
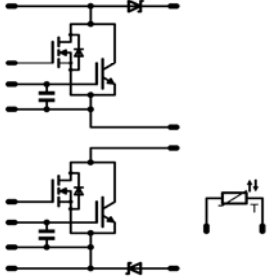


flowBoost0	600V/110A PS*
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;"><b>Features</b></p> <ul style="list-style-type: none"> <li>*PS: 2x 110A parallel switch (100A IGBT and 99mΩ MOSFET)</li> <li>high speed IGBT with C6 MOSFET and SiC buck diodes</li> <li>high efficiency dual booster</li> <li>ultra fast switching frequency</li> <li>low inductance layout</li> </ul> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;"><b>Target Applications</b></p> <ul style="list-style-type: none"> <li>solar inverter</li> <li>UPS</li> </ul> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;"><b>Types</b></p> <ul style="list-style-type: none"> <li>10-FZ06NBA110FP-M306L28</li> </ul> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;"><b>flow0 12mm housing</b></p>  </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;"><b>Schematic</b></p>  </div>

### Maximum Ratings

T<sub>j</sub>=25°C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
<b>Input Boost IGBT</b>				
Collector-emitter break down voltage	V <sub>CE</sub>		600	V
DC collector current	I <sub>C</sub>	T <sub>j</sub> =T <sub>j,max</sub> T <sub>h</sub> =80°C T <sub>c</sub> =80°C	72 96	A
Repetitive peak collector current	I <sub>C,pulse</sub>	t <sub>p</sub> limited by T <sub>j,max</sub>	400	A
Power dissipation per IGBT	P <sub>tot</sub>	T <sub>j</sub> =T <sub>j,max</sub> T <sub>h</sub> =80°C T <sub>c</sub> =80°C	131 199	W
Gate-emitter peak voltage	V <sub>GE</sub>		±20	V
Short circuit ratings	t <sub>SC</sub> V <sub>CC</sub>	T <sub>j</sub> ≤125°C V <sub>GE</sub> =15V	5 400	μs V
Maximum Junction Temperature	T <sub>j,max</sub>		175	°C

#### Input Boost FWD

Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	T <sub>j</sub> =25°C	600	V
DC forward current	I <sub>F</sub>	T <sub>j</sub> =T <sub>j,max</sub> T <sub>h</sub> =80°C T <sub>c</sub> =80°C	49 63	A
Repetitive peak forward current	I <sub>FRM</sub>	t <sub>p</sub> limited by T <sub>j,max</sub>	210	A
Power dissipation per Diode	P <sub>tot</sub>	T <sub>j</sub> =T <sub>j,max</sub> T <sub>h</sub> =80°C T <sub>c</sub> =80°C	88 133	W
Maximum Junction Temperature	T <sub>j,max</sub>		175	°C

## Maximum Ratings

 T<sub>j</sub>=25°C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
<b>Input Boost MOSFET</b>				
Drain to source breakdown voltage	V <sub>DS</sub>		600	V
DC drain current	I <sub>D</sub>	T <sub>j</sub> =T <sub>j</sub> max T <sub>h</sub> =80°C T <sub>c</sub> =80°C	17 19	A
Pulsed drain current	I <sub>Dpuls</sub>	t <sub>p</sub> limited by T <sub>j</sub> max T <sub>c</sub> =25°C	112	A
Power dissipation	P <sub>tot</sub>	T <sub>j</sub> =T <sub>j</sub> max T <sub>h</sub> =80°C T <sub>c</sub> =80°C	67 101	W
Gate-source peak voltage	V <sub>GS</sub>		±20	V
Maximum Junction Temperature	T <sub>j</sub> max		150	°C

### Thermal Properties

Storage temperature	T <sub>stg</sub>		-40...+125	°C
Operation temperature under switching condition	T <sub>op</sub>		-40...+(T <sub>j</sub> max - 25)	°C

### Insulation Properties

Insulation voltage	V <sub>is</sub>	t=2s DC voltage	4000	V
Creepage distance			min 12,7	mm
Clearance			min 12,7	mm

