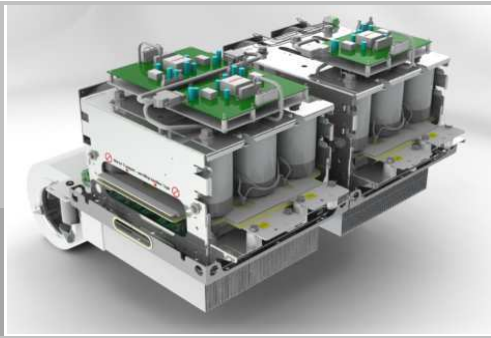


# IGD-4-424-P1F7-BL-FA



IGBT Module stack

Absolute maximum ratings		$T_{AMBIENT} = T_{AIR\ COOLING} = 40^{\circ}C$ unless otherwise specified	
Symbol	Conditions	Values	Unit
$I_{OUT\ MAX}$	Maximum continuous output current	750	ARMS
$V_{OUT\ MAX}$	Maximum output voltage	500	VAC
$V_{BUS\ MAX}$	Maximum DC Bus voltage in operation	900	VDC
$F_{OUT}$	Inverter Output frequency	500	Hz
$F_{SW}$	Maximum switching frequency	20	kHz

Electrical characteristics		$T_{AMBIENT} = T_{AIR\ COOLING} = 40^{\circ}C$ unless otherwise specified			
Symbol	Conditions	min	typ	max	Unit
<b>AC phase</b>					
$I_{OUT\ RATED}$	Rated output current	V <sub>BUS</sub> =750Vdc, No overload, T <sub>j</sub> <150°C, Power factor PF = 1, Cabinet airflow in operation at 400m3/h		750	ARMS
$V_{OUT}$	Output voltage	Fan airflow through heatsink at 900 m3/h		400	VAC
$P_{OUT}$	Rated output power			520	kW
$F_{SW}$	Inverter switching frequency			3	kHz
$F_{OUT}$	Output frequency			50	Hz
<b>DC Bus</b>					
$V_{BUS}$	Rated DC voltage			750	Vdc
<b>Efficiency</b>					
$P_{LOSS\ INV}$	Total power losses			4 900	W
$\eta$	Inverter efficiency			>99	%
<b>Filtering characteristics</b>					
$V_{BUS}$	Rated DC voltage applied to the caps bank without switching			1 100	Vdc
$V_{DC\ CAPACITOR}$	Max DC voltage applied to the caps bank (max 30% of LTE) without switching			1 100	Vdc
$\tau_{d5\%}$	Discharge time of the capacitors (5%)			443	s
$C_{DC}$	Capacitor bank capacity	5		5,88	mF
$LTE$	Calculated LTE of the caps with forced air cooling			> 100	kH
<b>Stack Insulation</b>					
$V_{ISOL}$	Frame / Power stage AC/DC (insulation test voltage DC, 60s)			3 200	V

## SEMIKUBE® - Size T2H

Three phase inverter

Ordering No. 08800447

Description IGD-4-424-P1F7-BL-FA

Option 3C 0N 0P K - 2EX - 2F2

### Features

- Designed in regards to EN50178 and UL508C (600V) recommendations
- RoHS compliant
- Fast mounting and dismounting
- Very high life-time expectancy
- Integrated voltage, current and temperature sensors
- Air cooled power stacks

### Typical Applications

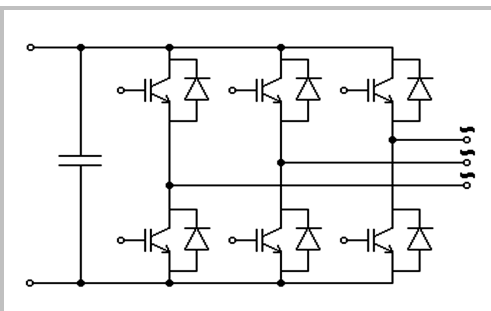
- Industrial applications
- Solar Inverters

### Footnotes

1) the user shall ensure that the ambient air shall be ventilated in order not to create temperature hot spots.

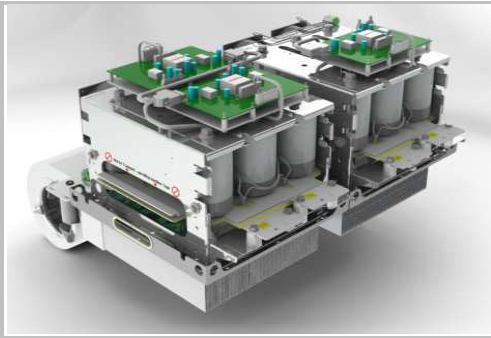
### REMARKS

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee, expressed or implied is made regarding delivery, performance or suitability.



