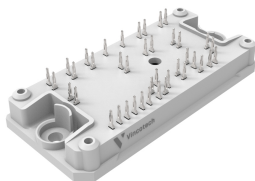
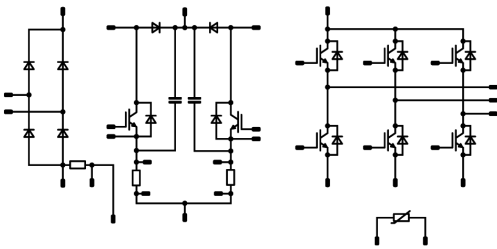




<i>flowPIM 1 + PFC</i>		600 V / 30 A	
Features		flow 1 12 mm housing	
<ul style="list-style-type: none">• Highly integrated PIM with interleaved PFC circuit• 1 phase rectifier• High switching frequency PFC circuit• On-board capacitors• PFC shunts• New generation high speed IGBTs in the inverter• Thermal sensor			
Target applications		Schematic	
<ul style="list-style-type: none">• Embedded Drives• Industrial Drives			
Types			
<ul style="list-style-type: none">• 10-PG06PPA030SJ-LJ02B08T			



Vincotech

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F		35	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	400	A
Surge current capability	I^2t	Single Half Sine Wave, $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	800	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	73	W
Maximum junction temperature	T_{jmax}		150	°C
PFC Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C		30	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	90	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	64	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C
PFC Diode				
Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		30	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	180	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	65	W
Maximum junction temperature	T_{jmax}		175	°C



Vincotech

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
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PFC Sw. Protection Diode

Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F		6	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	12	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	30	W
Maximum junction temperature	T_{jmax}		175	°C

Inverter Switch

Collector-emitter voltage	V_{CES}		600	V
Collector current	I_C		30	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	67	W
Gate-emitter voltage	V_{GES}		±15	V
Short circuit ratings	i_{SC}	$V_{GE} = 15\text{ V}$ $T_j = 150\text{ °C}$	5	µs
Maximum junction temperature	T_{jmax}		175	°C

Inverter Diode

Peak repetitive reverse voltage	V_{RRM}		600	V
Continuous (direct) forward current	I_F		20	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	47	W
Maximum junction temperature	T_{jmax}		175	°C

Capacitor (PFC)

Maximum DC voltage	V_{MAX}		630	V
Operation Temperature	T_{op}		0 ... 150	°C



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target datasheet

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
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PFC Shunt

Power dissipation	P_{tot}	$T_j = T_{j\text{max}}$	2	W
Operation Temperature	T_{op}		-65 ... 170	°C

Shunt

Power dissipation	P_{tot}	$T_j = T_{j\text{max}}$	2	W
Operation Temperature	T_{op}		-65 ... 170	°C



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target datasheet

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
Isolation voltage	V_{isol}	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			>12.7mm	mm
Clearance			7.82	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_D [A]	T_j [°C]	Min	Typ	Max	

Rectifier Diode

Static

Forward voltage	V_F				35	25			1,5	V
Reverse leakage current	I_R			1600		25 150			100 2000	μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						0,96		K/W
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PFC Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,0003	25	3,3	4	4,7	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		30	25 125 150 175		1,6 1,8 1,9 1,9	2,22	V
Collector-emitter cut-off current	I_{CES}		0	650		25			40	μ A
Gate-emitter leakage current	I_{GES}		20	0		25			120	nA
Input capacitance	C_{ies}	$f = 1$ Mhz	0	25		25		2100		pF
Reverse transfer capacitance	C_{res}							7,7		pF
Gate charge	Q_g	$V_{CC} = 520$ V	15		30	25		65		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						1,48		K/W
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Characteristic Values

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

PFC Diode

Static

Forward voltage	V_F				0	25 175		1,7	2,6	V
Reverse leakage current	I_R			650		25			10	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4 \text{ W/mK}$ (PSX)						1,45		K/W
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PFC Sw. Protection Diode

