Technical Information

PrimeSTACK™   **2PS06017E32G28213**
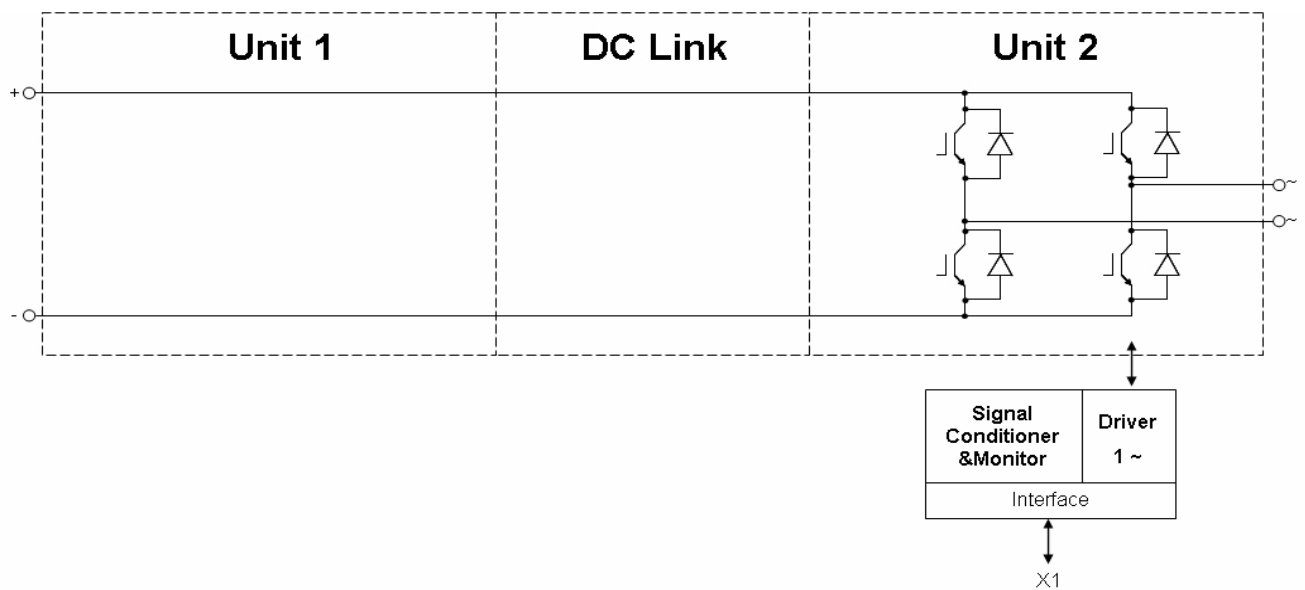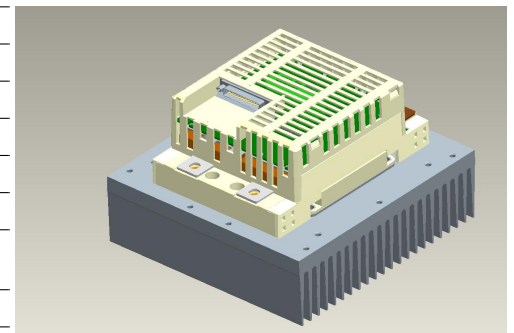
Infineon

Preliminary data

Key data
1x 325A AC at 690V AC, forced air (fan not implemented)

General information
Stacks for various inverter application. Semiconductors, heat sinks, drivers and sensors included. These are only technical data!
Please read carefully the complete documentation and maintain the proper design environment!
Especially note the EMC environment and the controller's functionality.

Topology		1/2 B2I
Application / Modulation		Inverter / Sine
Load type		resistive, inductive
Cooling		forced air (fan not implemented)
Market		common industrial, drives, power supply
Implemented sensors		current, temperature
Semicond. (Unit 1)		none
DC Link		none
Semicond. (Unit 2)	IGBT	2x FF300R17KE3
Driver signals IGBT		electrical CMOS
Standards		EN50178, UL94, prepared for UL508C
Internal ID		28213
Mechanical drawing number		38000028
Electrical drawing number		2PS-C2-V

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Notes

Overvoltage shutdown:
It must be realized by the customer.
Overvoltage and Overcurrent shutdown reaction time:
This parameter refers to the customers controller.