B6CI

# IGD-4-424-P1F7-BL-FA



IGBT Module stack

Environmental conditions					
Characteristics	Conditions	min	typ	max	Unit
<b>Climatic</b>					
Ambient temperature 1)	IEC 60721-3-3, class 3K3 extended In operation	-25		55	°C
Humidity	IEC 60721-3-3, class 3K3 no condensation no icing	5		85	%
<b>Mechanical</b>					
Installation altitude	without derating			1 000	m
Protection index	IEC 60529		IP00		-
Pollution degree	EN 50178		2		-
Weight total	3-phase inverter, including DC clamps and heatsink fans		85		kg
<b>Thermal data</b>					
V <sub>SUPPLY</sub>	Heatsink fan AC voltage supply		230		V <sub>AC</sub>
P <sub>FAN</sub>	at 50Hz Rated power at V <sub>SUPPLY</sub> (per heatsink fan)		300		W
V <sub>SUPPLY</sub>	Capacitor fan AC voltage supply		230		V <sub>AC</sub>
P <sub>FAN</sub>	at 50Hz Rated power at V <sub>SUPPLY</sub> per capacitor fan		15		W

## SEMIKUBE® - Size T2H

Three phase inverter

Ordering No. 08800447

Description IGD-4-424-P1F7-BL-FA

Option 3C 0N 0P K - 2EX - 2F2

### Features

- Designed in regards to EN50178 and UL508C (600V) recommendations
- RoHS compliant
- Fast mounting and dismounting
- Very high life-time expectancy
- Integrated voltage, current and temperature sensors
- Air cooled power stacks

### Typical Applications

- Industrial applications
- Solar Inverters

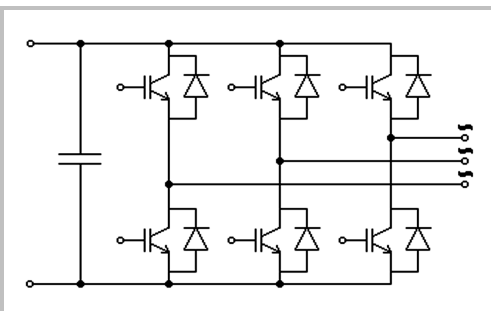
### Footnotes

1) the user shall ensure that the ambient air shall be ventilated in order not to create temperature hot spots.

### REMARKS

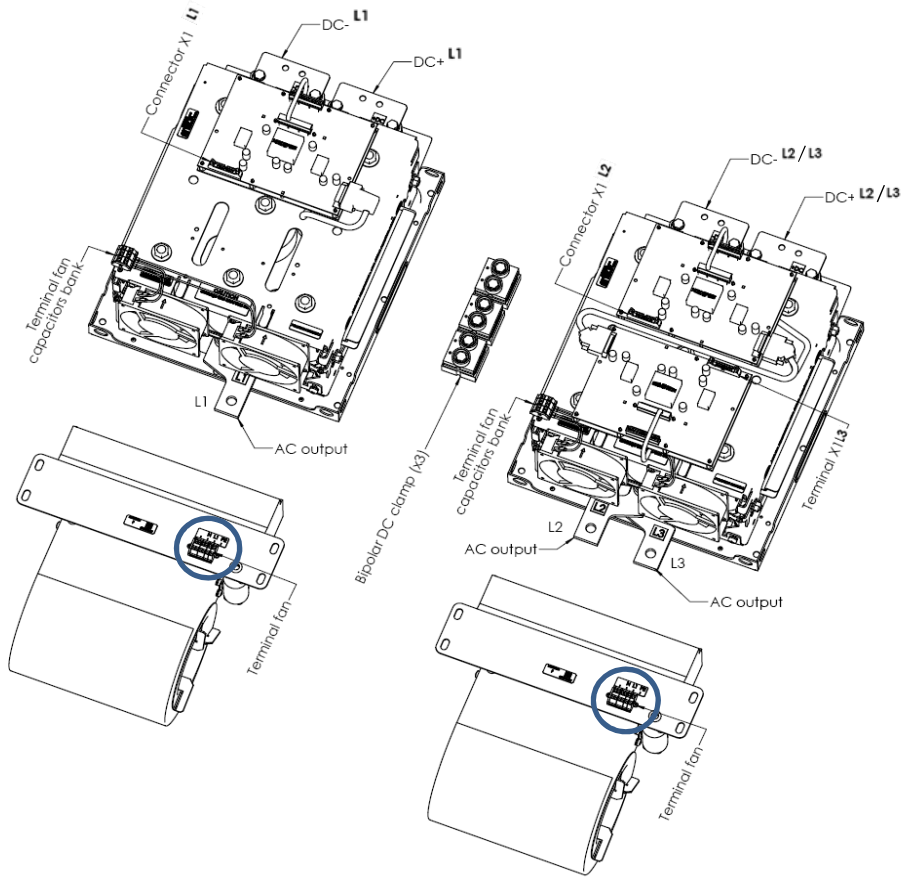
This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee, expressed or implied is made regarding delivery, performance or suitability.

