
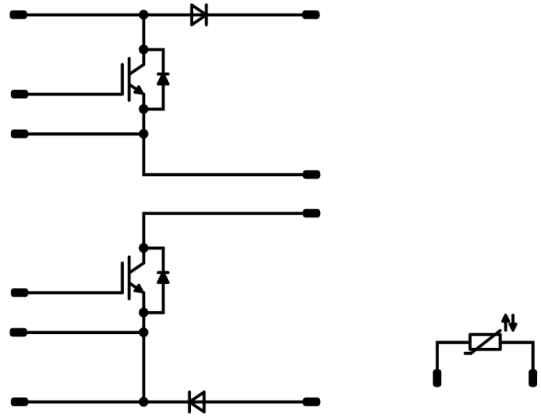




# Vincotech

<i>flow</i> BOOST 1	650 V / 100 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Features</b></div> <ul style="list-style-type: none"> <li>Symmetric Boost</li> <li>High speed high efficient IGBT</li> <li>High speed Diode</li> <li>Thermistor</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>flow 1 12mm housing</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Target applications</b></div> <ul style="list-style-type: none"> <li>UPS</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-FY07NBA100SM-M506L48</li> </ul>	

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>Boost Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80^{\circ}\text{C}$	68	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	300	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80^{\circ}\text{C}$	108	W
Gate-emitter voltage	$V_{GES}$		±20	V
Maximum Junction Temperature	$T_{jmax}$		175	°C



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Parameter	Symbol	Conditions	Value	Unit
<b>Boost Diode</b>				
Peak Repetitive Reverse Voltage	$V_{RRM}$		600	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	101	A
Surge (non-repetitive) forward current	$I_{FSM}$	60 Hz Single Half Sine Wave $T_j = 150^\circ\text{C}$	1200	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	117	W
Maximum Junction Temperature	$T_{jmax}$		150	$^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
<b>Boost Sw.Protection Diode</b>				
Peak Repetitive Reverse Voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	15	A
Repetitive peak forward current	$I_{FRM}$		30	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	36	W
Maximum Junction Temperature	$T_{jmax}$		175	$^\circ\text{C}$

## Module Properties

Parameter	Symbol	Conditions	Value	Unit
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### Thermal Properties

Storage temperature	$T_{stg}$		-40...+125	$^\circ\text{C}$
Operation Junction Temperature	$T_{jop}$		-40...+( $T_{jmax} - 25$ )	$^\circ\text{C}$

### Isolation Properties

Isolation voltage	$V_{isol}$	DC voltage	$t_p=2s$	4000	V
Creepage distance				min 12,7	mm
Clearance				8,44	mm
Comparative Tracking Index	CTI			>200	



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## Characteristic Values

### Boost Switch

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max		
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$			0,001	25 125	3,2	4	4,8	V
Collector-emitter saturation voltage	$V_{CEsat}$		15		100	25 125 150		1,65 1,90	2,1	V
Collector-emitter cut-off current	$I_{CES}$		0	650		25 125			100	μA
Gate-emitter leakage current	$I_{GES}$		20	0		25 125			100	nA
Internal gate resistance	$r_g$							none		Ω
Input capacitance	$C_{ies}$							6560		pF
Output capacitance	$C_{oes}$	f=1 MHz	0	25		25		97		
Reverse transfer capacitance	$C_{res}$							21		
Gate charge	$Q_g$		15	520	100	25		210		nC

### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$						0,88		K/W
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### Boost Diode

Parameter	Symbol	Conditions					Value			Unit
		$V_r$ [V]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max			
Static										
Forward voltage	$V_F$				120	25 125		1,47 1,29	1,7	V
Reverse leakage current	$I_r$			600		25 125			200 1000	μA

### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4W/mK$						0,60		K/W
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### Boost Sw.Protection Diode

Parameter	Symbol	Conditions					Value			Unit
				$V_r$ [V]	$I_F$ [A]	$T_j$ [°C]	Min	Typ	Max	

#### Static

Forward voltage	$V_F$			15	25 125		1,79 1,67	1,87	V
Reverse leakage current	$I_r$		650		25 150			0,18	$\mu$ A

#### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda=3,4$ W/mK					2,65		K/W
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### Thermistor

Parameter	Symbol	Conditions					Value			Unit
			$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_{j1}$ [°C]	Min	Typ	Max	
Rated resistance	$R$					25		21,5	k $\Omega$	
Deviation of R100	$\Delta_{R/R}$	R100=1486 $\Omega$				100	-4,5	+4,5	%	
Power dissipation	$P$					25		210	mW	
Power dissipation constant						25		3,5	mW/K	
B-value	$B_{(25/50)}$					25		3884	K	
B-value	$B_{(25/100)}$					25		3964	K	
Vincotech NTC Reference								F		