Electrical data

DC Link			min	typ	max	units
Voltage		V_{DC}		1100	1200	V

Unit 2 AC			min	typ	max	units
Voltage		V_{Unit2}		690		V_{RMS}
Continuous current	V_{Unit2} = 690V_{RMS}, V_{DC} = 1100V, T_{inlet} = 40°C, $T_J \leq$ 125°C, f_{Unit2} = 50Hz, f_{sw2} = 2000Hz, cos(phi) = 0,85	I_{Unit2}			325	A_{RMS}
Continuous current overload cap.	T_{inlet} = 40°C, for overload capability 150% for 60s			231		A_{RMS}
Short time current	T_{inlet} = 40°C, 10s, every 180s, initial load = 283A_{RMS}	I_{Unit2}			354	A_{RMS}
DC current	no rotating field, T_{inlet} = 40°C	$I_{Unit2 DC}$			162,0	A_{av}
Overcurrent shutdown	within 15µs			930		A_{peak}
Switching frequency		f_{sw2}			20000	Hz
Power losses	V_{Unit2} = 690V, V_{DC} = 1100V, T_{inlet} = 40°C, $T_J \leq$ 125°C, f_{Unit2} = 50Hz, f_{sw2} = 2000Hz, cos(phi) = 0,85, I_{Unit2} = 325A_{RMS}	P_{loss2}		3770		W
Power factor		cos(phi)$_{Unit2}$	-1,00		1,00	

General data				min	typ	max	units
Power losses (PCB)			$P_{loss aux}$			40	W
EMC test	according to IEC61800-3 at named interfaces	power	V_{Burst}		2		kV
		control	V_{Burst}		1		kV
		aux (24V)	V_{Surge}		1		kV
Insulation management is designed for			V_{Line}		690		V_{RMS}
Insulation test voltage	according to EN50178, f = 50Hz, t = 60s		V_{isol}		2,5		kV_{RMS}

Controller interface data			min	typ	max	units
Auxiliary voltage		V_{aux}	18	24	30	V_{av}
Auxiliary power requirement	V_{aux} = 24V_{av}	P_{aux}		40		W
Driver and interface board	see separate technical information			DR240		
Driver core				EiceDRIVER 2ED300C17-S		
Digital input level	resistor to GND 10,0kΩ, capacitor to GND 1nF, high = on, min 15mA	V_{in}	0,0		15,0	V
Digital output level	open collector, low = ok, max 15mA	V_{out}	0,0		30,0	V
Analog current outputs Unit 2	load max 1mA; at 325A	$V_{ana out}$	3,43	3,50	3,60	V
Analog temperature output	load max 1mA; at T_{NTC} = 77°C correspond to T_j = 125°C	$V_{T out}$	8,90	9,10	9,30	V
Overcurrent shutdown reaction time	after overcurrent message by PrimeSTACK™ interface				10	µs

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Heat sink air cooled / Thermal data

			min	typ	max	units
Airflow	T_{Air} = 20°C, Pair = 1013hPa, dry- and dust free, measured on side of heat sink. according to DIN 41882	$\Delta V/\Delta t_{Air}$	500			m³/h
Air pressure drop		Δp_{Air}		110		Pa
Cooling air inlet temperature	heat sink temperature > -25°C	T_{inlet}	-25		40	°C

Environmental conditions

|			min	typ	max	units
Storage temperature		T_{stor}	-40		85	°C
Ambient temperature		T_{amb}	-25		55	°C
Operating temperature	see chapter Heat sink air cooled / Thermal data					
Cooling air velocity (PCB)		$V_{Air\ PCB}$	0,3			m/s
Air pressure	standard atmosphere	p_{Air}	900		1100	hPa
Humidity	no condensation	Rel. F	5		85	%
Installation height				0	1000	m
Vibration	according to IEC60721				5	m/s²
Shock	according to IEC60721				40	m/s²
Protection degree				IP00		
Pollution degree				2		
Torque at DC Terminals		M_{DC}	6,0		10,0	Nm
Torque at AC Terminals		M_{AC}	16,0		20,0	Nm
Dimensions	width × depth × height		216	200	167	mm
Weight with heat sink	approximation			6,3		kg
Weight without heat sink	approximation			1,9		kg

