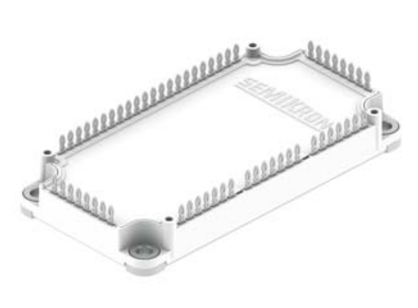


SEMiX® 6p

3-Phase Bridge Rectifier

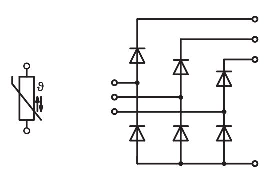
SEMiX586D16p

Features*

- Terminal height 17 mm
- Chips soldered directly to insulated substrate
- UL recognized file no. E63532
- Press-Fit pins
- NEW SKR PEP diode-technology for enhanced power and environmental robustness
- T_{jmax} = 175°C
- NTC temperature sensor

Remarks

- Temperature sensor: no basic insulation to main circuit, signal processing with reference to negative DC potential
- Product reliability results valid for $T_j \leq$ 150°C (recommended T_{jop}= -40 ... 150°C)
- All positive DC terminals have to be connected externally to same potential



D

Absolute Maximum Ratings

Symbol	Conditions	Values	Unit
Module			
$I_{t(RMS)}$	per power terminal (50 A / pin)	700	A
T_{stg}		-40 ... 125	°C
V_{isol}	AC sinus 50Hz, t = 1 min	4000	V

Absolute Maximum Ratings

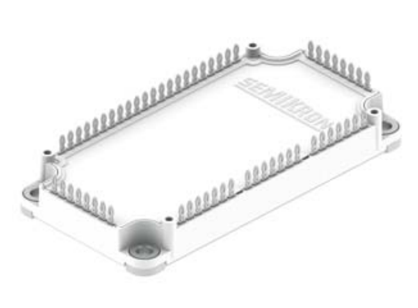
Symbol	Conditions		Values	Unit
Diode				
I_{FAV}	T_j = 175 °C sin 180°	T_c = 85 °C	392	A
		T_c = 100 °C	344	A
I_{FSM}	10 ms sin 180°	T_j = 25 °C	4800	A
		T_j = 150 °C	4200	A
i^2t	10 ms sin 180°	T_j = 25 °C	115200	A^2s
		T_j = 150 °C	88200	A^2s
V_{RSM}			1700	V
V_{RRM}			1600	V
T_j			-40 ... 175	°C

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Diode						
V_F	I_F = 238 A chiplevel	T_j = 25 °C		0.97	1.20	V
		T_j = 150 °C		0.84	1.07	V
V_F	I_F = 238 A terminal level	T_j = 25 °C		1.07	1.34	V
		T_j = 150 °C		0.98	1.26	V
V_{F0}	chiplevel Approximation for: I_{F1} = 238 A I_{F2} = 714 A	T_j = 25 °C		0.89	1.09	V
		T_j = 150 °C		0.73	0.92	V
r_F	chiplevel	T_j = 25 °C		0.34	0.46	mΩ
		T_j = 150 °C		0.48	0.65	mΩ
I_R	T_j = 150 °C, V_{RRM}				5.5	mA
$R_{th(j-c)}$	per diode, cont.				0.12	K/W
$R_{th(j-c)}$	per diode, sin. 180°				0.147	K/W
$R_{th(j-c)}$	per diode, rec. 120°				0.153	K/W
$R_{th(c-s)}$	per diode (λ_{grease}=0.81 W/(m*K))			0.043		K/W

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Module						
$R_{CC'+EE'}$	measured per switch	T_C = 25 °C		0.4		mΩ
		T_C = 125 °C		0.6		mΩ
$R_{th(c-s)1}$	calculated without thermal coupling (λ_{grease}=0.81 W/(m*K))			0.007		K/W
$R_{th(c-s)2}$	including thermal coupling, T_s underneath module (λ_{grease}=0.81 W/(m*K))			0.011		K/W
M_s	to heat sink (M5)		3		6	Nm
w				300		g



SEMiX® 6p

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
Temperature Sensor					
R_{100}	T_c=100°C (R_{25}=5 kΩ)		493 ± 5%		Ω
$B_{100/125}$	$R_{(T)}=R_{100}exp[B_{100/125}(1/T-1/T_{100})]$; T[K];		3550 ±2%		K

3-Phase Bridge Rectifier

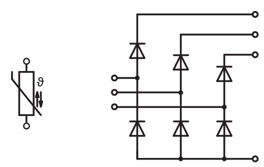
SEMiX586D16p

Features*

- Terminal height 17 mm
- Chips soldered directly to insulated substrate
- UL recognized file no. E63532
- Press-Fit pins
- NEW SKR PEP diode-technology for enhanced power and environmental robustness
- T_{jmax} = 175°C
- NTC temperature sensor

Remarks

- Temperature sensor: no basic insulation to main circuit, signal processing with reference to negative DC potential
- Product reliability results valid for $T_j \leq$ 150°C (recommended T_{jop}= -40 ... 150°C)
- All positive DC terminals have to be connected externally to same potential