**Characteristic Values**

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V] or $V_{GS}$ [V]	$V_r$ [V] or $V_{CE}$ [V] or $V_{DS}$ [V]	$I_c$ [A] or $I_F$ [A] or $I_b$ [A]	$T_j$	Min	Typ	Max		
<b>Input Boost IGBT *</b>										
Gate emitter threshold voltage	$V_{GE(th)}$	$V_{CE}=V_{GE}$			0.0008	$T_j=25^\circ\text{C}$ $T_j=150^\circ\text{C}$	4.1	5.1	5.7	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		100	$T_j=25^\circ\text{C}$ $T_j=150^\circ\text{C}$		1.85	2.3	V
Collector-emitter cut-off current incl. Diode	$I_{CES}$		0	600		$T_j=25^\circ\text{C}$ $T_j=150^\circ\text{C}$			40	$\mu\text{A}$
Gate-emitter leakage current	$I_{GES}$		$\pm 20$	0		$T_j=25^\circ\text{C}$ $T_j=150^\circ\text{C}$			100	nA
Integrated Gate resistor	$R_{gint}$							tbd.		$\Omega$
Input capacitance	$C_{ies}$							5920		pF
Output capacitance	$C_{oss}$	f=1MHz	0	25		$T_j=25^\circ\text{C}$		232		pF
Reverse transfer capacitance	$C_{riss}$							192		pF
Gate charge	$Q_{Gate}$		15	480	100	$T_j=25^\circ\text{C}$		630		nC
Thermal resistance chip to heatsink per chip	$R_{thJH}$	Thermal grease thickness $\leq 50\mu\text{m}$ $\lambda = 1 \text{ W/mK}$						0.72		K/W

\* see dynamic characteristic at MosFET

**Input Boost FWD**

Diode forward voltage	$V_F$				48	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		1.55 1.69	1.75	V
Peak reverse recovery current	$I_{RRM}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		A
Reverse recovery time	$t_{rr}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		ns
Reverse recovered charge	$Q_{rr}$	$R_{gon}=4 \Omega^{**}$	15	350	77	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		$\mu\text{C}$
Peak rate of fall of recovery current	$di(rec)_{max}/dt$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		A/ $\mu\text{s}$
Reverse recovered energy	$E_{rec}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		mWs
Thermal resistance chip to heatsink per chip	$R_{thJH}$	Thermal grease thickness $\leq 50\mu\text{m}$ $\lambda = 1 \text{ W/mK}$						1.10		K/W

**Input Boost MOSFET**

Static drain to source ON resistance	$R_{ds(on)}$		10		18.1	$T_j=25^\circ\text{C}$ $T_j=150^\circ\text{C}$		90 230	99	m $\Omega$
Gate threshold voltage	$V_{(GS)th}$		$V_{DS}=V_{GS}$		0.00121	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$	2.5	3	3.5	V
Gate to Source Leakage Current	$I_{gss}$		20	0		$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$			100	nA
Zero Gate Voltage Drain Current	$I_{dss}$		0	600		$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$			5	$\mu\text{A}$
Turn On Delay Time	$t_{d(ON)}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		ns
Rise Time	$t_r$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		
Turn off delay time	$t_{d(OFF)}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		
Fall time	$t_f$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		
Turn-on energy loss per pulse	$E_{on}$	$R_{gon}=1,7 \Omega^{**}$ $R_{goff}=1,7 \Omega^{**}$	$\pm 13$	350	77	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		mWs
Turn-off energy loss per pulse	$E_{off}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd.		
Total gate charge	$Q_g$							119		nC
Gate to source charge	$Q_{gs}$		10	480	18.1	$T_j=25^\circ\text{C}$		14		
Gate to drain charge	$Q_{gd}$							61		
Input capacitance	$C_{iss}$	f=1MHz	0	100		$T_j=25^\circ\text{C}$		2660		pF
Output capacitance	$C_{oss}$							154		
Thermal resistance chip to heatsink per chip	$R_{thJH}$	Thermal grease thickness $\leq 50\mu\text{m}$ $\lambda = 1 \text{ W/mK}$						1.05		K/W

**Characteristic Values**

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V] or $V_{GS}$ [V]	$V_r$ [V] or $V_{CE}$ [V] or $V_{DS}$ [V]	$I_c$ [A] or $I_F$ [A] or $I_b$ [A]	$T_j$	Min	Typ	Max		
<b>IGBT gate capacitor</b>										
C value	C							4.7		nF
<b>Thermistor</b>										
Rated resistance*	$R_{25}$	Tol. $\pm 13\%$				$T_j=25^\circ\text{C}$		22000		$\Omega$
	$R_{100}$	Tol. $\pm 5\%$				$T_j=100^\circ\text{C}$		1486		$\Omega$
Deviation of R100	$D_{R/R}$	$R_{100}=1503\Omega$				$T_c=100^\circ\text{C}$	+5		-5	%/K
Power dissipation	P					$T_j=25^\circ\text{C}$		200		mW
B-value	$B_{(25/100)}$	Tol. $\pm 3\%$				$T_j=25^\circ\text{C}$		3950		K

