

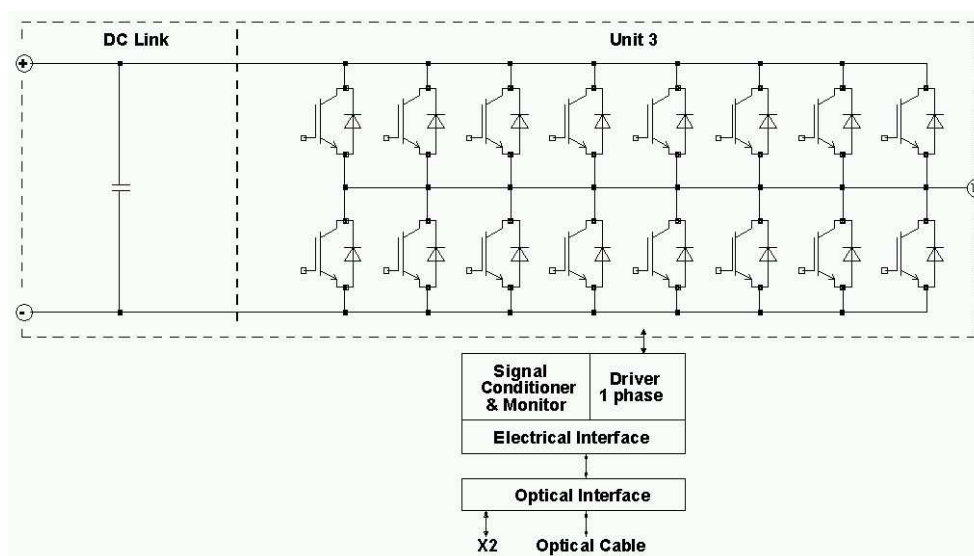
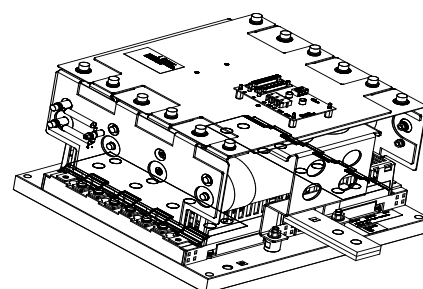
Key data

1x 1300A peak at 1225V DC, natural air (free convection)

General information

Stacks for various inverter application. IGBT's, heat sinks, drivers and sensors included

Topology	1/2 B2I
Application / Modulation	Brake Chopper / Rectangle
Load type	resistive
Cooling	natural air (free convection)
Market	common industrial, drives, power supply
Implemented sensors	current, temperature
Semicond. (Unit 1)	none
DC Link	1.4mF
Semicond. (Unit 2)	none
Semicond. (Unit 3)	IGBT 8x FF300R17KE3
Driver signals IGBT	optical HFBR-15X1 / HFBR-25X1
Standards	EN50178, UL94, prepared for UL508C
Internal ID	32778
Mechanical drawing number	32778_MB
Electrical drawing number	2PS-CC-V-OEA-Rev01
Dimensions (width x depth x height)	394 mm x 370 mm x 270 mm
Weight	30 kg



prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2

Preliminary data

Note

Electrical data

DC Link			min	typ	max	units
Voltage		V_{DC}		1150	1250	V

Unit 3 DC (Chopper, Step up, Step down)			min	typ	max	units
Chopper voltage on	depending on controller	$V_{Unit3\ on}$		1250		V
Chopper voltage off	depending on controller	$V_{Unit3\ off}$		1225		V
Load resistor		R_{Load}		0,94		Ω
Short time current	$T_{inlet} = 40^{\circ}C$, 10s, every 3600s, initial load = 0A _{avg}	I_{Unit3}			1300	A _{avg}
Overcurrent shutdown	Within 15 μ s			3720		A _{peak}
Power losses	$V_{Unit3} = 1225V$, $T_{inlet} = 40^{\circ}C$, $T_j = 125$, $f_{sw3} = 500Hz$, $I_{Unit3} = 1300A_{avg}$	P_{loss3}		3000		W

