
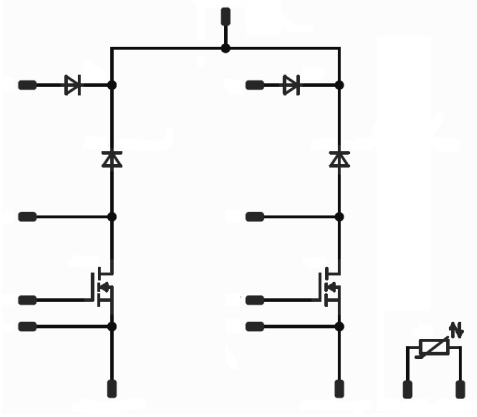




<i>flow</i> BOOST 0 SiC	1200 V / 80 mΩ
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Features</div> <ul style="list-style-type: none"> High efficiency dual boost Ultra fast switching frequency Low Inductive Layout 1200V SiC MOSFET (Cree) and 1200V SiC diode (Cree) 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">flow 0 12mm housing</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Target applications</div> <ul style="list-style-type: none"> Solar inverter 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Schematic</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Types</div> <ul style="list-style-type: none"> V23990-P629-L83-PM 	

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Boost Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current	I_D	$T_j = T_{jmax}$ $T_s = 80^{\circ}\text{C}$	16	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	60	A
Avalanche energy, single pulse	E_{AS}	$I_D = 20\text{ A}$ $V_{DD} = 50\text{ V}$	1000	mJ
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^{\circ}\text{C}$	39	W
Gate-source voltage	V_{GSS}		-10/+25	V
Maximum Junction Temperature	T_{jmax}		150	$^{\circ}\text{C}$



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Parameter	Symbol	Conditions	Value	Unit
Boost Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_h = 80^\circ\text{C}$	15	A
Repetitive peak forward current	I_{FRM}		52	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_h = 80^\circ\text{C}$	44	W
Maximum Junction Temperature	T_{jmax}		175	$^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
Bypass Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_h = 80^\circ\text{C}$	33	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $t_p = 10 \text{ ms}$ $T_j = 150^\circ\text{C}$	200	A
Surge current capability	$I^2 t$		200	A^2s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_h = 80^\circ\text{C}$	43	W
Maximum Junction Temperature	T_{jmax}		150	$^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
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Module Properties

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	$t_p=2\text{s}$	4000	V
Creepage distance				min 12,7	mm
Clearance				9,55	mm
Comparative Tracking Index	CTI			>200	



Characteristic Values

Boost Switch

Parameter	Symbol	Conditions					Value			Unit
		V_{GS} [V]	V_{DS} [V]	I_D [A]	T_j [°C]	Min	Typ	Max		
Static										
Drain-source on-state resistance	$r_{DS(on)}$		10		20	25 125 150		84 136 -	98 208	mΩ
Gate-source threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}$			0,001	25 125	1,7	2,2	-	V
Gate to Source Leakage Current	I_{GSS}		-10/+25	0		25 125			250	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	1200		25 125			100	μA
Internal gate resistance	r_g							4,6		Ω
Gate charge	Q_g							49,2		nC
Gate to source charge	Q_{GS}		0/10	800	20	25		10,8		
Gate to drain charge	Q_{GD}							18		
Short-circuit input capacitance	C_{iss}							950		pF
Short-circuit output capacitance	C_{oss}	f=1MHz	0	1000		25		80		
Reverse transfer capacitance	C_{rss}							6,5		

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	Phase-Change Material $\lambda=3,4$ W/mK						1,79		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				10	25 125 150		1,49 1,92 -	1,8	V
Reverse leakage current	I_r			1200		25 150			300	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	Phase-Change Material $\lambda=3,4$ W/mK						2,15		K/W
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Bypass Diode

Parameter	Symbol	Conditions					Value			Unit
		V_r [V]	I_F [A]	T_j [°C]	Min	Typ	Max			
Static										
Forward voltage	V_F			25	25 125		1,22 1,21	1,9		V
Reverse leakage current	I_r		1600		25 150			50 1100		µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	Phase-Change Material $\lambda=3,4W/mK$					1,61			K/W

