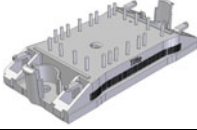
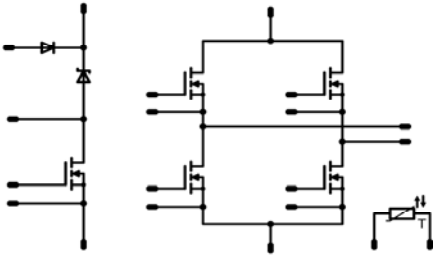


flowSOL BI	600V/45mΩ & 83mΩ
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Features</p> <ul style="list-style-type: none"> High efficiency Ultra fast switching frequency Low inductive design Tandem to FZ06RIA045FH </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Target Applications</p> <ul style="list-style-type: none"> Transformer-based solar inverters </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Types</p> <ul style="list-style-type: none"> FZ06BIA083FI </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">flow0 housing</p>  </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Schematic</p>  </div>

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit	
Bypass Diode					
Repetitive peak reverse voltage	V_{RRM}		1600	V	
Forward current per diode	I_{FAV}	DC current	$T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	40	A
Surge forward current	I_{FSM}	$t_p=10\text{ms}$	$T_j=25^\circ\text{C}$	370	A
I2t-value	I^2t			680	A^2s
Power dissipation per Diode	P_{tot}	$T_j=T_{jmax}$	$T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	52	W
Maximum Junction Temperature	T_{jmax}			150	$^\circ\text{C}$
Boost MOSFET					
Drain to source breakdown voltage	V_{DS}			600	V
DC drain current	I_D	$T_j=T_{jmax}$	$T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	35	A
Pulsed drain current	I_{Dpulse}	$T_j=T_{jmax}$ t_p limited by T_{jmax}	$T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	230	A
Power dissipation	P_{tot}	$T_j=T_{jmax}$	$T_h=80^\circ\text{C}$ $T_c=80^\circ\text{C}$	100	W
Gate-source peak voltage	V_{GS}			± 20	V
Maximum Junction Temperature	T_{jmax}			150	$^\circ\text{C}$

Maximum Ratings

 T_j=25°C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
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Boost Diode

Peak Repetitive Reverse Voltage	V _{RRM}	T _j =25°C	600	V
DC forward current	I _F	T _j =T _{jmax} T _h =80°C T _c =80°C	22	A
Repetitive peak forward current	I _{FRM}	T _j =T _{jmax} t _p limited by T _{jmax} T _h =80°C T _c =80°C	64	A
Power dissipation	P _{tot}	T _j =T _{jmax} T _h =80°C T _c =80°C	47	W
Maximum Junction Temperature	T _{jmax}		175	°C

H-Bridge MOSFET

Drain to source breakdown voltage	V _{DS}		600	V
DC drain current	I _D	T _j =T _{jmax} T _h =80°C T _c =80°C	15,5	A
Pulsed drain current	I _{Dp}	t _p limited by T _{jmax} T _h =80°C T _c =80°C	85	A
Power dissipation	P _{tot}	T _j =T _{jmax} T _h =80°C T _c =80°C	62,5	W
Gate-source peak voltage	V _{gs}		±20	V
Maximum Junction Temperature	T _{jmax}		150	°C

Thermal Properties

Storage temperature	T _{stg}		-40...+125	°C
Operation temperature under switching condition	T _{op}		-40... T _{jmax} - 25	°C

Insulation Properties

Insulation voltage	V _{is}	t=1min	4000	V _{DC}
Creepage distance			min 12,7	mm
Clearance			min 12,7	mm

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit	
		V_{GS} [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			
Bypass Diode											
Forward voltage	V_F				25	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		1,1	1,35	V	
Threshold voltage (for power loss calc. only)	V_{th}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$			0,83	V	
Slope resistance (for power loss calc. only)	r_t					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$			0,012	Ω	
Reverse current	I_r			1600		$T_j=25^\circ\text{C}$ $T_j=145^\circ\text{C}$			0,05 1,1	mA	
Thermal resistance chip to heatsink per chip	$R_{th,jh}$	Thermal grease thickness \leq 50 μm $\lambda = 1 \text{ W/mK}$							1,67		K/W

