



flowNPFC E2 SiC

650 V / 15 mΩ

Topology features

- Integrated DC capacitor
- Neutral Boost PFC
- SiC MOSFET
- Temperature sensor

Component features

- High Blocking Voltage with low drain source on state resistance
- High speed SiC-MOSFET technology
- Resistant to Latch-up

Housing features

- Base isolation: Al₂O₃
- Convex shaped substrate for superior thermal contact
- Compact housing
- CTI600 housing material
- Thermo-mechanical push-and-pull force relief
- Press-fit pin
- Reliable cold welding connection

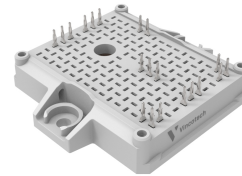
Target applications

- Charging Stations

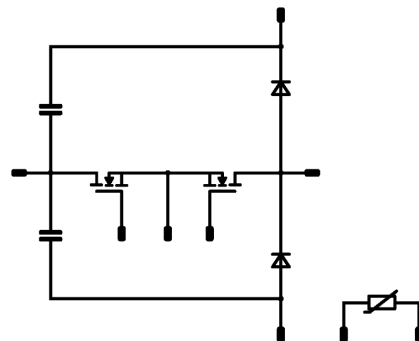
Types

- 10-EY07LBB015ME-PQ85J18T

flow E2 12 mm housing



Schematic





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10-EY07LBB015ME-PQ85J18T
target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Boost Switch				
Drain-source voltage	V_{DSS}		650	V
Drain current (DC current)	I_D	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	114	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	396	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	111	W
Gate-source voltage	V_{GSS}		-4 / 15	V
		dynamic	-8 / 19	
Maximum Junction Temperature	T_{jmax}		175	°C
Boost Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	107	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	153	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 110\text{ °C}$	387	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	135	W
Maximum junction temperature	T_{jmax}		175	°C
Capacitor (DC)				
Maximum DC voltage	V_{MAX}		630	V
Operation Temperature	T_{op}		-55 ... 125	°C



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Maximum Ratings

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

Parameter	Symbol	Conditions	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 $t_p = 2\text{ s}$	6000	V
Creepage distance			>12,7	mm
Clearance			12,28	mm
Comparative Tracking Index	CTI		≥ 600	



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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
		V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	

Boost Switch

Static

Drain-source on-state resistance	$r_{DS(on)}$		15		52,8	25		15	20	mΩ
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$			0,01452	25	1,8	2,6	3,6	V
Gate to Source Leakage Current	I_{GSS}		15	0		25		30	300	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	650		25		3	96	μA
Internal gate resistance	r_g							1		Ω
Gate charge	Q_g		-4/15	400	52,8	25		189		nC
Short-circuit input capacitance	C_{iss}	$f = 1 \text{ Mhz}$	0	600	0	25		4800		pF
Short-circuit output capacitance	C_{oss}							300		
Reverse transfer capacitance	C_{rss}							24		
Diode forward voltage	V_{SD}		0		26,4	25		4,8		V

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 5,2 \text{ W/mK}$ (PTM)						0,86		K/W
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Boost Diode

Static

Forward voltage	V_F				60	25		1,3	2	V
Reverse leakage current	I_R	$V_r = 1200 \text{ V}$				25		15	1500	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 5,2 \text{ W/mK}$ (PTM)						0,7		K/W
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Characteristic Values

Parameter	Symbol	Conditions					Values			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		

Capacitor (DC)

Static

Capacitance	C	DC bias voltage = 0 V				25		100		nF
Tolerance							-10		10	%

Thermistor

Static


Rated resistance	R					25		5		kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 499 \Omega$				100	3,2		3,3	%
Power dissipation	P					25		130		mW
Power dissipation constant	d					25		1,3		mW/K
B-value	$B_{(25/50)}$	Tol. $\pm 1 \%$						3380		K
Vincotech Thermistor Reference									V	



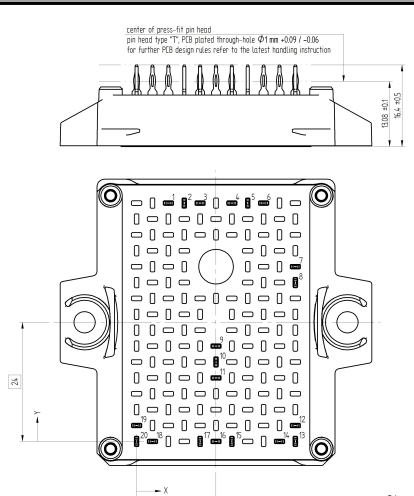
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10-EY07LBB015ME-PQ85J18T
target datasheet

Ordering Code	
Version	Ordering Code
Without thermal paste	10-EY07LBB015ME-PQ85J18T
With thermal paste (5,2 W/mK, PTM6000HV)	10-EY07LBB015ME-PQ85J18T-/7/

Marking						
	Text	Name NN-NNNNNNNNNNNNNN- TTTTTV	Date code WWYY	UL & VIN UL VIN	Lot LLLLL	Serial SSSS
	Datamatrix	Type&Ver TTTTTTTV	Lot number LLLLL	Serial SSSS	Date code WWYY	