General data			min	typ	max	units
Power losses (PCB)		$P_{loss\ aux}$			50	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}

Important component data			min	typ	max	units
DC Link capacitor		C_{DC}		1,40		mF
		type		Foil		
Temperature range			-25		+70	$^{\circ}C$
Rated voltage	per device	U_R		1500		V _{DC}
Rated capacitance	per device	C_R		350		μF
Capacitance tolerance	per device	Tol	-10		+10	%
Maximum ripple current	per device, $T_{amb} = 60^{\circ}C$	I_{Rmax}			60	A _{RMS}
wiring system	series, parallel			1s, 4p		
Balance or discharge resistors	per DC Link unit	R_b		82,0		k Ω
Setting of Active Clamping TVS Diodes		V_z		1280		V

prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2

Technical Information

PrimeSTACK™

2PS24017E3CE32778



Preliminary data

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;	$V_{ana out}$		3,60		V
Analog current outputs Unit 3	load max 1mA; at 1300A	$V_{ana out}$	3,50	3,60	3,70	V
Analog temperature output	load max 1mA; at $T_{NTC} = 80^{\circ}C$ correspond to $T_j = 125^{\circ}C$	$V_{T out}$	9,60	9,80	10,00	V
Overtemperature shutdown	at $T_{NTC} = 80^{\circ}C$ correspond to $T_j = 125^{\circ}C$	$V_{T out OT}$		9,8		V
Overcurrent shutdown reaction time	after overcurrent message by PrimeSTACK™ interface				10	μs
Optical interface board	see separate technical information		OEA240			
Optical input power				12		μW
Optical output power					60	μW

prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2

Preliminary data

IGBT data unit 3

			min	typ	max	units
Type	assumed					
collector-emitter saturation voltage	$I_c = 300A$; $V_{ge} = 15V$; $T_{vj} = 125^\circ C$	$V_{CE sat}$		2,4		V
parameter for linear model	$T_{vj} = 25^\circ C$	V_{ce1}		1,025		V
parameter for linear model	$T_{vj} = 25^\circ C$	r_{ce1}		3,25		mΩ
parameter for linear model	$T_{vj} = 125^\circ C$	V_{ce2}		0,975		V
parameter for linear model	$T_{vj} = 125^\circ C$	r_{ce2}		4,75		mΩ
turn-on / turn-off energy loss per pulse	$T_{vj} = 25^\circ C$	E_1		71 / 64		mJ
turn-on / turn-off energy loss per pulse	$T_{vj} = 125^\circ C$	E_2		105 / 94		mJ
thermal resistance, junction to case	per IGBT	R_{thjc}		0,085		K/W
thermal resistance, case to heatsink	per IGBT	R_{thch}		0,033		K/W

Diode data unit 3

			min	typ	max	units
Type	assumed					
forward voltage	$I_F = 300A$; $V_{ge} = 0V$; $T_{vj} = 125^\circ C$	V_F		1,9		V
parameter for linear model	$T_{vj} = 25^\circ C$	V_{F1}		1,035		V
parameter for linear model	$T_{vj} = 25^\circ C$	r_{F1}		2,55		mΩ
parameter for linear model	$T_{vj} = 125^\circ C$	V_{F2}		0,925		V
parameter for linear model	$T_{vj} = 125^\circ C$	r_{F2}		3,25		mΩ
reverse recovery energy	$T_{vj} = 25^\circ C$	E_{rec1}		40		mJ
reverse recovery energy	$T_{vj} = 125^\circ C$	E_{rec2}		72		mJ
thermal resistance, junction to case	per Diode	R_{thjc}		0,13		K/W
thermal resistance, case to heatsink	per Diode	R_{thch}		0,051		K/W

