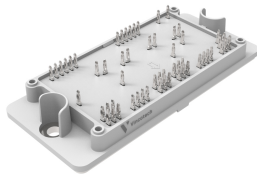
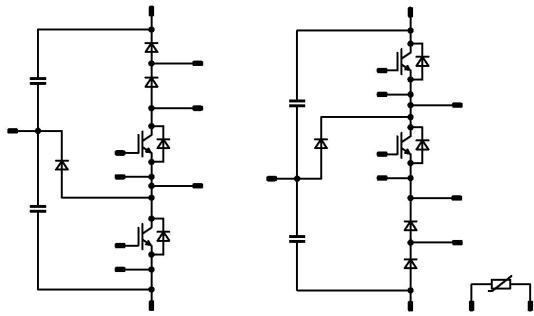




<i>flowNPC 2</i>		1200 V / 300 A	
Features <ul style="list-style-type: none">• Enhanced efficiency• Enables high switching frequencies• Low inductive package		flow 2 13 mm housing 	
Target applications <ul style="list-style-type: none">• Solar Inverters		Schematic 	
Types <ul style="list-style-type: none">• 30-PT07NIB320RV01-LH36F68Y			



Vincotech

30-PT07NIB320RV01-LH36F68Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Buck Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C		320	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1280	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	399	W
Gate-emitter voltage	V_{GES}		± 30	V
Short circuit ratings	t_{SC}	$V_{GE} = 15\text{ V}$ $T_j = 25\text{ °C}$	2	μs
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Buck Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		320	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	1280	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	301	W
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Buck Sw. Protection Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		30	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	120	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	64	W
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$



Vincotech

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Boost Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C		225	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	675	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	309	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		320	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	1280	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	301	W
Maximum junction temperature	T_{jmax}		175	°C

Boost Sw.Inv.Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		320	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	1280	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	301	W
Maximum junction temperature	T_{jmax}		175	°C



Vincotech

30-PT07NIB320RV01-LH36F68Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Boost Sw. Protection Diode				
Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		30	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	120	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	64	W
Maximum junction temperature	T_{jmax}		175	°C

Capacitor (DC)

Maximum DC voltage	V_{MAX}		630	V
Operation Temperature	T_{op}		-55 ... +150	°C



Vincotech

30-PT07NIB320RV01-LH36F68Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
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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
Isolation voltage	V_{isol}	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			>12,7	mm
Clearance			>12,7	mm
Comparative Tracking Index	CTI		≥ 175	



Vincotech

30-PT07NIB320RV01-LH36F68Y
target datasheet

Characteristic Values

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

Buck Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$				0,23	25	5	6	7	V
Collector-emitter saturation voltage	V_{CEsat}	15			320	25 175		1,5 1,85	1,9	V
Collector-emitter cut-off current	I_{CES}	0	650			25			40	μA
Gate-emitter leakage current	I_{GES}	30	0			25			800	nA
Input capacitance	C_{ies}	f = 1 Mhz	0	30		25		19240		pF
Output capacitance	C_{oes}							736		pF
Reverse transfer capacitance	C_{res}							316		pF
Gate charge	Q_g	15	400	320	25			684		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,24		K/W
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Buck Diode

Static

Forward voltage	V_F				320	25 175		1,45 1,55	1,9	V
Reverse leakage current	I_R		650			25			40	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,32		K/W
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Vincotech

Characteristic Values

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

Buck Sw. Protection Diode

Static

Forward voltage	V_F				30	25 175		1,45 1,55	1,9	V
Reverse leakage current	I_R			650		25			10	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						1,48		K/W
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Boost Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,003	25	4,2	5	5,8	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		225	25 175		1,05 1,03	1,45	V
Collector-emitter cut-off current	I_{CES}		0	650		25			120	μA
Gate-emitter leakage current	I_{GES}		20	0		25			300	nA
Input capacitance	C_{ies}	f = 1 Mhz	0	25		25		34875		pF
Reverse transfer capacitance	C_{res}							90		pF
Gate charge	Q_g		15	520	225	25		1308		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,31		K/W
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Vincotech

30-PT07NIB320RV01-LH36F68Y
target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Values			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		

Boost Diode

Static

Forward voltage	V_F			320	25 175		1,45 1,55	1,9	V
Reverse leakage current	I_R		650		25			40	μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					0,32		K/W
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Boost Sw.Inv.Diode

