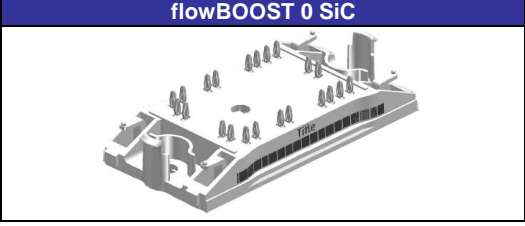
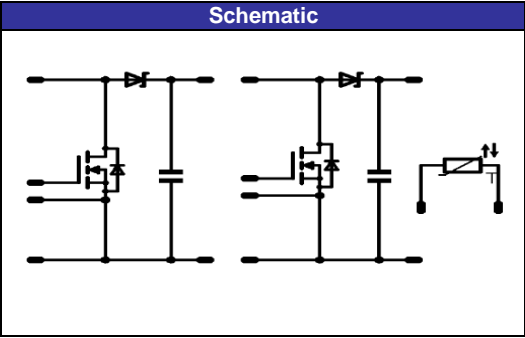


flowBOOST 0 SiC	1200V/ 40mΩ
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Features</p> <ul style="list-style-type: none"> Rohm™ SiC-Power MOSFET's and Schottky Diodes Dual Boost Topology Ultra Low Inductance with Integrated DC-capacitors Extremely Fast Switching with No "Tail" Current Solderless Press-fit Mounting Technology Temperature sensor </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">Target Applications</p> <ul style="list-style-type: none"> Solar Inverter Power Supply </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"> 10-PZ12B2A040MR01-M330L68Y </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #000080; color: white; margin: 0;">flowBOOST 0 SiC</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
T1, T3 Boost MOSFET				
Drain to source breakdown voltage	V_{DS}		1200	V
DC drain current	I_D	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	30	A
Pulsed drain current	I_{Dpulse}	t_p limited by T_{jmax}	160	A
Power dissipation	P_{tot}	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	58	W
Gate-source peak voltage	V_{GS}		-6 / 22	V
Maximum Junction Temperature	T_{jmax}		150	$^{\circ}\text{C}$
D2, D4 Boost Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
DC forward current	I_F	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	33	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	96	A
Power dissipation per Diode	P_{tot}	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	80	W
Maximum Junction Temperature	T_{jmax}		175	$^{\circ}\text{C}$

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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D1,D3 Protection diode

Peak Repetitive Reverse Voltage	V_{RRM}	$T_c=25^{\circ}\text{C}$	1600	V
DC forward current	I_F	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	30	A
Surge forward current	I_{FSM}	$t_p=10\text{ms}$	370	A
Power dissipation per Diode	P_{tot}	$T_j=T_{jmax}$ $T_h=80^{\circ}\text{C}$	39	W
Maximum Junction Temperature	T_{jmax}		150	$^{\circ}\text{C}$

C1, C2

Max.DC voltage	V_{MAX}		1000	V
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Thermal Properties

Storage temperature	T_{slg}		-40...+125	$^{\circ}\text{C}$
Operation temperature under switching condition	T_{op}		-40...+($T_{jmax} - 25$)	$^{\circ}\text{C}$

Insulation Properties

Insulation voltage	V_{is}	$t=2\text{s}$ DC voltage	4000	V
Comparative tracking index	CTI		>200	