Outline				
Pin table [mm]				
Pin	X	Y	Function	
1	6,4	48	Ph	
2	9,6	48	Ph	
3	12,8	48	Ph	
4	19,2	48	Ph	
5	22,4	48	Ph	
6	25,6	48	Ph	
7	32	35,2	Therm1	
8	32	32	Therm2	
9	16	19,2	G13	
10	16	16	S10	
11	16	12,8	G14	
12	32	3,2	DC+	
13	32	0	DC+	
14	28,8	0	DC+	
15	19,2	0	GND	
16	16	0	GND	
17	12,8	0	GND	
18	3,2	0	DC-	
19	0	3,2	DC-	
20	0	0	DC-	

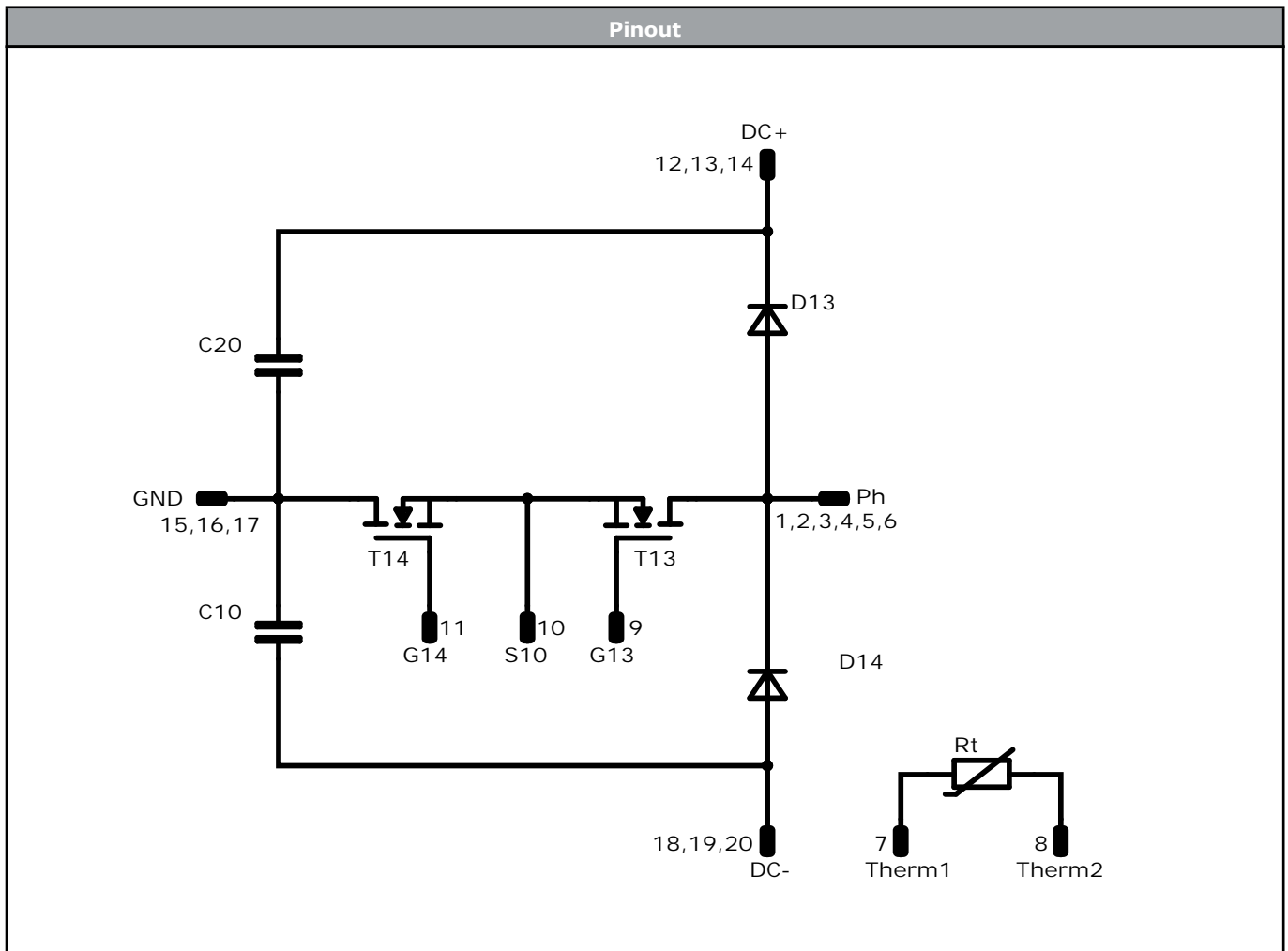


center of press-fit pin head
pin head type "P", PCB plated through-hole Ø1 mm ±0.09 / -0.06
for further PCB design rules refer to the latest handling instruction

Tolerance of positions: ±0.4mm of the end of pins
Dimension of coordinate axis is only offset without tolerance



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Identification					
ID	Component	Voltage	Current	Function	Comment
T13, T14	MOSFET	650 V	15 mΩ	Boost Switch	
D13, D14	FWD	1200 V	60 A	Boost Diode	
C10, C20	Capacitor	630 V		Capacitor (DC)	
Rt	Thermistor			Thermistor	



Packaging instruction				
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for <i>flow</i> E2 packages see vincotech.com website.

Package data
Package data for <i>flow</i> E2 packages see vincotech.com website.

Vincotech thermistor reference
See Vincotech thermistor reference table at vincotech.com website.

UL recognition and file number
This device is UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}=175^{\circ}\text{C}$ and up to 3500VAC/1min isolation voltage. For more information see vincotech.com website.



Document No.:	Date:	Modification:	Pages
10-EY07LBB015ME-PQ85J18T-T1-14	12 Feb. 2025		

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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