Static

Forward voltage	V_F			320	25 175		1,45 1,55	1,9	V
Reverse leakage current	I_R		650		25			40	μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					0,32		K/W
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Boost Sw. Protection Diode

Static

Forward voltage	V_F			30	25 175		1,45 1,55	1,9	V
Reverse leakage current	I_R		650		25			10	μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)					1,48		K/W
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Vincotech

Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	V_{CE} [V]	T_j [°C]	Min	Typ	Max	

Capacitor (DC)

Static

Capacitance	C							33		nF
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NTC

Static

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

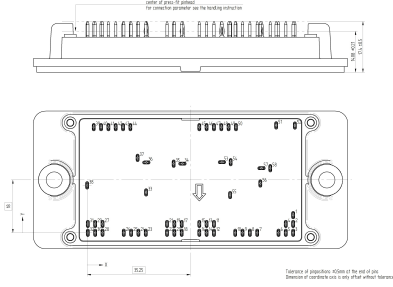


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30-PT07NIB320RV01-LH36F68Y
target datasheet

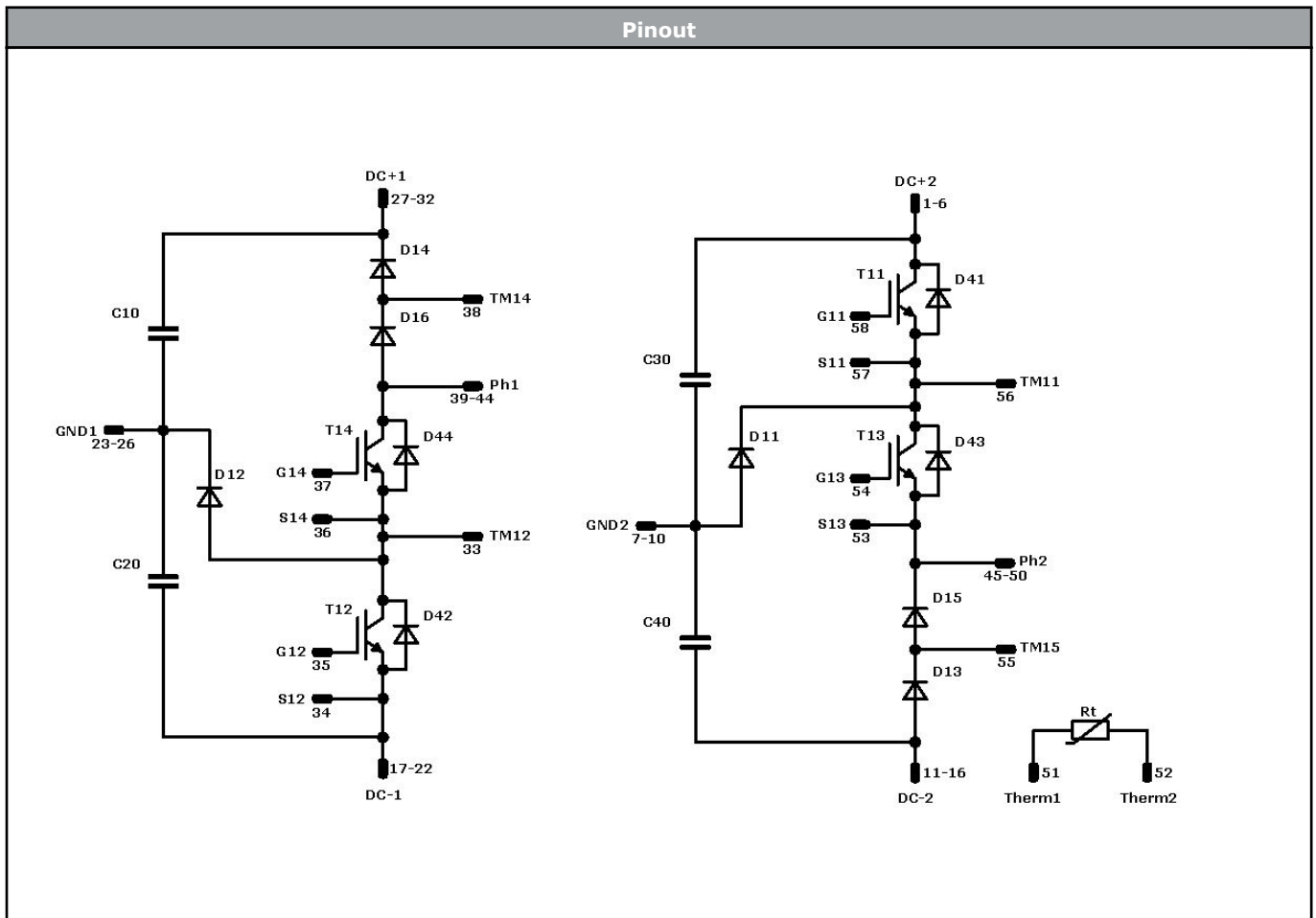
Ordering Code & Marking									
Version				Ordering Code					
without thermal paste 13mm housing with Press-fit pins				30-PT07NIB320RV01-LH36F68Y					
with thermal paste 13mm housing with Press-fit pins				30-PT07NIB320RV01-LH36F68Y-/3/					
NN-NNNNNNNNNNNNNN TTTTITTV WWYY UL VIN LLLLL SSSS			Text	Name		Date code	UL & VIN	Lot	Serial
				NN-NNNNNNNNNNNNNN-TTTTITTV		WWYY	UL VIN	LLLLL	SSSS
			Datamatrix	Type&Ver	Lot number	Serial	Date code		
TTTTITTV	LLLLL	SSSS		WWYY					

