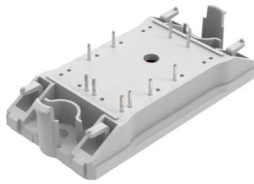
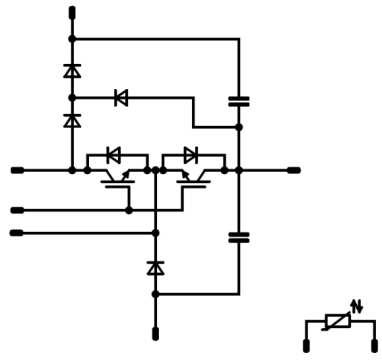




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<i>flow</i> ANPFC 0	650 V / 150 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Features</b></div> <ul style="list-style-type: none"> <li>Ultra fast IGBT and recovery boost diodes</li> <li>Topology requires only one gate driver</li> <li>Integrated capacitor</li> <li>Temperature sensor</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>flow 0 housing</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Target applications</b></div> <ul style="list-style-type: none"> <li>Power Supply</li> <li>UPS</li> <li>Welding &amp; Cutting</li> </ul>	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Schematic</b></div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;"><b>Types</b></div> <ul style="list-style-type: none"> <li>10-FZ07ANA150SM-LE20L08</li> </ul>	

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>PFC Switch</b>				
Collector-emitter voltage	$V_{CES}$		650	V
Collector current	$I_C$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	87	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	450	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	142	W
Gate-emitter voltage	$V_{GES}$		±20	V
Maximum Junction Temperature	$T_{jmax}$		175	°C



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## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>PFC Diode</b>				
Peak Repetitive Reverse Voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	92	A
Repetitive peak forward current	$I_{FRM}$		300	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	111	W
Maximum Junction Temperature	$T_{jmax}$		175	°C
<b>PFC Inverse Diode (D11), PFC Diode (D21)</b>				
Peak Repetitive Reverse Voltage	$V_{RRM}$		1600	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	69	A
Surge (non-repetitive) forward current	$I_{FSM}$	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	600	A
Surge current capability	$I_{Pt}$		1800	A <sup>2</sup> s
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	82	W
Maximum Junction Temperature	$T_{jmax}$		150	°C
<b>PFC Inverse Diode (D12)</b>				
Peak Repetitive Reverse Voltage	$V_{RRM}$		1600	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	87	A
Surge (non-repetitive) forward current	$I_{FSM}$	$t_p = 10\text{ ms, sin } 180^\circ$ $T_j = 150\text{ °C}$	890	A
Surge current capability	$I_{Pt}$		3960	A <sup>2</sup> s
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	95	W
Maximum Junction Temperature	$T_{jmax}$		150	°C
<b>PFC Protection Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		650	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	24	A
Repetitive peak forward current	$I_{FRM}$		40	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	42	W
Maximum junction temperature	$T_{jmax}$		175	°C



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## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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### DC Link Capacitor

Maximum DC voltage	$V_{MAX}$		630	V
Operation Temperature	$T_{op}$		-55...+125	°C

### Module Properties

#### Thermal Properties

Storage temperature	$T_{stg}$		-40...+125	°C
Operation temperature under switching condition	$T_{jop}$		-40...(T <sub>max</sub> - 25)	°C

#### Isolation Properties

Isolation voltage	$V_{isol}$	DC Test Voltage* $t_p = 2\text{ s}$	6000	V
		AC Test Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			min. 12,7	mm
Clearance			min. 12,7	mm
Comparative Tracking Index	CTI		> 200	

\* 100% tested in production



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## 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		

### PFC Switch

#### Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,0015	25	3,3	4	4,7	V
Collector-emitter saturation voltage	$V_{CESat}$		15		150	25 125 150		1,70 1,88 1,93	2,22	V
Collector-emitter cut-off current	$I_{CES}$		0	650		25			80	μA
Gate-emitter leakage current	$I_{GES}$		20	0		25			240	nA
Internal gate resistance	$r_g$							none		Ω
Input capacitance	$C_{ies}$							8600		pF
Output capacitance	$C_{oes}$	$f = 1$ MHz	0	25		25		150		
Reverse transfer capacitance	$C_{res}$							32		
Gate charge	$Q_g$		15	520	150	25		332		nC

#### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,67		K/W
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### PFC Diode

#### Static

Forward voltage	$V_F$				150	25 125 150		1,56 1,50 1,48	1,92	V
Reverse leakage current	$I_r$			650		25			7,6	μA

#### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,86		K/W
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### Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max		

#### PFC Inverse Diode (D11), PFC Diode (D21)

##### Static

Forward voltage	$V_F$				65	25 125		1,18 1,15		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						0,86		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----