Boost MOSFET

Static drain to source ON resistance	$R_{DS(on)}$		10		20	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		0,04	0,045	Ω	
Gate threshold voltage	$V_{(GS)th}$	VGS=VDS			0,003	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$	2,1	3	3,9	V	
Gate to Source Leakage Current	I_{gss}		0	600		$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$			0,025	nA	
Turn On Delay Time	$t_{d(ON)}$	RG=4 Ω	10	400	44	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		30		ns	
Rise Time	t_r					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		20			
Turn off delay time	$t_{d(OFF)}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		100			
Fall time	t_f					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		10			
Turn-on energy loss per pulse	E_{on}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		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										$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$
Gate to source charge	Q_{gs}		10	400	44	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		34			
Gate to drain charge	Q_{gd}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		51			
Input capacitance	C_{iss}							6800		pF	
Output capacitance	C_{oss}	f=1MHz	0	100		$T_j=25^\circ\text{C}$		320			
Reverse transfer capacitance	C_{rss}							tbd			
Thermal resistance chip to heatsink per chip	$R_{th,jh}$	Thermal grease thickness \leq 50 μm $\lambda = 1 \text{ W/mK}$							0,68		K/W

Boost Diode

Forward voltage	V_F				16	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		1,59 1,74	1,8	V	
Reverse leakage current	I_{rm}		10	400	20	$T_j=25^\circ\text{C}$			400	μA	
Peak recovery current	I_{RRM}	Rgon=4 Ω	10	400	20	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		tbd		A	
Reverse recovery time	t_{rr}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		10		ns	
Reverse recovery charge	Q_{rr}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		62		nC	
Peak rate of fall of recovery current	$di(\text{rec})_{\text{max}}/dt$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		5444		A/ μs	
Thermal resistance chip to heatsink per chip	$R_{th,jh}$					Thermal grease thickness \leq 50 μm $\lambda = 1 \text{ W/mK}$					

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			
H-Bridge MOSFET											
Static drain to source ON resistance	$R_{ds(on)}$		10		15	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		0,1	0,118	Ω	
Gate threshold voltage	$V_{(GS)th}$		VGS=VDS		0,0019	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$	3	4	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	
Turn On Delay Time	$t_{d(ON)}$	Rgon=4 Ω Rgoff=4 Ω	10	400	34,1	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		20		ns	
Rise Time	t_r					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		25			
Turn off delay time	$t_{d(OFF)}$					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		65			
Fall time	t_f					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		12			
Turn-on energy loss per pulse	E_{on}					$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$		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		10	480	34,1	$T_j=25^\circ\text{C}$		163	212	nC	
Gate to source charge	Q_{gs}							36			
Gate to drain charge	Q_{gd}							87			
Input capacitance	C_{iss}	f=1MHz	0	25		$T_j=25^\circ\text{C}$		5060		pF	
Output capacitance	C_{oss}								1400		
Reverse transfer capacitance	C_{riss}								52		
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness \leq 50 μm $\lambda = 1 \text{ W/mK}$						1,12		K/W	
Thermistor											
Rated resistance	R_{25}	Tol. $\pm 13\%$				$T_j=25^\circ\text{C}$	19,1	22	24,9	k Ω	
	R_{100}	Tol. $\pm 5\%$				$T_j=100^\circ\text{C}$	1411	1486	1560	Ω	
Power dissipation given Epcos-Typ	P					$T_j=25^\circ\text{C}$		210		mW	
B-value	$B_{(25/100)}$	Tol. $\pm 3\%$				$T_j=25^\circ\text{C}$		4000		K	

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Datasheet Status	Product Status	Definition
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