Outline							
Pin table [mm]				Pin	X	Y	Function
Pin	X	Y	Function	30	2,75	0	DC+1
1	70,25	6	DC+2	31	0,25	3	DC+1
2	70,25	3	DC+2	32	0,25	0	DC+1
3	70,25	0	DC+2	33	20,1	13,75	TM12
4	67,75	3	DC+2	34	32,5	23,55	S12
5	67,75	0	DC+2	35	29,5	23,55	G12
6	65,25	0	DC+2	36	20,2	23,95	S14
7	58	0	GND2	37	17,2	25,55	G14
8	55,5	0	GND2	38	0	16,15	TM14
9	53	0	GND2	39	2,25	36	Ph1
10	50,5	0	GND2	40	4,75	36	Ph1
11	43,25	3	DC-2	41	7,25	36	Ph1
12	43,25	0	DC-2	42	9,75	36	Ph1
13	40,75	3	DC-2	43	12,25	36	Ph1
14	40,75	0	DC-2	44	14,75	36	Ph1
15	38,25	3	DC-2	45	38,25	36	Ph2
16	38,25	0	DC-2	46	40,75	36	Ph2
17	32,25	3	DC-1	47	43,25	36	Ph2
18	32,25	0	DC-1	48	45,75	36	Ph2
19	29,75	3	DC-1	49	48,25	36	Ph2
20	29,75	0	DC-1	50	50,75	36	Ph2
21	27,25	3	DC-1	51	64,45	36,6	Therm1
22	27,25	0	DC-1	52	70,85	36,55	Therm2
23	20	0	GND1	53	45,95	24,05	S13
24	17,5	0	GND1	54	48,95	24,05	G13
25	15	0	GND1	55	48,75	12,85	TM15
26	12,5	0	GND1	56	59,05	16,8	TM11
27	5,25	3	DC+1	57	59,45	22	S11
28	5,25	0	DC+1	58	62,45	22	G11
29	2,75	3	DC+1				





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Identification						
ID	Component	Voltage	Current	Function	Comment	
T13, T14	IGBT	650 V	225 A	Boost Switch		
T11, T12	IGBT	650 V	320 A	Buck Switch		
D41, D42	FWD	650 V	30 A	Buck Sw. Protection Diode		
D43, D44	FWD	650 V	30 A	Boost Sw. Protection Diode		
D11, D12	FWD	650 V	320 A	Buck Diode		
D13, D14	FWD	650 V	320 A	Boost Diode		
D15, D16	FWD	650 V	320 A	Boost Sw.Inv.Diode		
C10, C20, C30, C40	Capacitor	630 V		Capacitor (DC)		
Rt	Thermistor			NTC		



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
Packaging 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-PT07NIB320RV01-LH36F68Y-T1-14	26 Feb. 2019	Initial Release	

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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