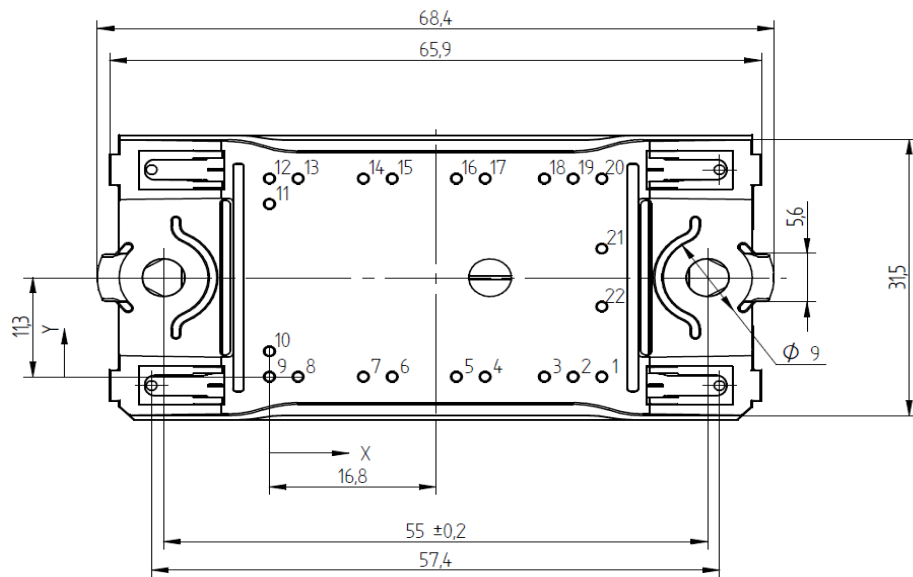
### Ordering Code and Marking - Outline - Pinout

#### Ordering Code & Marking

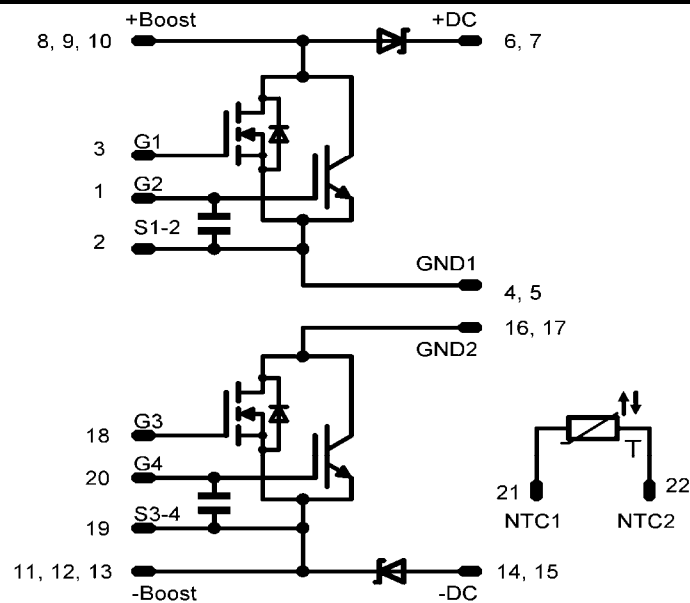
Version	Ordering Code	in DataMatrix as	in packaging barcode as
without thermal paste 12mm housing	10-FZ06NBA110FP-M306L28	M306L28	M306L28

#### Outline

Pin table		
Pin	X	Y
1	33,6	0
2	30,7	0
3	27,8	0
4	21,8	0
5	18,9	0
6	12,4	0
7	9,5	0
8	2,9	0
9	0	0
10	0	2,9
11	0	19,7
12	0	22,6
13	2,9	22,6
14	9,5	22,6
15	12,4	22,6
16	18,9	22,6
17	21,8	22,6
18	27,8	22,6
19	30,7	22,6
20	33,6	22,6
21	33,6	14,6
22	33,6	8



#### Pinout



**PRODUCT STATUS DEFINITIONS**

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.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data may be published at a later date. Vincotech reserves the right to make changes at any time without notice in order to improve design. The data contained is exclusively intended for technically trained staff.
Final	Full Production	This datasheet contains final specifications. Vincotech reserves the right to make changes at any time without notice in order to improve design. The data contained is exclusively intended for technically trained staff.

**DISCLAIMER**

The information given in this datasheet describes the type of component and does not represent assured characteristics. For tested values please contact Vincotech. Vincotech reserves the right to make changes without further notice to any products herein to improve reliability, function or design. Vincotech does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

**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.