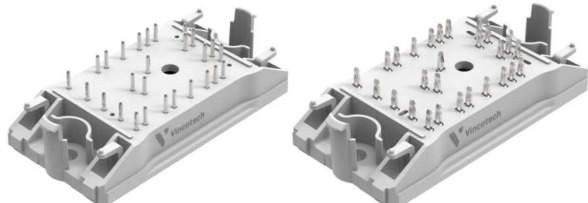
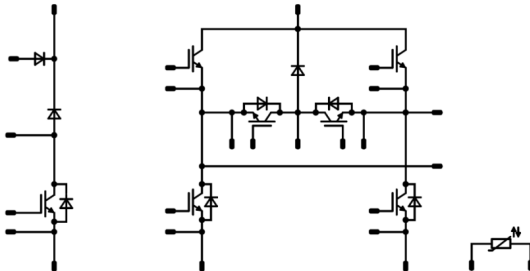




Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
target datasheet

flow SOL 0		650 V / 20 A
Features • For one-phase solar applications • Booster + Innovative H6.5 topology • LVRT (Low voltage ride through) capability • Ultra Fast IGBT H5 • NTC	flow 0 housing  Solder pin Press-fit	
Target applications • Solar Inverters	Schematic 	
Types • 10-FZ07BVA020SM-LD44E08 • 10-PZ07BVA020SM-LD44E08Y		

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Input Boost Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ }^{\circ}\text{C}$	24	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	60	A
Turn off safe operating area		$T_j \leq 150^{\circ}\text{C}$, $V_{CE} \leq 650\text{ V}$	40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ }^{\circ}\text{C}$	49	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum Junction Temperature	T_{jmax}		175	$^{\circ}\text{C}$



Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
 target datasheet

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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Input Boost Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	28	A
Repetitive peak forward current	I_{FRM}		40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	52	W
Maximum junction temperature	T_{jmax}		175	°C

Input Boost Sw. Protection Diode

Peak Repetitive Reverse Voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_h = 80\text{ °C}$	8	A
Repetitive peak forward current	I_{FRM}		12	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_h = 80\text{ °C}$	10	W
Maximum Junction Temperature	T_{jmax}		175	°C

ByPass Diode

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

Boost Switch

Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	21	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	45	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	51	W
Gate-emitter voltage	V_{GES}		±20	V
Short circuit ratings	t_{SC}	$T_j \leq 150\text{ °C}$	6	µs
	V_{CC}	$V_{GE} = 15\text{ V}$	360	V
Maximum junction temperature	T_{jmax}		175	°C



Vincotech

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 target datasheet

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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Boost Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	20	A
Repetitive peak forward current	I_{FRM}		30	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	39	W
Maximum junction temperature	T_{jmax}		175	°C

Buck Switch

Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	24	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	60	A
Turn off safe operating area		$T_j \leq 150\text{ °C}$, $V_{CE} \leq 650\text{ V}$	40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	49	W
Gate-emitter voltage	V_{GES}		± 20	V
Maximum Junction Temperature	T_{jmax}		175	°C

Buck Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	20	A
Repetitive peak forward current	I_{FRM}		30	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	39	W
Maximum junction temperature	T_{jmax}		175	°C



Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
target datasheet

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation temperature under switching condition	T_{jop}		-40...(T_{jmax} - 25)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage $t_p = 2\text{ s}$	4000	V
Creepage distance			min. 12,7	mm
Clearance			9,89	mm
Comparative Tracking Index	CTI		> 200	



Vincotech

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 target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Input Boost Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$			0,0002	25	3,3	4	4,7	V
Collector-emitter saturation voltage	V_{CEsat}		15		20	25 125 150	0,8	1,60 1,75 1,79	2,3	V
Collector-emitter cut-off current	I_{CES}		0	650		25			40	μA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	f=1 MHz	0	25	25			1200		pF
Output capacitance	C_{oes}							30		
Reverse transfer capacitance	C_{res}							5,2		
Gate charge	Q_g		15	520	20	25		48		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						1,94		K/W
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Input Boost Diode

Static

Forward voltage	V_F				20	25 125	0,8	1,56 1,51	2	V
Reverse leakage current	I_R			650		25			5	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						1,82		K/W
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Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
 target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Input Boost Sw. Protection Diode

Static

Forward voltage	V_F				6	25 125 150		1,73 1,59 1,54	1,87	V
Reverse leakage current	I_r			650		25			5	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						3,51		K/W
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ByPass Diode

Static

Forward voltage	V_F				25	25 125		1,22 1,21		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 $\lambda = 3,4$ W/mK						1,61		K/W
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Boost Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{CE}$			0,00021	25	5,1	5,8	6,4	V
Collector-emitter saturation voltage	V_{CEsat}		15		15	25	1	1,45	1,95	V
Collector-emitter cut-off current	I_{CES}		0	650		25			5	μA
Gate-emitter leakage current	I_{GES}		20	0		25			300	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	$f = 1$ MHz	0	25	25			551		pF
Reverse transfer capacitance	C_{res}							17		