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		
T1, T3 Boost MOSFET										
Static drain to source ON resistance	$R_{ds(on)}$		18		20	$T_j=25^\circ C$ $T_j=125^\circ C$		40 62,5		mΩ
Gate threshold voltage	$V_{(GS)th}$	VDS=VGS			0,0088	$T_j=25^\circ C$ $T_j=125^\circ C$	1,6		4	V
Gate to Source Leakage Current	I_{gss}		-6/22	0		$T_j=25^\circ C$ $T_j=125^\circ C$			200	nA
Zero Gate Voltage Drain Current	I_{dss}		0	1200		$T_j=25^\circ C$ $T_j=125^\circ C$			0,8	μA
Turn On Delay Time	$t_{d(ON)}$	Rgoff=tbd Ω Rgon=tbd Ω				$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		ns
Rise Time	t_r					$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		
Turn off delay time	$t_{d(OFF)}$					$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		
Fall time	t_f					$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		
Turn-on energy loss per pulse	E_{on}					$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		
Turn-off energy loss per pulse	E_{off}					$T_j=25^\circ C$ $T_j=125^\circ C$		tbd tbd		
Total gate charge	Q_g									
Gate to source charge	Q_{gs}	18	400	20	$T_j=25^\circ C$			54		
Gate to drain charge	Q_{gd}							62		
Input capacitance	C_{iss}	f=100kHz	0	1000		$T_j=25^\circ C$			3700	pF
Output capacitance	C_{oss}								350	
Reverse transfer capacitance	C_{rss}								40	
Internal Gate Resistance	R_G	f=1MHz U _{AC} =25mV							3,15	Ω
Thermal resistance chip to heatsink per chip	R_{thJH}	Preapplied Phase change material							1,20	K/W
D2, D4 Boost Diode										
Diode forward voltage	V_F				20	$T_j=25^\circ C$ $T_j=150^\circ C$		1,5 1,9		V
Reverse leakage current	I_{RM}			1200		$T_j=25^\circ C$ $T_j=175^\circ C$		20 240	400	A
Reverse recovery time	t_{rr}	Rgon=tbd Ω				$T_j=25^\circ C$ $T_j=150^\circ C$		tbd tbd		ns
Reverse recovered charge	Q_{rr}					$T_j=25^\circ C$ $T_j=150^\circ C$		tbd tbd		
Peak rate of fall of recovery current	$di(rec)max/dt$					$T_j=25^\circ C$ $T_j=150^\circ C$		tbd tbd		
Reverse recovery energy	E_{rec}					$T_j=25^\circ C$ $T_j=150^\circ C$		tbd tbd		
Thermal resistance chip to heatsink per chip	R_{thJH}					Preapplied Phase change material				$T_j=25^\circ C$
D1,D3 Protection diode										
Diode forward voltage	V_F				13	$T_j=25^\circ C$ $T_j=125^\circ C$		1 0,9	1,21 1,1	V
Thermal resistance chip to heatsink per chip	R_{thJH}	Preapplied Phase change material							1,8	K/W

