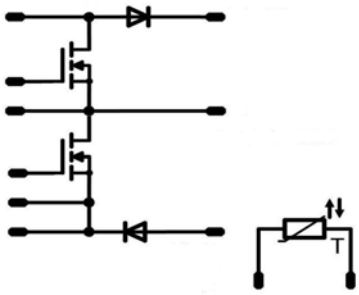
flowBoost1 **600V/20mΩ**

Features
- High efficiency symmetric boost
- Ultra fast switching frequency

flow1 housing


Target Applications
- Input stage for solar inverter

Schematic


Types
- 10-F106BIB020FK-M285L

Maximum Ratings

Tj=25°C, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Input Boost MOSFET					
Drain to source breakdown voltage	V_{DS}			650	V
DC drain current	I_D	T_j=$T_j$max	T_h=25°C T_h=80°C	100 75	A
Pulsed drain current	I_{Dpulse}	t_p limited by $T_j$max		400	A
Power dissipation	P_{tot}	T_j=$T_j$max	T_h=25°C T_h=80°C	329 184	W
Gate-source peak voltage	V_{GS}			25	V
Maximum Junction Temperature	$T_j$max			150	°C
Input Boost Diode					
Peak Repetitive Reverse Voltage	V_{RRM}	T_j=25°C		600	V
DC forward current	I_F	T_j=$T_j$max	T_h=25°C T_h=80°C	115 77	A
Repetitive peak forward current	I_{FRM}	t_p limited by $T_j$max		240	A
Power dissipation	P_{tot}	T_j=$T_j$max	T_h=25°C T_h=80°C	179 100	W
Maximum Junction Temperature	$T_j$max			150	°C

Maximum Ratings

Tj=25°C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
Thermal Properties				
Storage temperature	T_{stg}		-40…+125	°C
Operation temperature under switching condition	T_{op}		-40…+(Tjmax - 25)	°C
Insulation Properties				
Insulation voltage	V_{is}	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_D [A]	T_j	Min	Typ	Max	
Input Boost MOSFET										
Static drain to source ON resistance	$R_{DS(on)}$				69	Tj=25°C Tj=125°C		0,019 0,038		Ω
Gate threshold voltage	$V_{(GS)th}$	VGS=VDS			0,0005	Tj=25°C Tj=125°C	3	4	5	V
Gate to Source Leakage Current	I_{gss}		20	0		Tj=25°C Tj=125°C			400	nA
Zero Gate Voltage Drain Current	I_{dss}		0	650		Tj=25°C Tj=125°C			2 200	µA
Turn On Delay Time	$t_{d(ON)}$	Rgoff=2,4 Ω Rgon=2,4 Ω	10	400	80	Tj=25°C Tj=125°C		36		ns
Rise Time	t_r					Tj=25°C Tj=125°C		90		
Turn off delay time	$t_{d(OFF)}$					Tj=25°C Tj=125°C		130		
Fall time	t_f					Tj=25°C Tj=125°C		40		
Turn-on energy loss per pulse	E_{on}					Tj=25°C Tj=125°C		tbd		mWs
Turn-off energy loss per pulse	E_{off}					Tj=25°C Tj=125°C		tbd		
Total gate charge	Q_g		10	520	69	Tj=25°C Tj=125°C		360		nC
Gate to source charge	Q_{gs}					Tj=25°C Tj=125°C		120		
Gate to drain charge	Q_{gd}					Tj=25°C Tj=125°C		140		
Input capacitance	C_{iss}	f=1MHz	0	100		Tj=25°C		19600		pF
Output capacitance	C_{oss}							400		
Reverse transfer capacitance	C_{rss}							12		
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						0,38		K/W
Input Boost Diode										
Forward voltage	V_F				120	Tj=25°C Tj=125°C		1,4 1,3		V
Reverse leakage current	I_{rm}			390	120	Tj=25°C Tj=125°C			200 1000	µA
Peak recovery current	I_{RRM}	diF/dt = 200 A/us		390	120	Tj=25°C Tj=125°C		11 25		A
Reverse recovery time	t_{rr}					Tj=25°C Tj=125°C		60 138		ns
Reverse recovery charge	Q_{rr}					Tj=25°C Tj=125°C		tbd		µC
Reverse recovered energy	E_{rec}					Tj=25°C Tj=125°C		tbd		mWs
Peak rate of fall of recovery current	di(rec)max /dt					Tj=25°C Tj=125°C		tbd		A/µs
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						0,70		K/W
Thermistor										
Rated resistance	R					T=25°C		22000		Ω
Deviation of R100	ΔR/R	R100=1486 Ω				T=100°C	-5		5	%
Power dissipation	P					T=25°C		200		mW
Power dissipation constant						T=25°C		2		mW/K
B-value	B(25/50)	Tol. ±3%				T=25°C		3950		K
B-value	B(25/100)	Tol. ±3%				T=25°C		3996		K
Vincotech NTC Reference									B	