#### PFC Inverse Diode (D12)

##### Static

Forward voltage	$V_F$				75	25 125		1,10 1,05	1,8	V
Reverse leakage current	$I_r$			1600		25 145			50 1100	μA

##### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,74		K/W
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#### PFC Protection Diode

##### Static

Forward voltage	$V_F$				20	25 150		1,55 1,50	1,87	V
Reverse leakage current	$I_R$			650		25			0,24	μA

##### Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material $\lambda = 3,4$ W/mK						2,24		K/W
-------------------------------------	---------------	---	--	--	--	--	--	------	--	-----

#### DC Link Capacitor

Capacitance	C							100		nF
Tolerance								-10	+10	%
Dissipation factor		$f = 1$ kHz				25			2,5	%



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### Characteristic Values

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

#### Thermistor

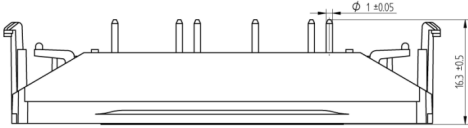
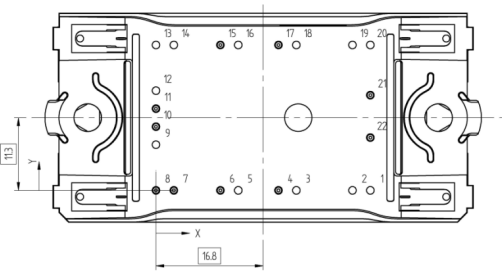
Rated resistance	$R$					25		22		kΩ
Deviation of $R_{100}$	$\Delta_{R/R}$	$R_{100} = 1484 \Omega$				100	-5		5	%
Power dissipation	$P$					25		5		mW
Power dissipation constant						25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. $\pm 1 \%$				25		3962		K
B-value	$B_{(25/100)}$	Tol. $\pm 1 \%$				25		4000		K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



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Ordering Code & Marking																	
<b>Version</b>			<b>Ordering Code</b>														
without thermal paste 12mm housing with solder pins			10-FZ07ANA150SM-LE20L08														
<table border="1"> <tr> <td rowspan="2">           NN-NNNNNNNNNNNNNN            TTTTIV WWYY UL            VIN LLLL SSSS         </td> <td rowspan="2"> </td> <td rowspan="2"> <b>Text</b>            Name            NN-NNNNNNNNNNNNNN-TTTTIV            WWYY UL VIN LLLL SSSS         </td> <td rowspan="2"> <b>Date code</b>            WWYY         </td> <td rowspan="2"> <b>UL &amp; VIN</b>            UL VIN         </td> <td rowspan="2"> <b>Lot</b>            LLLL         </td> <td rowspan="2"> <b>Serial</b>            SSSS         </td> </tr> <tr> <td> <b>Datamatrix</b>            Type&amp;Ver            TTTTIV         </td> <td>           Lot number            LLLL         </td> <td>           Serial            SSSS         </td> <td>           Date code            WWYY         </td> </tr> </table>							NN-NNNNNNNNNNNNNN TTTTIV WWYY UL VIN LLLL SSSS		<b>Text</b> Name NN-NNNNNNNNNNNNNN-TTTTIV WWYY UL VIN LLLL SSSS	<b>Date code</b> WWYY	<b>UL &amp; VIN</b> UL VIN	<b>Lot</b> LLLL	<b>Serial</b> SSSS	<b>Datamatrix</b> Type&Ver TTTTIV	Lot number LLLL	Serial SSSS	Date code WWYY
NN-NNNNNNNNNNNNNN TTTTIV WWYY UL VIN LLLL SSSS		<b>Text</b> Name NN-NNNNNNNNNNNNNN-TTTTIV WWYY UL VIN LLLL SSSS	<b>Date code</b> WWYY	<b>UL &amp; VIN</b> UL VIN	<b>Lot</b> LLLL	<b>Serial</b> SSSS											
							<b>Datamatrix</b> Type&Ver TTTTIV	Lot number LLLL	Serial SSSS	Date code WWYY							