Static

Forward voltage	V_F				6	25 150	1,23	1,55 1,5	1,87	V
Reverse leakage current	I_R			650		25			0,1	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4 \text{ W/mK}$ (PSX)						3,16		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		

Inverter Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}$			0,0005	25	4,1	5,1	5,7	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		30	25 175		1,6 1,94	1,8	V
Collector-emitter cut-off current	I_{CES}		0	600		25			1,6	μA
Gate-emitter leakage current	I_{GES}		20	0		25			100	nA
Input capacitance	C_{ies}	f = 1 Mhz	0	25		25		1050		pF
Reverse transfer capacitance	C_{res}							36		pF
Gate charge	Q_g	$V_{CC} = 480$ V	15		30	25		130		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						1,42		K/W
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Inverter Diode

Static

Forward voltage	V_F				20	25	1,25	1,6	1,95	V
Reverse leakage current	I_R			600		25			27	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						2,02		K/W
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Capacitor (PFC)

Static

Capacitance	C							33		nF
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Vincotech

Characteristic Values

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

PFC Shunt

Static

Resistance	R							2		mΩ
Temperature coefficient	tc								275	ppm/K

Shunt

Static

Resistance	R							2		mΩ
Temperature coefficient	tc								275	ppm/K

Thermistor

Static

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



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target datasheet

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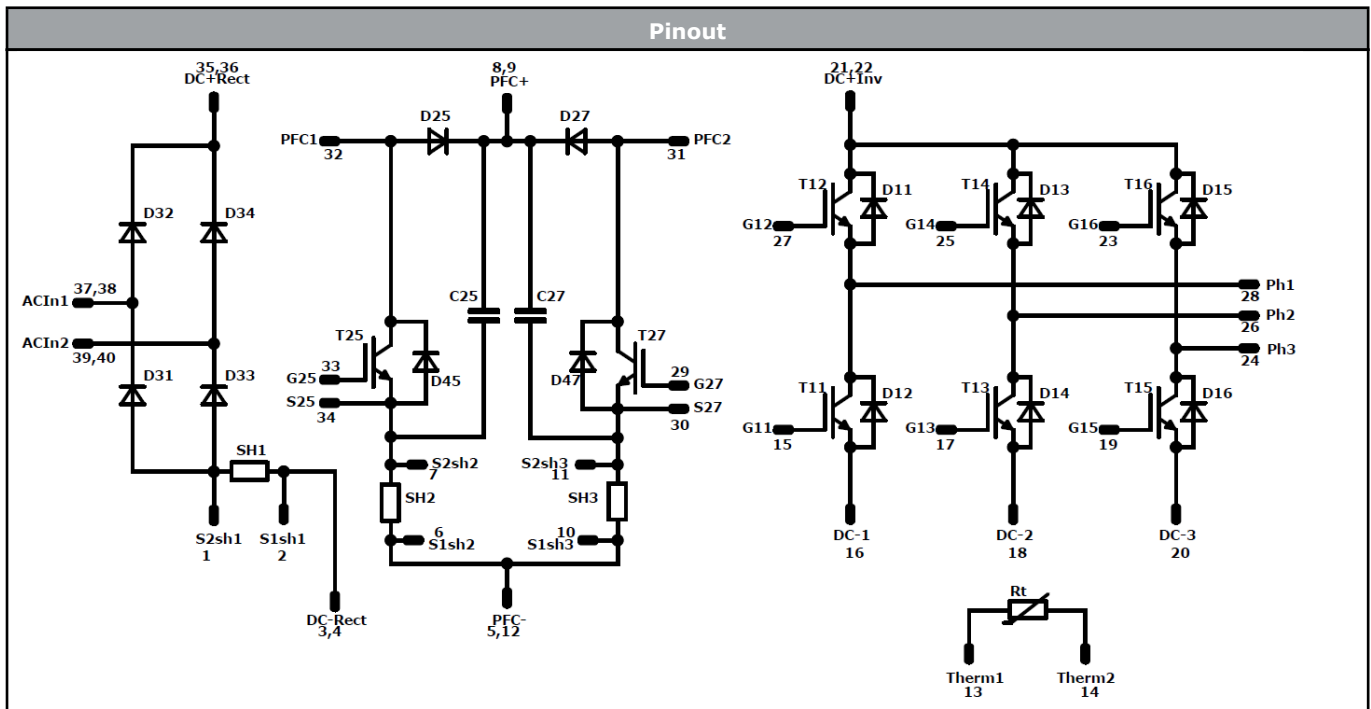
Ordering Code & Marking								
Version				Ordering Code				
without thermal paste 12mm housing with Press-fit pins				10-PG06PPA030SJ-LJ02B08T				
with thermal paste 12mm housing with Press-fit pins				10-PG06PPA030SJ-LJ02B08T-/3/				
NN-NNNNNNNNNNNNNN TTTTITTV WWYY UL VIN LLLLL SSSS			Text	Name	Date code	UL & VIN	Lot	Serial
				NN-NNNNNNNNNNNNNN-TTTTITTV	WWYY	UL VIN	LLLLL	SSSS
			Datamatrix	Type&Ver	Lot number	Serial	Date code	
			TTTTITTV	LLLLL	SSSS	WWYY		