Characteristic Values

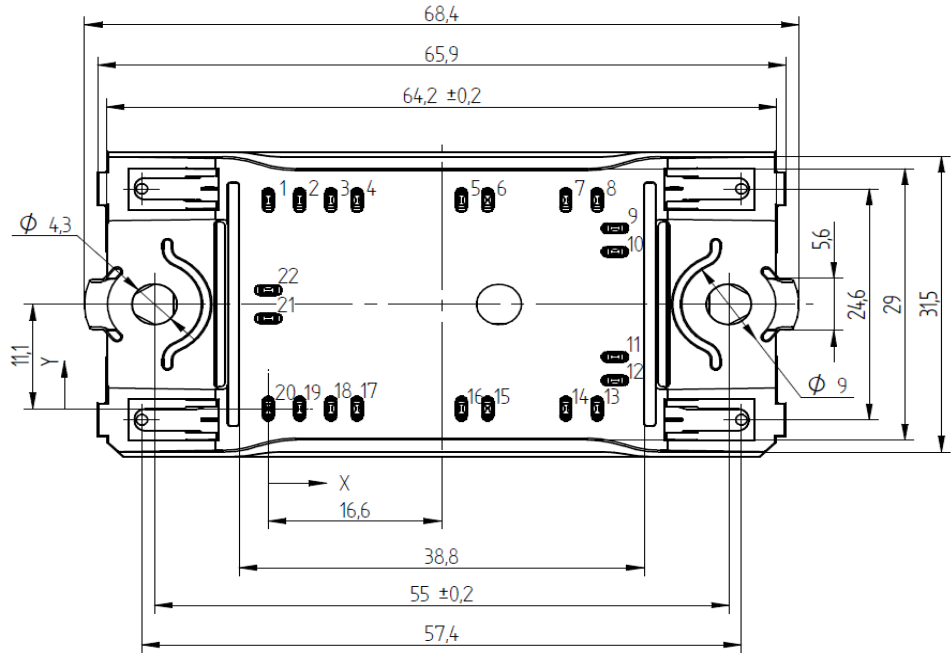
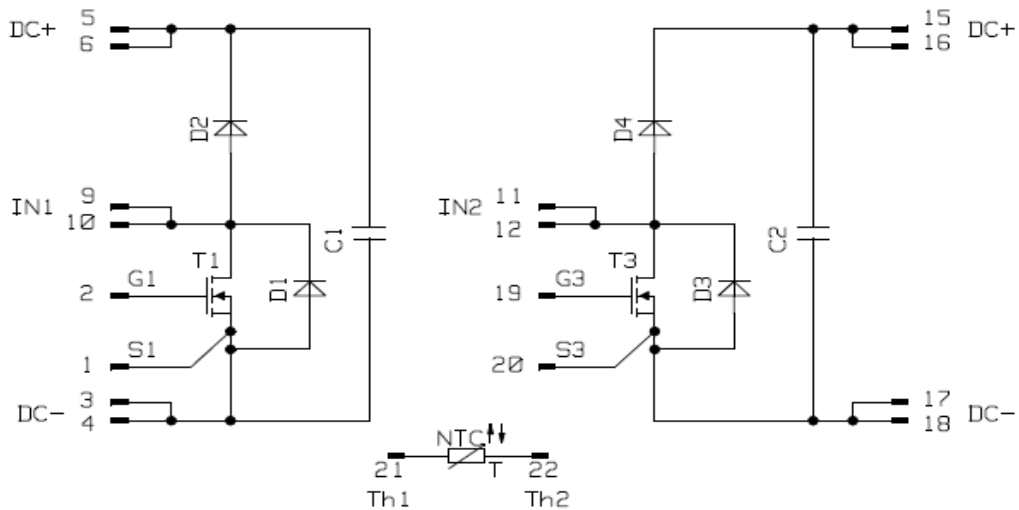
Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}[V]$ or $V_{GS}[V]$	$V_r[V]$ or $V_{CE}[V]$ or $V_{DS}[V]$	$I_c[A]$ or $I_F[A]$ or $I_D[A]$	T_j	Min	Typ	Max		
C1, C2										
C value	C							100		nF
Thermistor										
Rated resistance	R							22000		Ω
Deviation of R100	$\Delta R/R$	R100=1486 Ω				$T_j=25^\circ\text{C}$	-5		5	%
R100	P					$T_c=100^\circ\text{C}$		200		mW
Power dissipation constant						$T_c=100^\circ\text{C}$		2		mW/K
A-value	$B_{(25/50)}$	Tol. $\pm 3\%$				$T_j=25^\circ\text{C}$		3950		K
B-value	$B_{(25/100)}$	Tol. $\pm 3\%$				$T_j=25^\circ\text{C}$		3996		K
Vincotech NTC Reference						$T_j=25^\circ\text{C}$			B	

Ordering Code and Marking - Outline - Pinout
Ordering Code & Marking

Version	Ordering Code	in DataMatrix as	in packaging barcode as
w/o thermal paste 12mm housing Press-fit pin	10-PZ12B2A040MR01-M330L68Y	M330L68Y	M330L68Y

Outline

Pin table			
Pin	X	Y	Function
1	0	22,2	S1
2	3	22,2	G1
3	6	22,2	DC-
4	8,5	22,2	DC-
5	18,5	22,2	DC+
6	21	22,2	DC+
7	28,5	22,2	NC
8	31,5	22,2	NC
9	33,2	19,2	IN1
10	33,2	16,7	IN1
11	33,2	5,5	IN2
12	33,2	3	IN2
13	31,5	0	NC
14	28,5	0	NC
15	21	0	DC+
16	18,5	0	DC+
17	8,5	0	DC-
18	6	0	DC-
19	3	0	G3
20	0	0	S3
21	0	9,6	Th1
22	0	12,6	Th2


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.

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