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fo - derating curve IGBT (motor)
cos(phi) = 0,85
$T_{cool\ medium}$ = 40°C
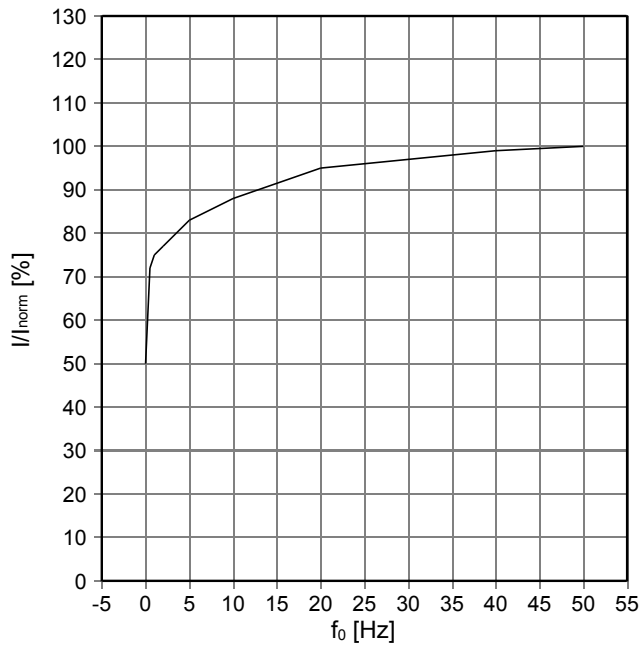
fsw - derating curve IGBT (motor)
cos(phi) = 0,85
$T_{cool\ medium}$ = 40°C
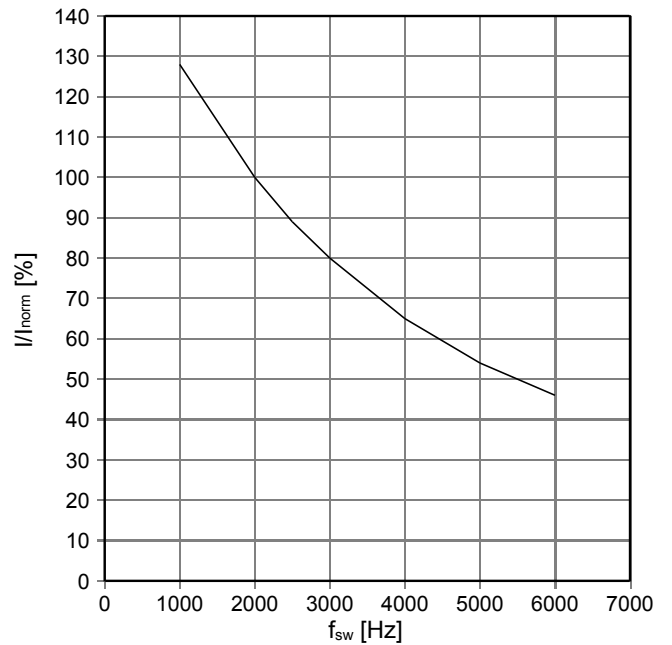
Transient thermal impedance per switch
$T_{cool\ medium}$ = 40°C
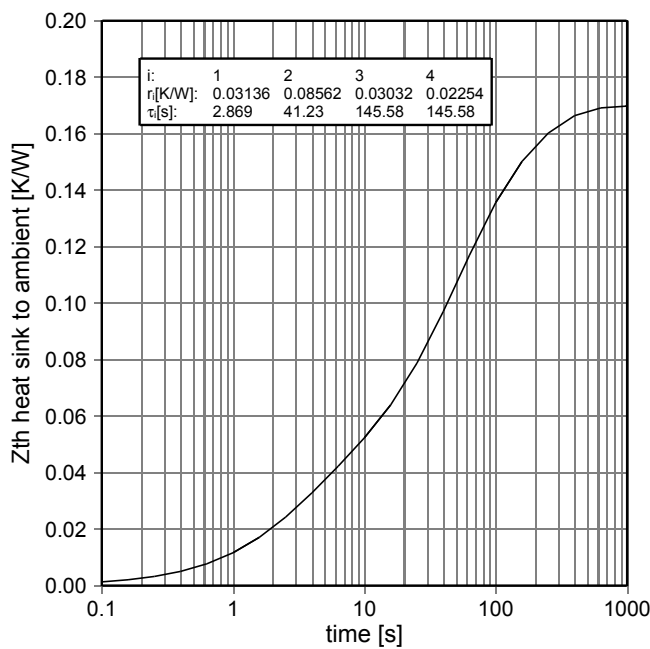
i:	1	2	3	4
r_i[K/W]:	0.03136	0.08562	0.03032	0.02254
τ_i[s]:	2.869	41.23	145.58	145.58