Pin table [mm]				Outline	
Pin	X	Y	Function		
1	50,5	7,4	S2sh1		
2	49,5	4,4	S1sh1		
3	45,5	0	DC-Rect		
4	42,8	0	DC-Rect		
5	38,5	0	PFC-		
6	38,5	3	S1sh2		
7	38,5	6	S2sh2		
8	31,8	1,2	PFC+		
9	31,8	3,9	PFC+		
10	25,1	1,9	S1sh3		
11	23,1	4,9	S2sh3		
12	22,1	0	PFC-		
13	19,1	0	Therm1		
14	19,1	3	Therm2		
15	15	0	G11		
16	12	0	DC-1		
17	9	0	G13		
18	6	0	DC-2		
19	3	0	G15		
20	0	0	DC-3		
21	0	15,15	DC+Inv		
22	0	17,85	DC+Inv		
23	0	25,5	G16		
24	0	28,5	Ph3		
25	7,7	25,5	G14		
26	7,7	28,5	Ph2		
27	15,4	25,5	G12		
28	15,4	28,5	Ph1		
29	21,7	16,3	G27		
30	21,7	19,3	S27		
31	23,4	28,5	PFC2		
32	31,1	28,5	PFC1		
33	32,9	19,3	G25		
34	35,9	19,3	S25		
35	39,1	28,5	DC+Rect		
36	41,8	28,5	DC+Rect		
37	49,8	28,5	ACIn1		
38	52,5	28,5	ACIn1		
39	44,3	17,2	ACIn2		
40	44,3	14,45	ACIn2		

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



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Identification						
ID	Component	Voltage	Current	Function	Comment	
D31, D32, D33, D34	Rectifier	1600 V	35 A	Rectifier Diode		
T25, T27	IGBT	650 V	30 A	PFC Switch		
D25, D27	FWD	650 V	30 A	PFC Diode		
D45, D47	FWD	650 V	6 A	PFC Sw. Protection Diode		
T11, T12, T13, T14, T15, T16	IGBT	600 V	30 A	Inverter Switch		
D11, D12, D13, D14, D15, D16	FWD	600 V	20 A	Inverter Diode		
C25, C27	Capacitor	630 V		Capacitor (PFC)		
SH1	Shunt			PFC Shunt		
SH2, SH3	Shunt			Shunt		
Rt	Thermistor			Thermistor		




Vincotech

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target datasheet

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

Handling instruction
Handling instructions for <i>flow 1</i> packages see vincotech.com website.

Package data
Packaging data for <i>flow 1</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-PG06PPA030SJ-LJ02B08T-T1-14	15 Oct. 2018	Initial Release	

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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