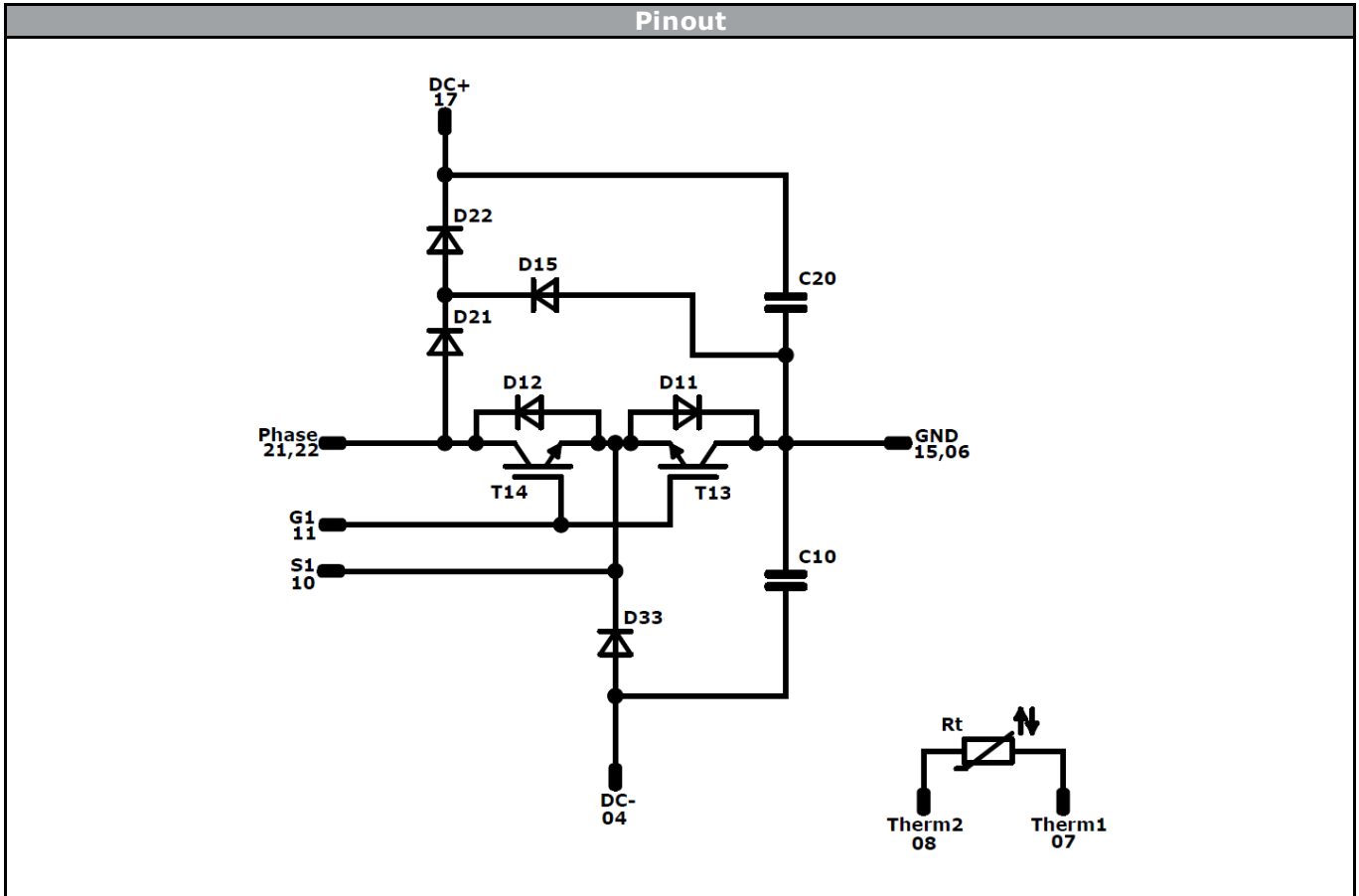
Outline				
Pin table [mm]				
Pin	X	Y	Function	
1	Not assembled			
2	Not assembled			
3	Not assembled			
4	19,2	0	DC-	
5	Not assembled			
6	10,1	0	GND	
7	2,8	0	Therm1	
8	0	0	Therm2	
9	Not assembled			
10	0	9,9	S1	
11	0	12,7	G1	
12	Not assembled			
13	Not assembled			
14	Not assembled			
15	10,1	22,6	GND	
16	Not assembled			
17	19,2	22,6	DC+	
18	Not assembled			
19	Not assembled			
20	Not assembled			
21	33,6	14,8	Phase	
22	33,6	8,2	Phase	

Tolerance of pinpositions: ±0.5mm at the end of pins  
Dimension of coordinate axis is only offset without tolerance



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<b>Identification</b>					
<b>ID</b>	<b>Component</b>	<b>Voltage</b>	<b>Current</b>	<b>Function</b>	<b>Comment</b>
T13,T14	IGBT	650 V	150 A	PFC Switch	
D22,D33	FWD	650 V	150 A	PFC Diode	
D11,D21	FWD	1600 V	65 A	PFC Inverse Diode (D11), PFC Diode (D21)	
D12	FWD	1600 V	75 A	PFC Inverse Diode (D12)	
D15	FWD	650 V	20 A	PFC Protection Diode	
C10,C20	Capacitor	630 V		DC Link Capacitor	
Rt	Thermistor			Thermistor	






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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-FZ07ANA150SM-LE20L08-T1-14	19 Apr. 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.