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Preliminary data

Mechanical drawing

2PS...-2...
4PS...-2...

PrimeSTACK C2
38000028

33.7   DC+
30.15 DC−
90
30.15
77
75

Heatsink e.g.:JK1176   Heatsink W209−61−15−50
AlMgSi 0.5 F22   AlMgSi 0.5 F22
Standard "G"   High Performance "GH"

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AIR DIRECTION

55 X1

2x M8
2x M5

4x M6, 11 tief   14x M6   2x M8, 14−tief

100
92
85.6

46.5
20
15.5

15.5
20

46.5

85.6
92
100

67
31

A

B

20
31
67

108
100.5
92.5
90
81
67.6

75.6
81
90
92.5
100.5
108

80
65

65
80
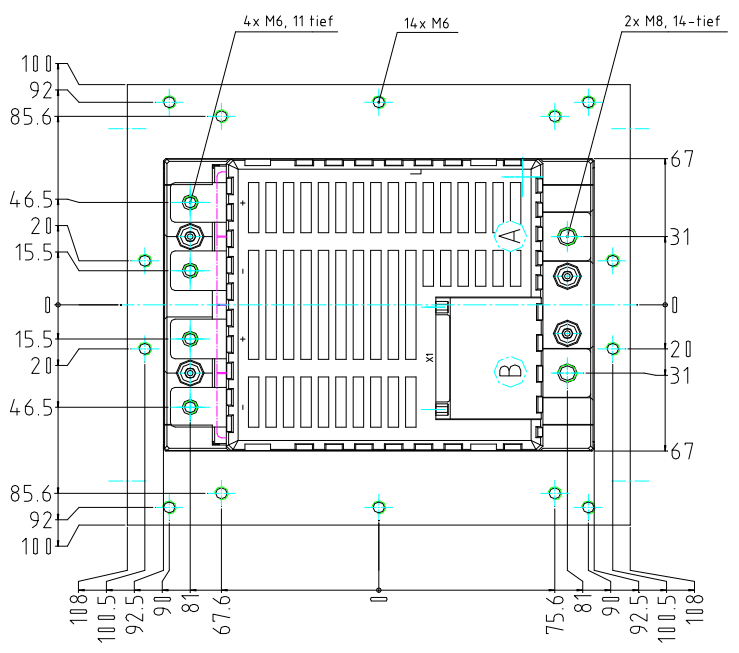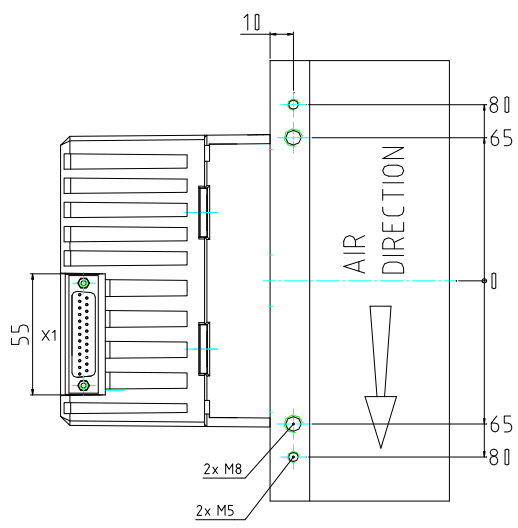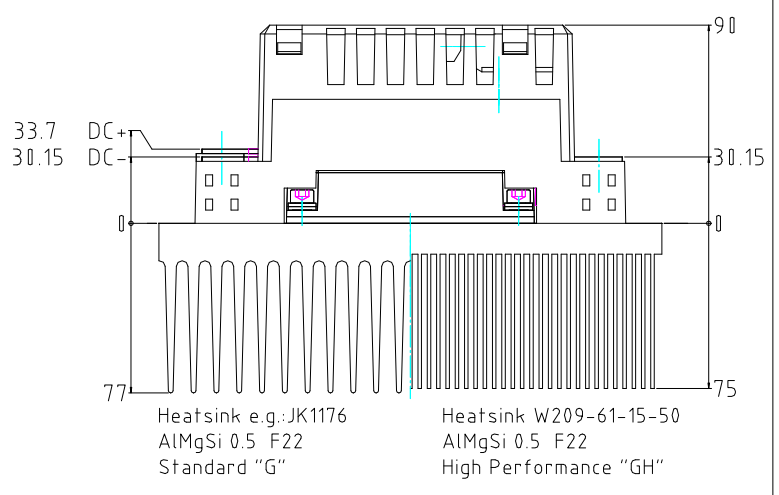
X1:

2PS   : SUB−D−Connector 25 pole, male
4PS   : SUB−D−Connector 25 pole, male

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Circuit diagram

Pin	Signal
14	IGBT BOT
15	IGBT TOP
2	Error
3	Temp. error
22	Voltage error
13	GND digital
25	GND digital
4	13V÷30V
16	13V÷30V
6	GND
18	GND
5	15V/50mA
17	15V/50mA
20	Current
19	Temperature
21	Voltage DC-Link
7	GND analog
8	GND analog
9	GND analog
10	NC
11	NC
12	NC
23	NC
24	NC
1	True earth/shield

Input · Output · Digital circuit

$V_{CE(sat)}$ / supply · Error messages

EiceDRIVER™ · TOP · BOT

Power supply · In · Out · PTC · Undervoltage

Analog circuit · Output · Mana

Overcurrent HB A · Overcurrent HB B · Overtemp. output stage · Overtemp. PCB · Overvoltage DC-Link

Option DC link capacitors

High voltage area in grey

Option V Voltage measurement

safety separation between high voltage area and low voltage area

SUB-D-Connector 25pole male · female thread UNC4/40 · front view

Error Table

	Error outputs (open collector)		
	Error Pin 2	Temp. Pin 3	Voltage Pin 22
Error Driver Core	X		
Overcurrent	X		
Overtemperature output stage	X	X	
Overtemperature PCB		X	
Overvoltage DC-Link (Option)	X		X
Undervoltage power supply			X
X= high level with required external pull up resistor.			

For detailed technical information please refer the PrimeSTACK manual.

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Terms & Conditions of usage

The data contained in this product data sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application.

This product data sheet is describing the characteristics of this product for which a warranty is granted. Any such warranty is granted exclusively pursuant the terms and conditions of the supply agreement. There will be no guarantee of any kind for the product and its characteristics.

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Should you intend to use the Product in aviation applications, in health or live endangering or life support applications, please notify. Please note, that for any such applications we urgently recommend
 - to perform joint Risk and Quality Assessments;
 - the conclusion of Quality Agreements;
 - to establish joint measures of an ongoing product survey,
   and that we may make delivery depended on the realization
   of any such measures.

If and to the extent necessary, please forward equivalent notices to your customers.

Changes of this product data sheet are reserved.

Safety Instructions

Prior to installation and operation, all safety notices and warnings and all warning signs attached to the equipment have to be carefully read. Make sure that all warning signs remain in a legible condition and that missing or damaged signs are replaced. To installation and operation, all safety notices and warnings and all warning signs attached to the equipment have to be carefully read. Make sure that all warning signs remain in a legible condition and that missing or damaged signs are replaced.