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						1,87		K/W
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Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
 target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Boost Diode

Static

Forward voltage	V_F				15	25	0,8	1,45	2	V
Reverse leakage current	I_R			650		25			5	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						2,46		K/W
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Buck Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$			0,0002	25	3,3	4	4,7	V
Collector-emitter saturation voltage	V_{CEsat}		15		20	25 125 150	0,8	1,60 1,75 1,79	2,3	V
Collector-emitter cut-off current	I_{CES}		0	650		25			41	μA
Gate-emitter leakage current	I_{GES}		20	0		25			120	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	f=1 MHz	0	25	25			1200		pF
Output capacitance	C_{oes}							30		
Reverse transfer capacitance	C_{res}							5,2		
Gate charge	Q_g		15	520	20	25		48		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						1,94		K/W
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Buck Diode

Static

Forward voltage	V_F				15	25	0,8	1,45	2	V
Reverse leakage current	I_R			650		25			5	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						2,46		K/W
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Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
 target datasheet

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Thermistor

Rated resistance	R					25		22		kΩ
Deviation of R_{100}	$\Delta_{R/R}$	$R_{100} = 1484 \Omega$				100	-5		5	%
Power dissipation	P					25		5		mW
Power dissipation constant						25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ± 1 %				25		3962		K
B-value	$B_{(25/100)}$	Tol. ± 1 %				25		4000		K
Vincotech NTC Reference									I	

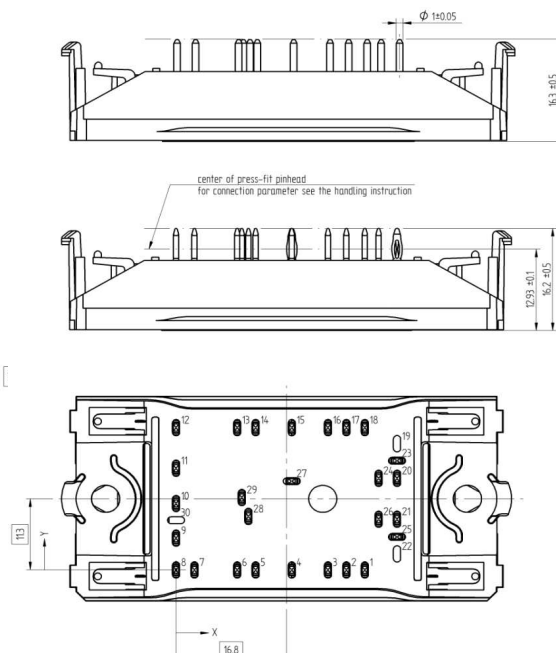


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target datasheet

Ordering Code & Marking									
Version			Ordering Code						
with thermal paste 12mm housing with Solder pins			10-FZ07BVA020SM-LD44E08-/3/						
with thermal paste 12mm housing with Press-fit pins			10-PZ07BVA020SM-LD44E08Y-/3/						
NN-NNNNNNNNNNNNNN TTTTTV WWYY UL VIN LLLLL SSSS  			Text	Name		Date code	UL & VIN	Lot	Serial
				NN-NNNNNNNNNNNNNN-TTTTTTV		WWYY	UL VIN	LLLLL	SSSS
			Datamatrix	Type&Ver	Lot number	Serial	Date code		
				TTTTTTTV	LLLLL	SSSS	WWYY		

Outline							
Pin table [mm]				Pin table [mm]			
Pin	X	Y	Function	Pin	X	Y	Function
1	28,7	0	G13	30	Not assembled		
2	25,9	0	S13				
3	23,1	0	DC-2				
4	17,6	0	DC+				
5	12,1	0	S14				
6	9,3	0	G14				
7	2,8	0	G25				
8	0	0	S25				
9	0	5,05	DC-Boost				
10	0	10,55	DC+Boost				
11	0	16,15	DC+In				
12	0	22,6	Boost+				
13	9,3	22,6	G12				
14	12,1	22,6	S12				
15	17,6	22,6	DC+				
16	23,1	22,6	DC-1				
17	25,9	22,6	S11				
18	28,7	22,6	G11				
19	Not assembled						
20	33,6	14,55	G21				
21	33,6	8,05	G22				
22	Not assembled						
23	33,6	17,35	Ph1				
24	30,8	14,55	S21				
25	33,6	5,25	Ph2				
26	30,8	8,05	S22				
27	17,6	14,1	A20				
28	11	8,5	Therm1				
29	10	11,5	Therm2				



Top view dimensions: $\phi 1 \pm 0,05$, $16,3 \pm 0,5$, $12,9 \pm 0,1$, $16,2 \pm 0,5$, $16,8$.