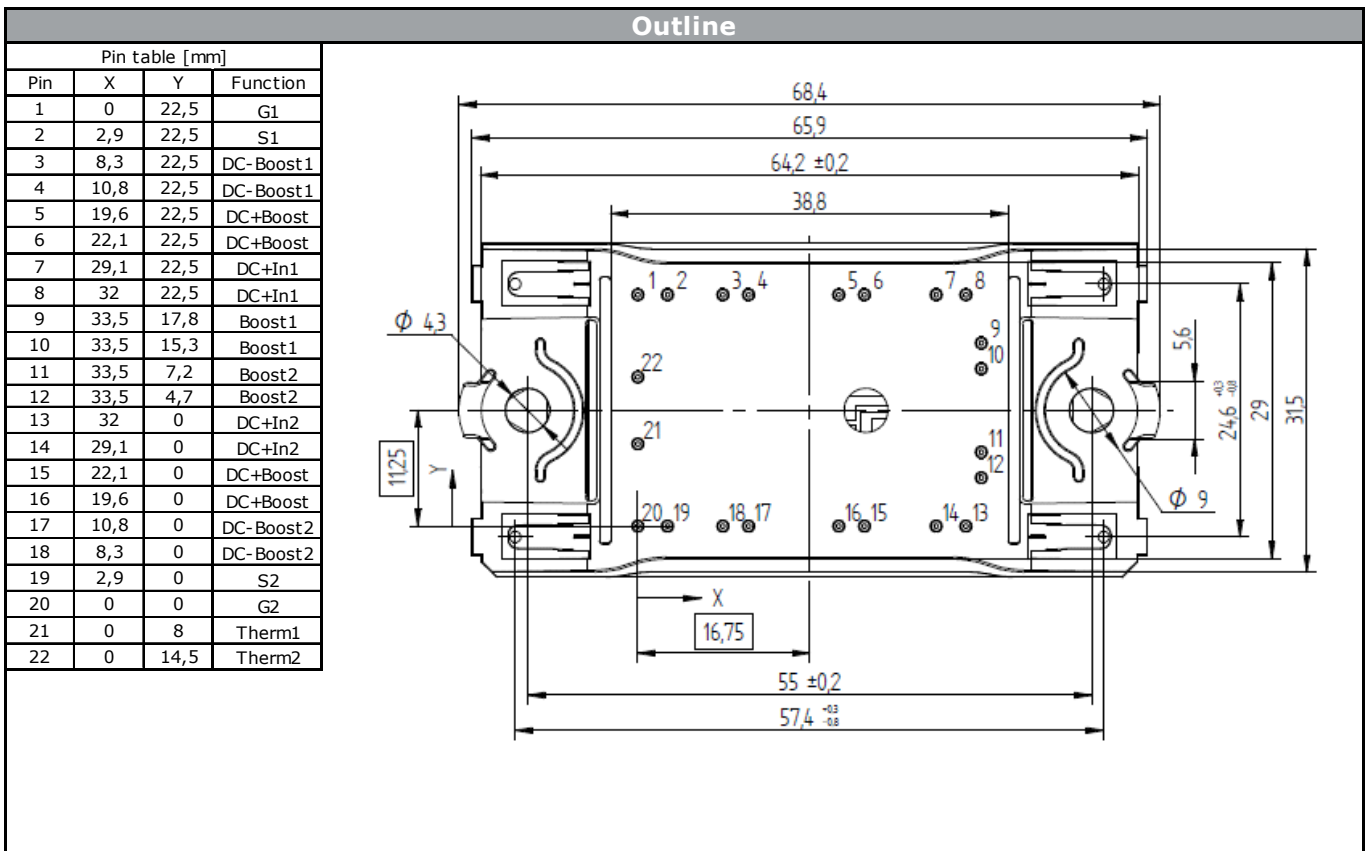
Thermistor

Parameter	Symbol	Conditions					Value			Unit
		V_{CE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max		
Rated resistance	R				25		21,5			kΩ
Deviation of R100	$\Delta_{R/R}$	R100=1486 Ω			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	