Gate Driver Characteristics					
<i>T<sub>AMBIENT</sub> = 25°C unless otherwise specified</i>					
Symbol	Conditions	min	typ	max	Unit
<b>Gate Driver / controller data</b>					
V <sub>s</sub>	supply voltage	21,6	24	26,4	V <sub>DC</sub>
I <sub>SO</sub>	Supply primary current No load		270		mA
	Max. Supply primary current			1 200	mA
V <sub>IT+</sub>	input threshold voltage HIGH			0,7 x V <sub>s</sub>	V <sub>DC</sub>
V <sub>IT-</sub>	input threshold voltage LOW	0,3 x V <sub>s</sub>			V <sub>DC</sub>
R <sub>IN</sub>	Input resistance		10		kΩ
C <sub>IN</sub>	Input capacitance		1		nF
<b>Measurement &amp; protection</b>					
DC link voltage sensing U <sub>DC analogue OUT</sub>	Scaling		10		mV.V <sup>-1</sup>
	Accuracy of analogue signal @ 600V / T <sub>a</sub> =25°C	-4,5		+4,5	%
	Temperature coefficient			0,03	%.K <sup>-1</sup>
	max. load current			5	mA
	Max. voltage range			15	V <sub>DC</sub>
	Max measurable DC Link Voltage			1 000	V <sub>DC</sub>
Current sensing I <sub>analogue OUT</sub>	Scaling		6		mV.A <sup>-1</sup>
	Accuracy of analogue signal	-5		+5	%
	Temperature coefficient			0,07	%.K <sup>-1</sup>
	Max. output current			5	mA
	Max. voltage range			15	V <sub>DC</sub>
I <sub>TRIPSC</sub>	Over current trip level		1 500		A <sub>PEAK</sub>
Temperature sensing T <sub>analogue OUT</sub>	Scaling		100		mV.°C <sup>-1</sup>
	Minimum measurable temperature	25			°C
	Max. output current			5	mA
	Max. voltage range			15	V <sub>DC</sub>
T <sub>tp</sub>	Over temperature protection	95	100	105	°C
T <sub>th</sub>	Threshold level for reset after failure event	70			°C

