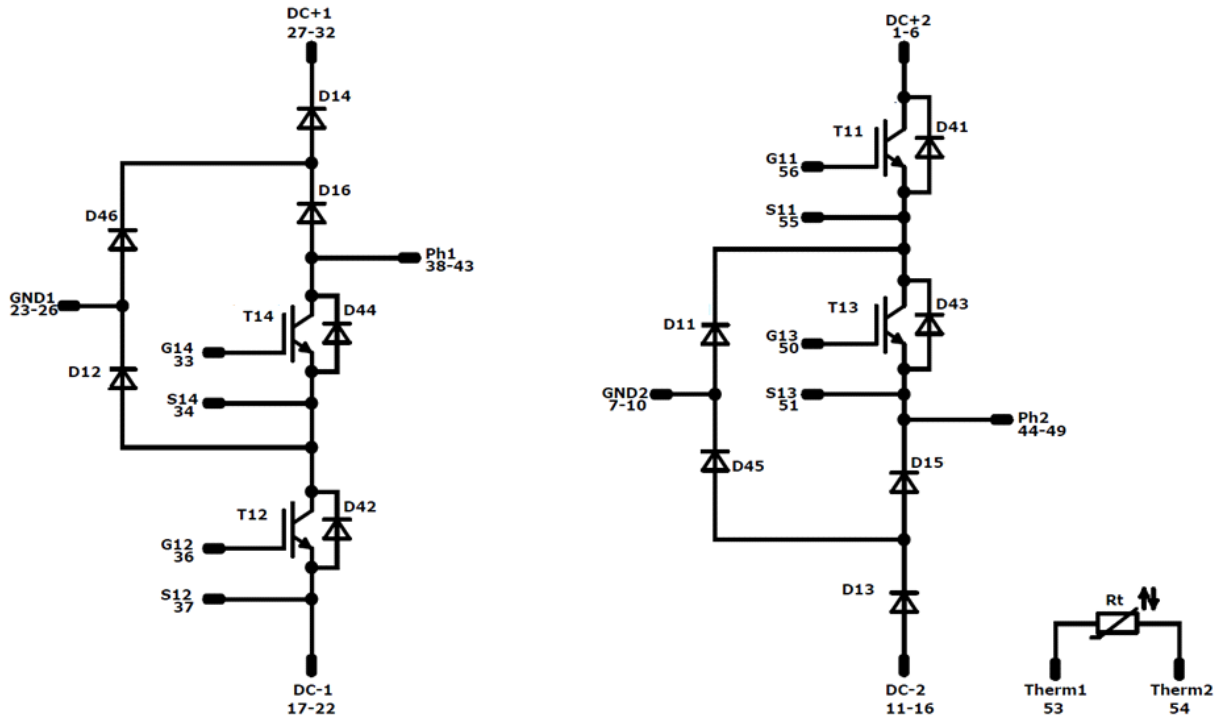
Tolerance of pinpositions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



30-FT07NIB200S501-LD96F58
30-PT07NIB200S501-LD96F58Y
 target datasheet

Vincotech

Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11,T12	IGBT	650 V	200 A	Buck Switch	
D11,D12	FWD	650 V	200 A	Buck Diode	
T13,T14	IGBT	650 V	200 A	Boost Switch	
D13,D14	FWD	650 V	200 A	Boost Diode	
D15,D16	FWD	1600 V	150 A	Polarity Rectifier Diode	
D41,D42	FWD	650 V	30 A	Buck Sw. Protection Diode	
D43,D44	FWD	650 V	30 A	Boost Sw. Protection Diode	
D45,D46	FWD	650 V	30 A	Boost D. Protection Diode	
Rt	Thermistor			Thermistor	




Vincotech

Packaging instruction			
Standard packaging quantity (SPQ) 36	>SPQ	Standard	<SPQ Sample

Handling instruction
Handling instructions for <i>flow 2</i> packages see vincotech.com website.

Package data
Package data for <i>flow 2</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
30-xT07NIB200S501-LD96F58x-T1-14	03 Apr. 2017		

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.