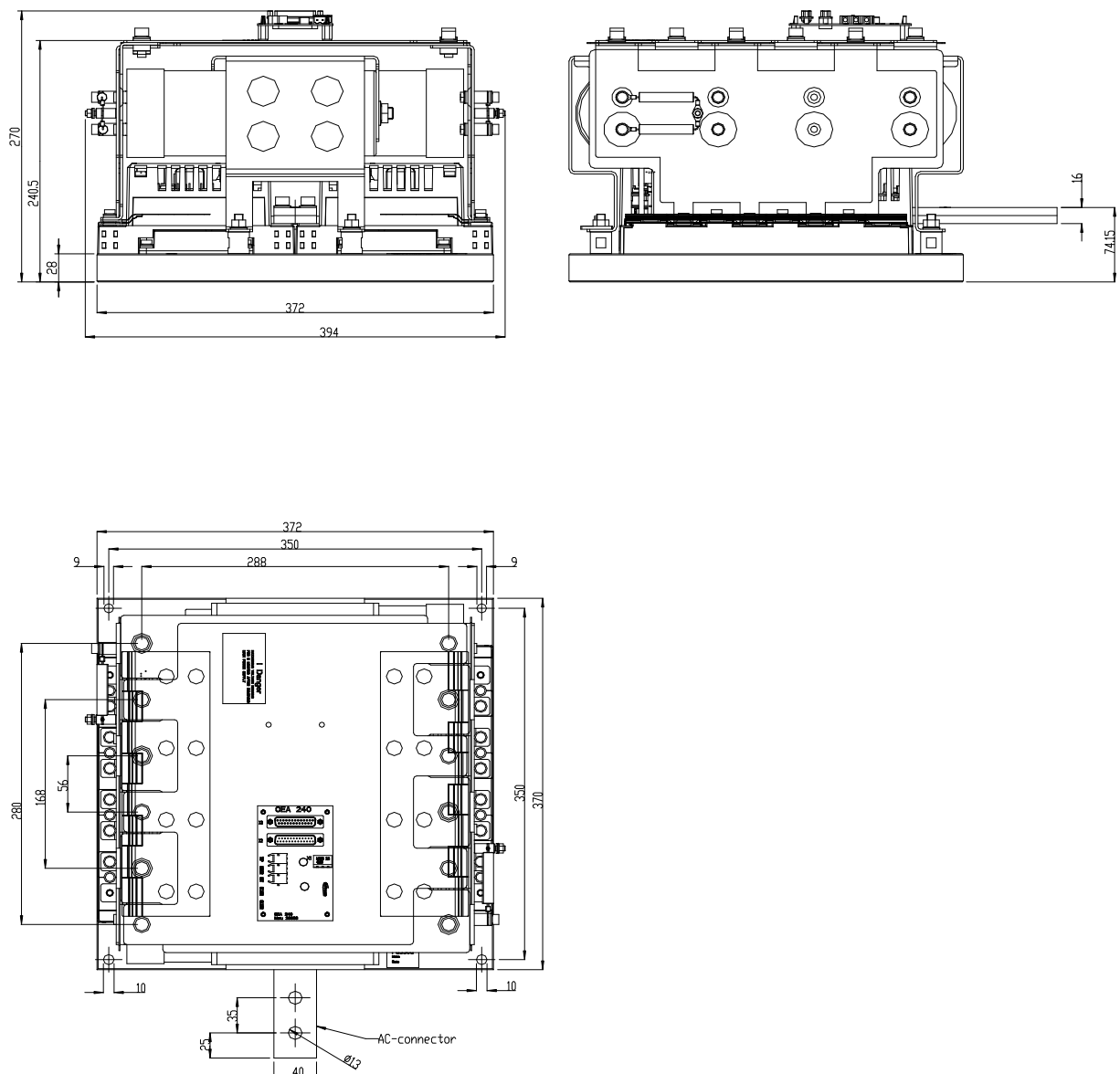
Environmental conditions

			min	typ	max	units
Storage temperature		T_{stor}	-40		85	°C
Ambient temperature	minimum 0°C for optional optical interface	T_{amb}	-25		55	°C
Operating temperature	see chapter Heat sink air cooled / Thermal data					
Cooling air velocity (PCB)		$V_{Air PCB}$	2,0			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		394	370	270	mm
Weight with heat sink	approximation			30,0		kg

prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2

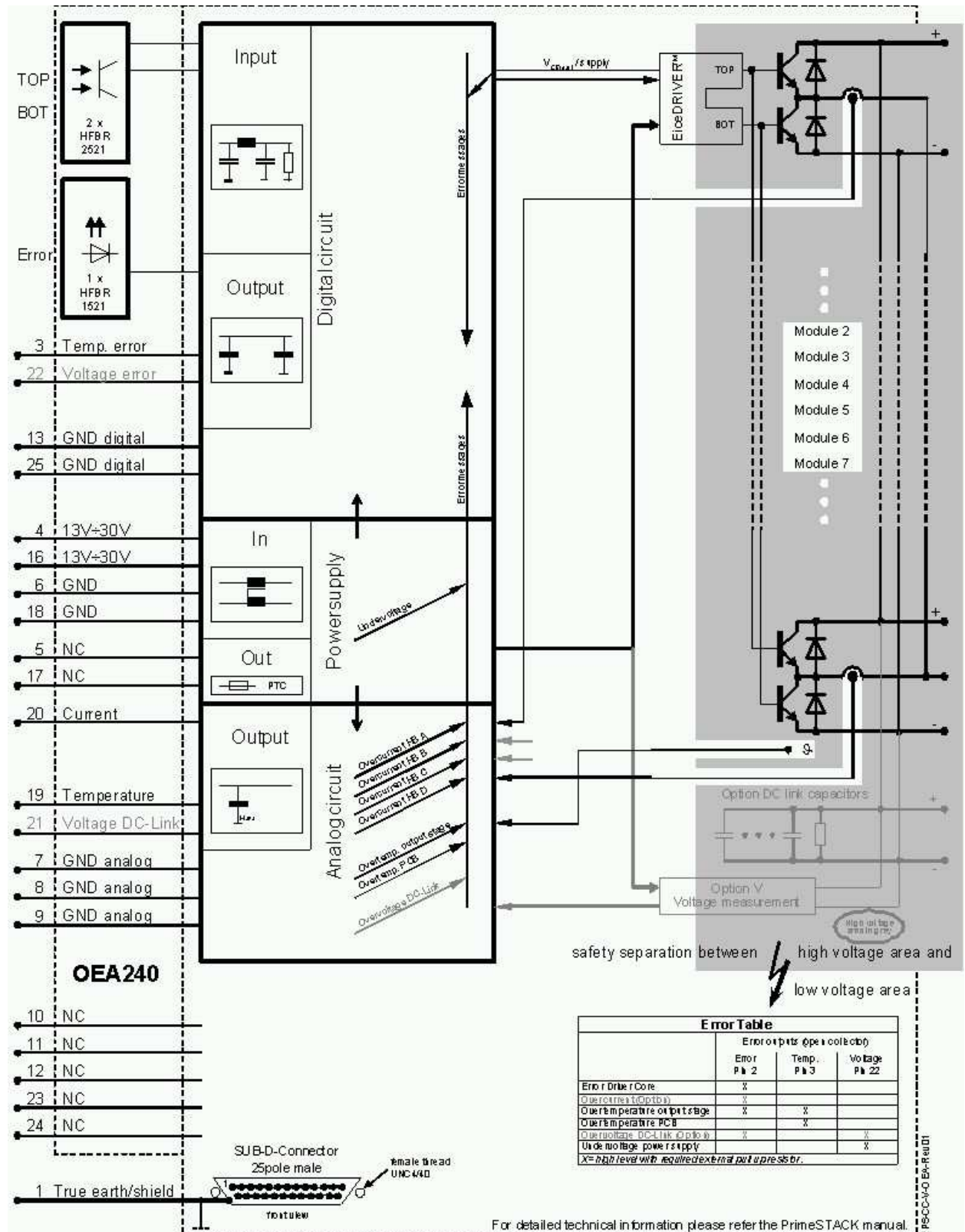
Mechanical drawing

2PS...-CE-C22...
PrimeSTACK
32778 MB



prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2

Circuit diagram



prepared by: OW

date of publication: 2012-11-23

approved by: SD

revision: 2.2

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.

Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of our product, please contact the sales office, which is responsible for you (see www.infineon.com, sales&contact). For those that are specifically interested we may provide application notes.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

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.

prepared by: OW	date of publication: 2012-11-23
approved by: SD	revision: 2.2