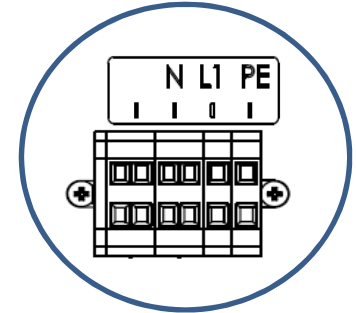


B6CI

## Electrical connection

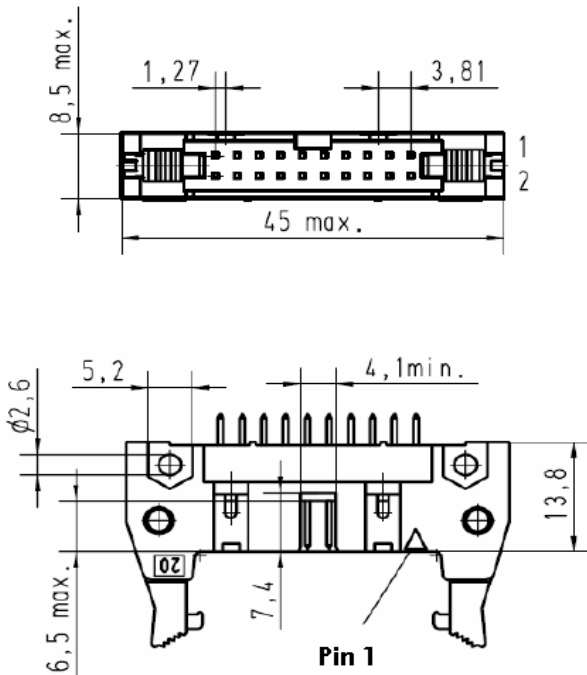


Terminal fan power supply connection



\* For Bipolar DC clamps mounting, please refer to Work Instruction : IT10121602

## Drive connector assignment

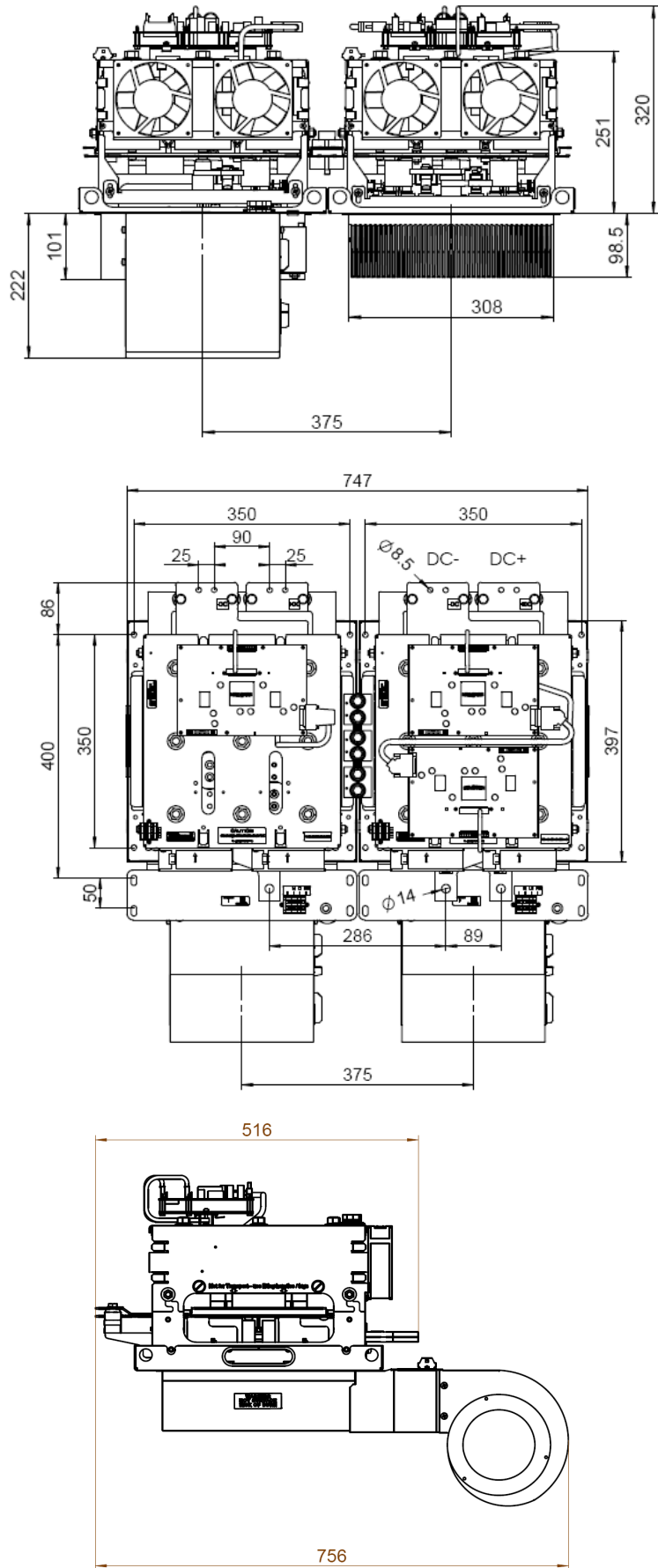


Suitable female connector

Manufacturer: Harting  
Part number: 09 18 520 7813

### X1(L1), X1(L2), X1(L3)

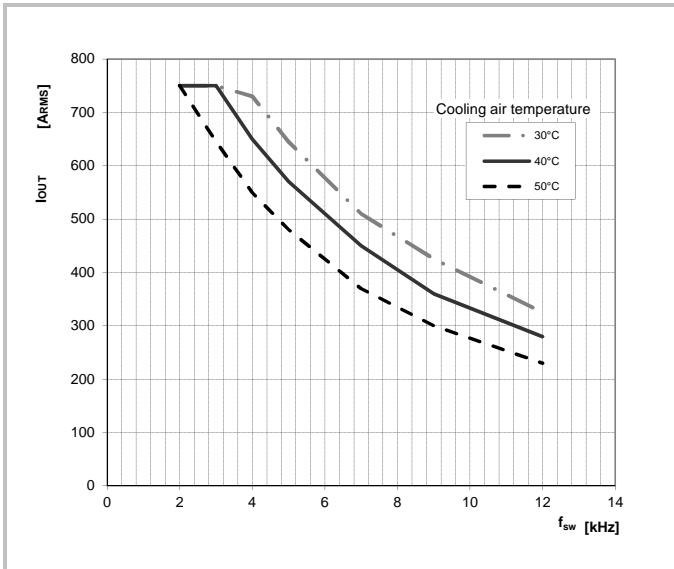
Pin	Signal	Remark
1	Vs IN	Power supply +24Vdc
2	GND	Ground for Power Supply
3	Vs IN	Power supply +24Vdc
4	GND	Ground for Power Supply
5	Vs IN	Power supply +24Vdc
6	GND	Ground for Power Supply
7	[Reserved]	[Dominant/Recessive]
8	GND	Ground for Signal Status OUT
9	Signal Status <i>Bidirectional</i>	24Vdc digital logic LOW (dominant) = "Not ready to operate" HIGH (recessive) = "Ready to operate"