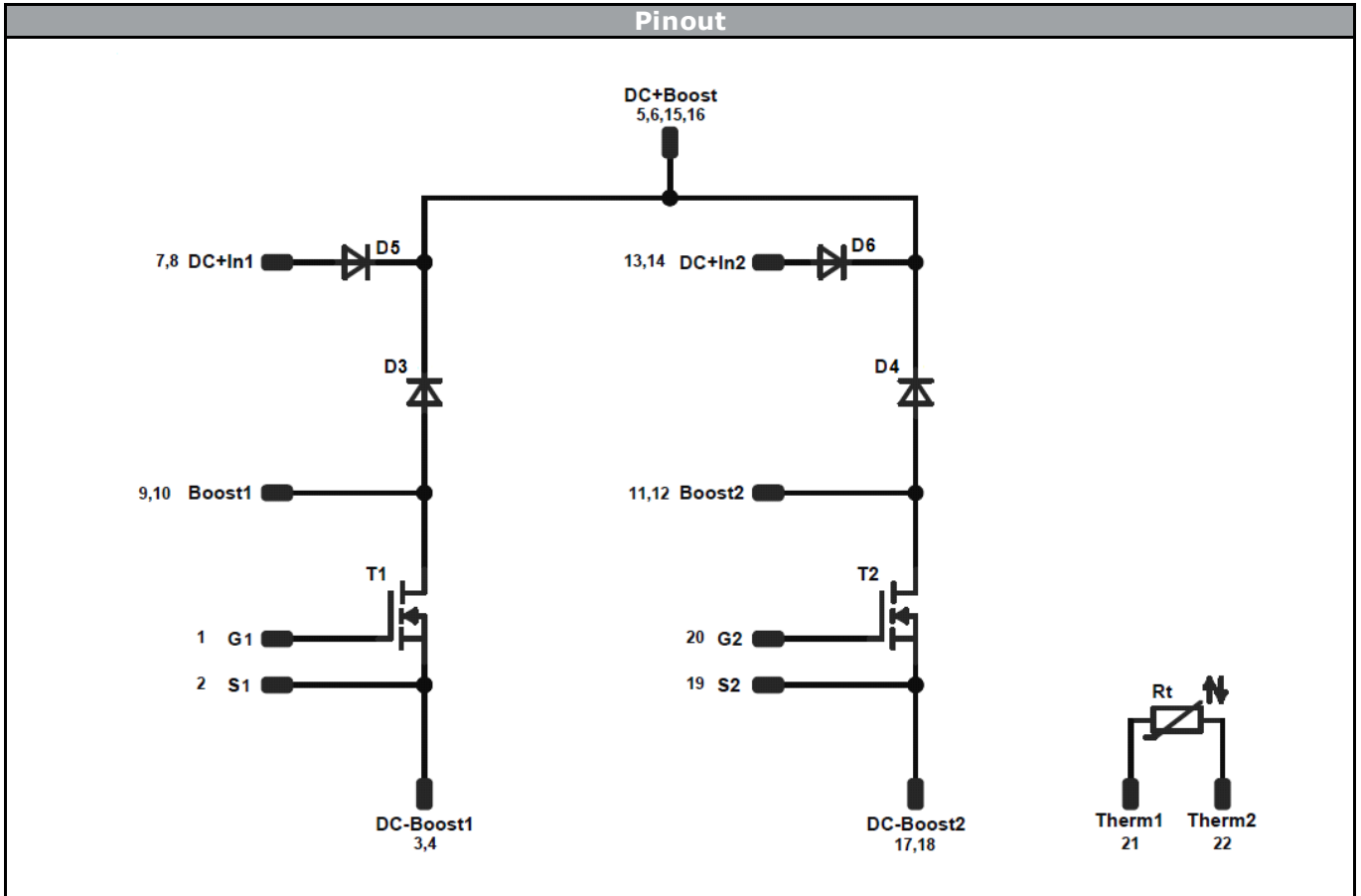
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Ordering Code & Marking								
Version	Ordering Code	in DataMatrix as		in packaging barcode as				
without thermal paste 12mm housing	V23990-P629-L83-PM	P629L83		P629L83				
Vinco WWYY NNNNNNNVVV UL LLLLL SSSS		Text	Vinco	Date code	Name&Ver	UL	Lot	Serial
			Vinco	WWYY	NNNNNNNVV	UL	LLLLL	SSSS
		Datamatrix	Type&Ver	Lot number	Serial	Date code		
		TTTTTTTVV	LLLLL	SSSS	WWYY			





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Identification					
ID	Component	Voltage	Current	Function	Comment
T1,T2	MOSFET	1200 V	80mΩ	Boost Switch	
D3,D4	FWD	1200 V	10A	Boost Diode	
D5,D6	Rectifier	1600 V	25A	Bypass Diode	
Rt	NTC	-	-	Thermistor	



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Packaging instruction					
Standard packaging quantity (SPQ)	135	>SPQ	Standard	<SPQ	Sample

Handling instruction	
Handling instructions for <i>flow</i> 0 packages see vincotech.com website.	

Document No.:	Date:	Modification:	Pages
V23990-P629-L83-T1-14	21 Jul. 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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