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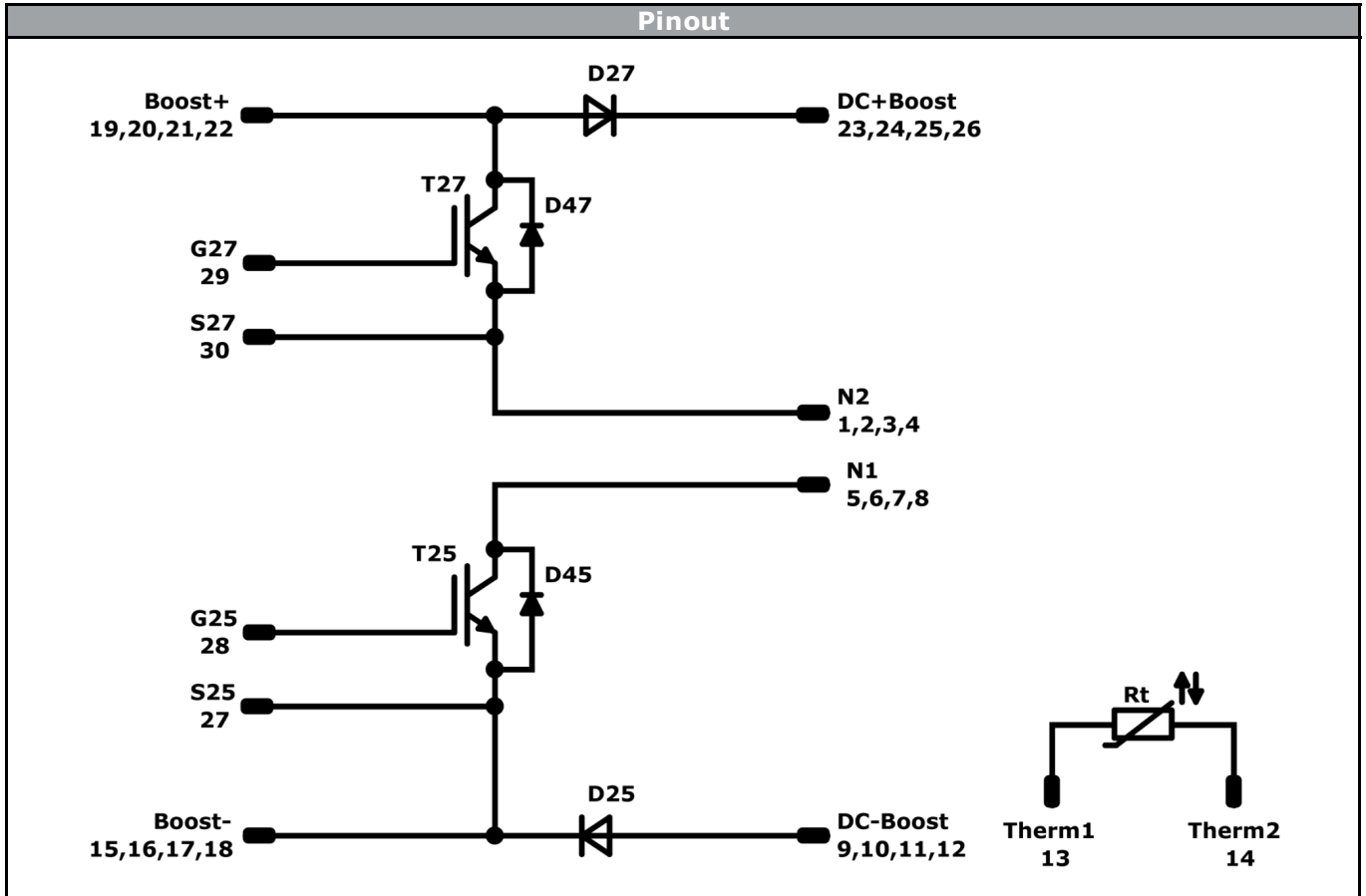
Ordering Code & Marking							
Version	Ordering Code	in DataMatrix as		in packaging barcode as			
without thermal paste 12mm housing	10-FY07NBA100SM-M506L48	M506L48		M506L48			
NN-NNNNNNNNNNNNNN NNNNNNNN WWYY UL Vinco LLLLL SSSS		Text	Name	Date code	UL & Vinco	Lot	Serial
			NN-NNNNNNNNNNNNNN-NNNNNNNN	WWYY	UL Vinco	LLLLL	SSSS
Datamatrix	Type&Ver	Lot number	Serial	Date code			
	TTTTTTTV	LLLLL	SSSS	WWYY			

Pin table [mm]				Outline	
Pin	X	Y	Function		
1	0	2,8	N2		
2	0	5,4	N2		
3	0	8	N2		
4	0	10,6	N2		
5	0	17,6	N1		
6	0	20,2	N1		
7	0	22,8	N1		
8	0	25,4	N1		
9	16,6	28,2	DC-Boost		
10	19,2	28,2	DC-Boost		
11	21,8	28,2	DC-Boost		
12	24,4	28,2	DC-Boost		
13	44,2	28,2	Therm1		
14	52,2	28,2	Therm2		
15	49,6	20,5	Boost-		
16	52,2	20,5	Boost-		
17	49,6	17,9	Boost-		
18	52,2	17,9	Boost-		
19	49,6	10,4	Boost+		
20	52,2	10,4	Boost+		
21	49,6	7,8	Boost+		
22	52,2	7,8	Boost+		
23	24,4	0	DC+Boost		
24	21,8	0	DC+Boost		
25	19,2	0	DC+Boost		
26	16,6	0	DC+Boost		
27	21,8	18,3	S25		
28	21,8	15,5	G25		
29	8,4	12,7	G27		
30	8,4	9,9	S27		

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



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<b>Identification</b>					
ID	Component	Voltage	Current	Function	Comment
T25, T27	IGBT	650 V	100 A	Boost Switch	
D25, D27	FWD	600 V	120 A	Boost Diode	
D45, D47	FWD	650 V	15 A	Boost Sw.Protection Diode	
Rt	NTC	-	-	Thermistor	



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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.

Document No.:	Date:	Modification:	Pages
10-FY07NBA100SM-M506L48-T1-14	20 Oct. 2015		

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.