10	General Purpose IO	[Dominant/Recessive]
11	Temp. Analogue OUT	[Analogue output] X1(L1) and X1(L2): Nominal voltage range 0..10V X1(L3): not available
12	GND	Ground for Temperature Analogue OUT
13	Udc analogue OUT	[Analogue output] Nominal voltage range 0..10V
14	GND	Ground for Udc Analogue OUT
15	TOP IN	24Vdc digital logic input, push pull LOW = TOP switch OFF HIGH = TOP switch ON
16	BOT IN	24Vdc digital logic input, push pull LOW = BOT switch OFF HIGH = BOT switch ON
17	[Reserved]	[Dominant/Recessive]
18	GND	Ground for TOP IN and BOT IN
19	I analogue OUT	[Analogue output] Nominal voltage range -10..10V
20	GND	Ground for I analogue OUT



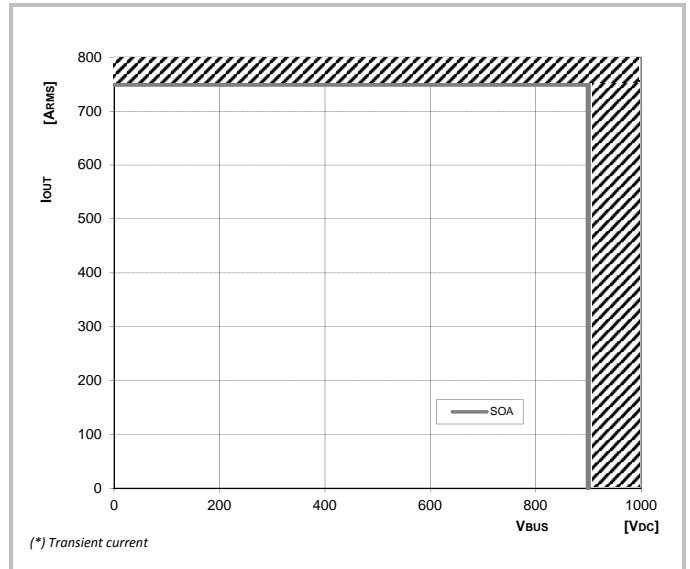
\* For Bipolar DC clamps mounting, please refer to Work Instruction : IT10121602

Dimensions

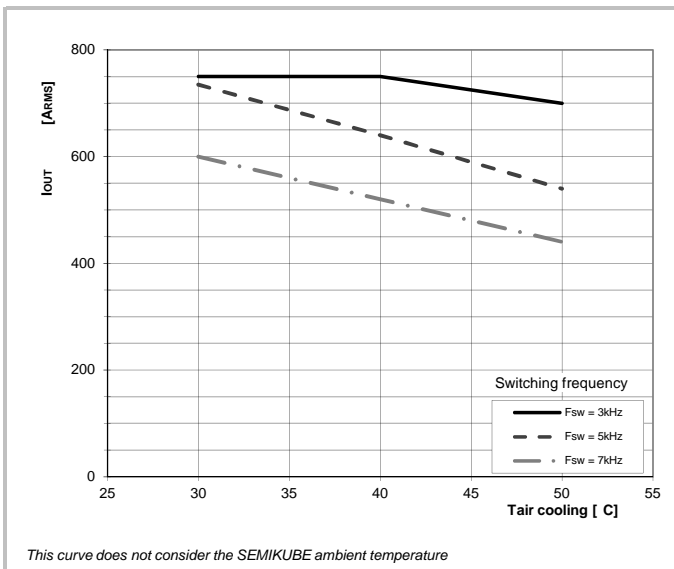
This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.