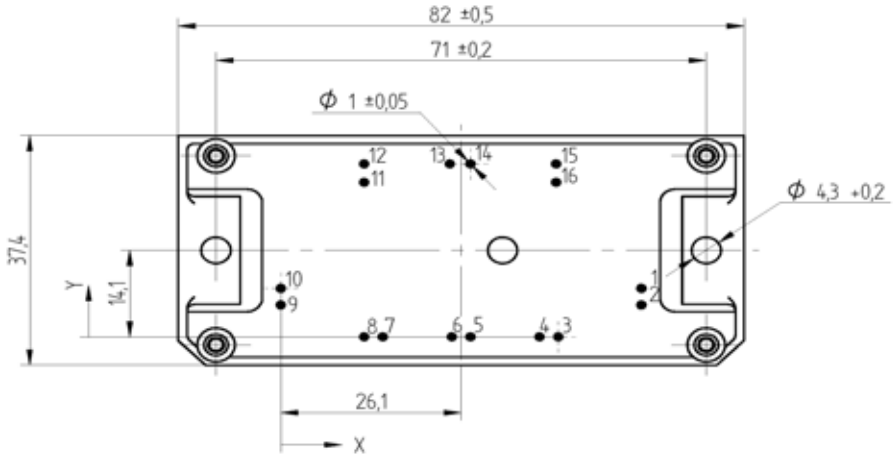
Ordering Code and Marking - Outline - Pinout

Ordering Code & Marking

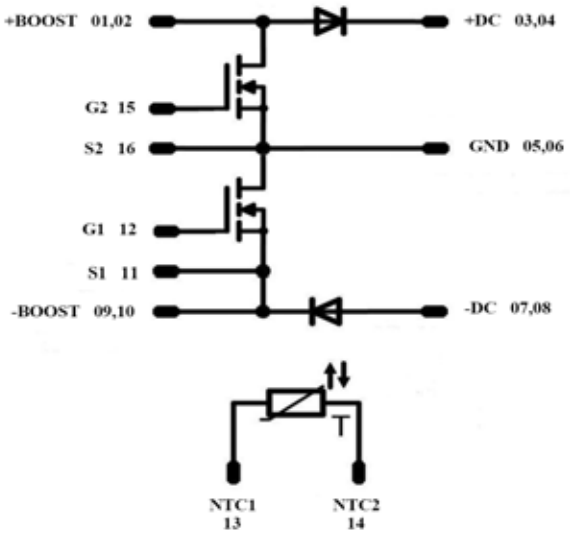
Version	Ordering Code	in DataMatrix as	in packaging barcode as
without thermal paste 17mm housing	10-F106BIB020FK-M285L	M285L	M285L

Outline

Pin table		
Pin	X	Y
1	52,2	7,9
2	52,2	5,2
3	40,15	0
4	37,45	0
5	27,45	0
6	24,75	0
7	14,75	0
8	12,05	0
9	0	5,2
10	0	7,9
11	12,05	25,2
12	12,05	28,2
13	24,45	28,2
14	27,45	28,2
15	39,85	28,2
16	39,85	25,2



Pinout



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