Side view dimensions: $16,3 \pm 0,5$, $12,9 \pm 0,1$, $16,2 \pm 0,5$.

Bottom view dimensions: $16,8$, $16,3$, $11,5$, $8,5$, $5,25$, $14,55$, $17,35$, $8,05$, $14,1$, $17,6$, $30,8$, $33,6$.

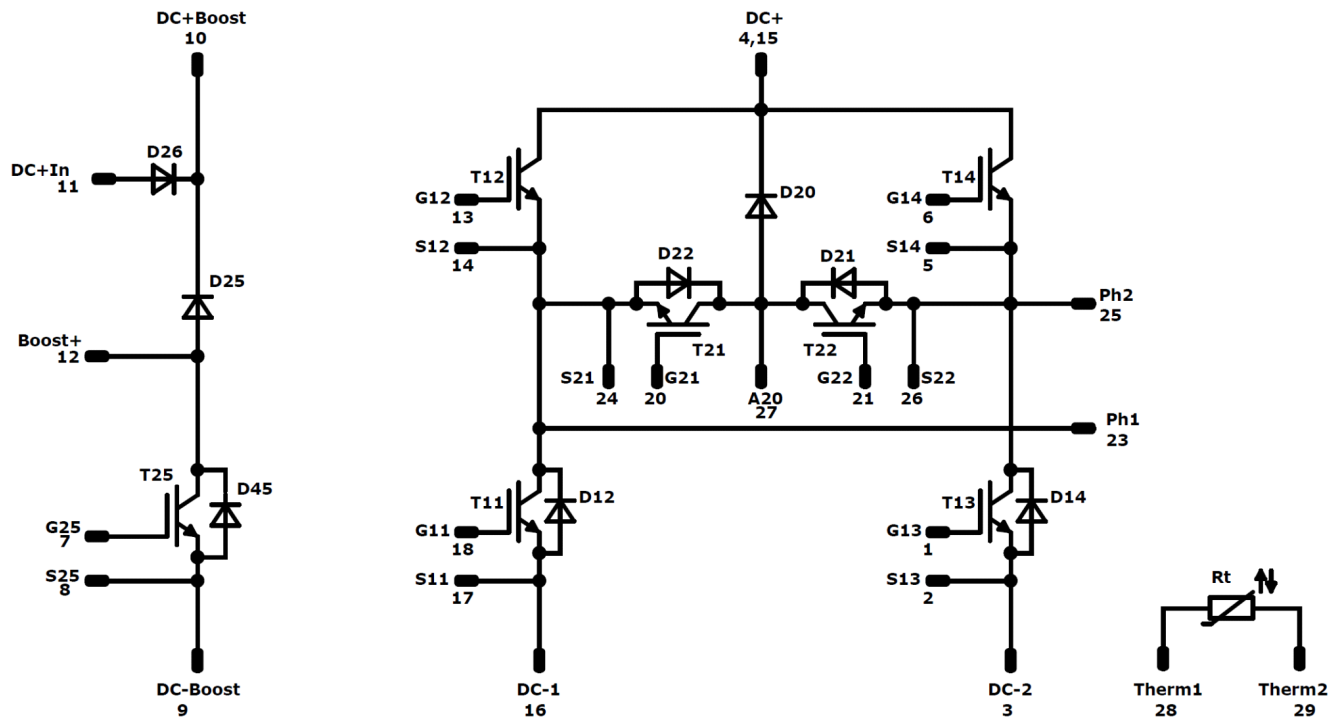
Tolerance of pinpositions: $\pm 0,5\text{mm}$ at the end of pins
Dimension of coordinate axis is only offset without tolerance



Vincotech

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target datasheet

Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T25	IGBT	650 V	20 A	Input Boost Switch	
D25	FWD	650 V	20 A	Input Boost Diode	
D45	FWD	650 V	6 A	Input Boost Sw. Protection Diode	
D26	FWD	1600 V	25 A	ByPass Diode	
T21,T22	IGBT	650 V	15 A	Boost Switch	
D12,D14,D20	FWD	650 V	15 A	Boost Diode	
T11,T12,T13,T14	IGBT	650 V	20 A	Buck Switch	
D21,D22	FWD	650 V	15 A	Buck Diode	
Rt	Thermistor			Thermistor	



Vincotech

10-FZ07BVA020SM-LD44E08
10-PZ07BVA020SM-LD44E08Y
target datasheet

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

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

Package data
Package data for <i>flow 0</i> packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
10-FZ07BVA020SM-LD44E08-T1-14	27 Feb. 2017		

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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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.