Max. Output current vs. Switching frequency

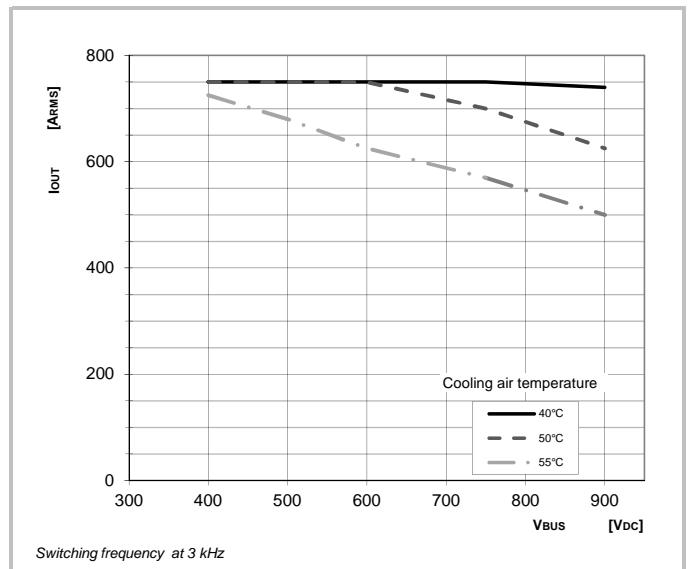


Safe Operating Area



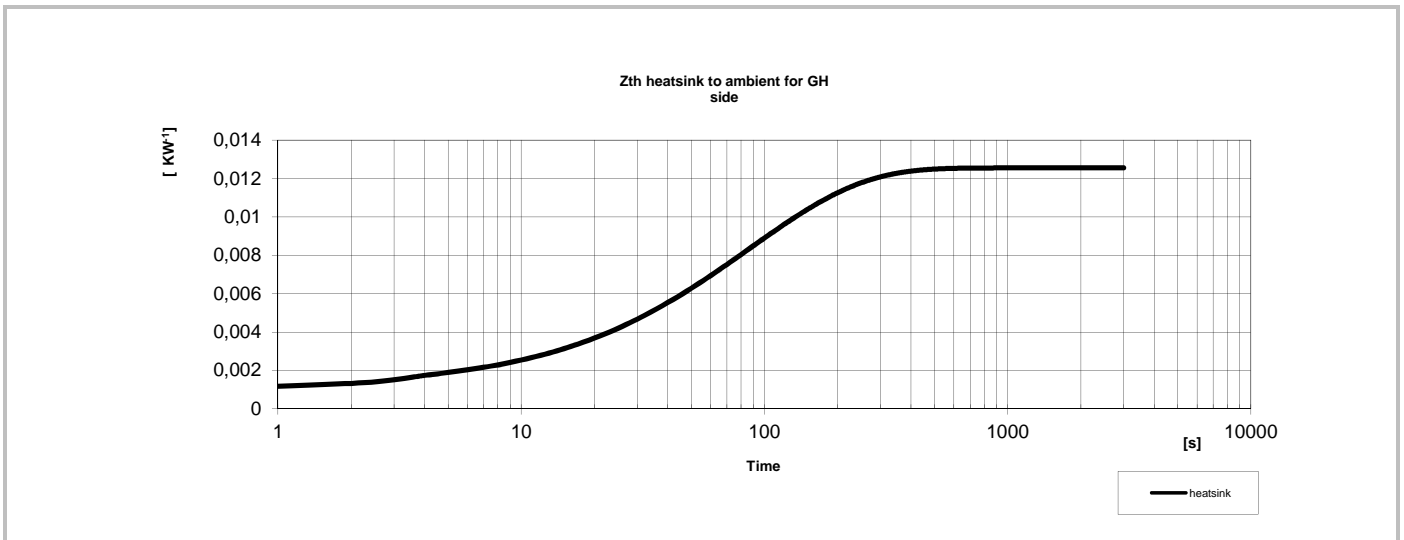
*This curve does not consider the SEMIKUBE ambient temperature*

Max. Output current vs. Ambient temperature



*Switching frequency at 3 kHz*

Max. Output current vs. DC bus voltage



Thermal characteristics