D

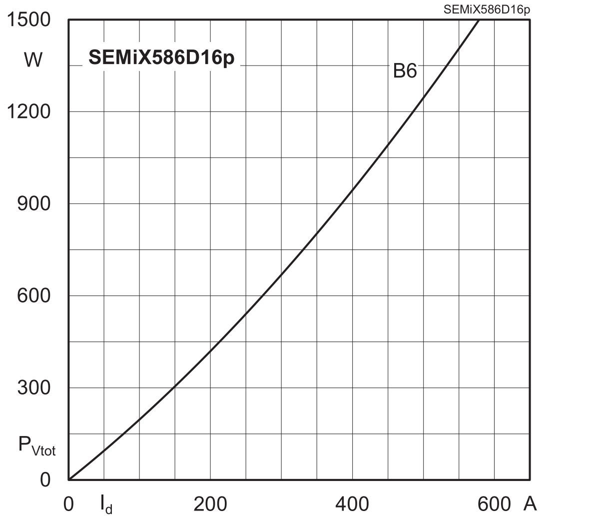


Fig. 4L: Power dissipation per module vs. direct current

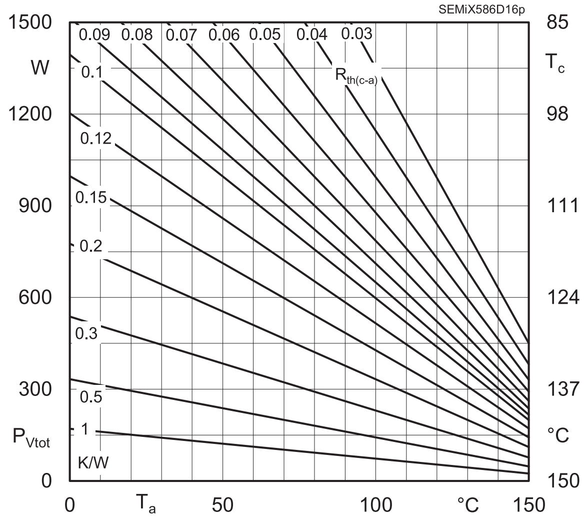


Fig. 4R: Power dissipation per module vs. ambient temperature

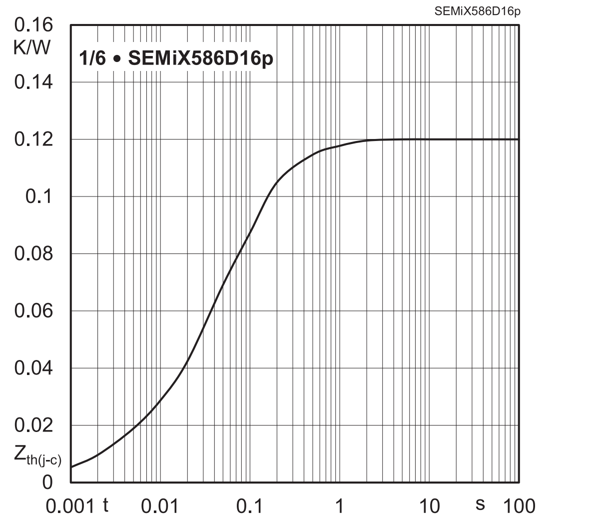


Fig. 6: Transient thermal impedance vs. time

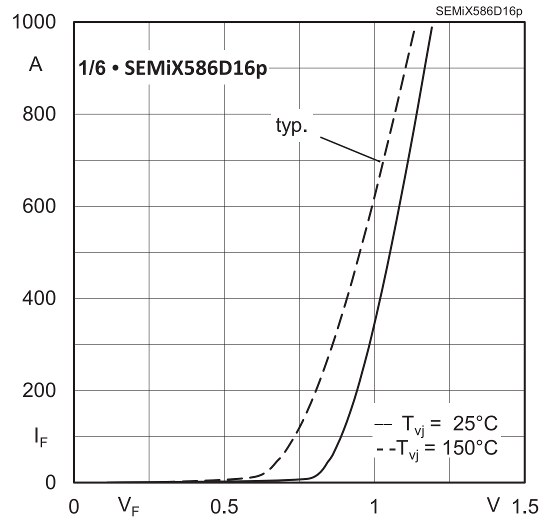


Fig. 7: On-state characteristics (chiplevel)

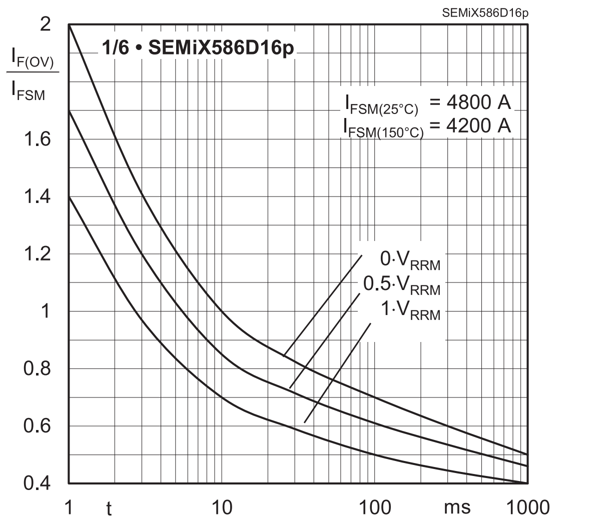
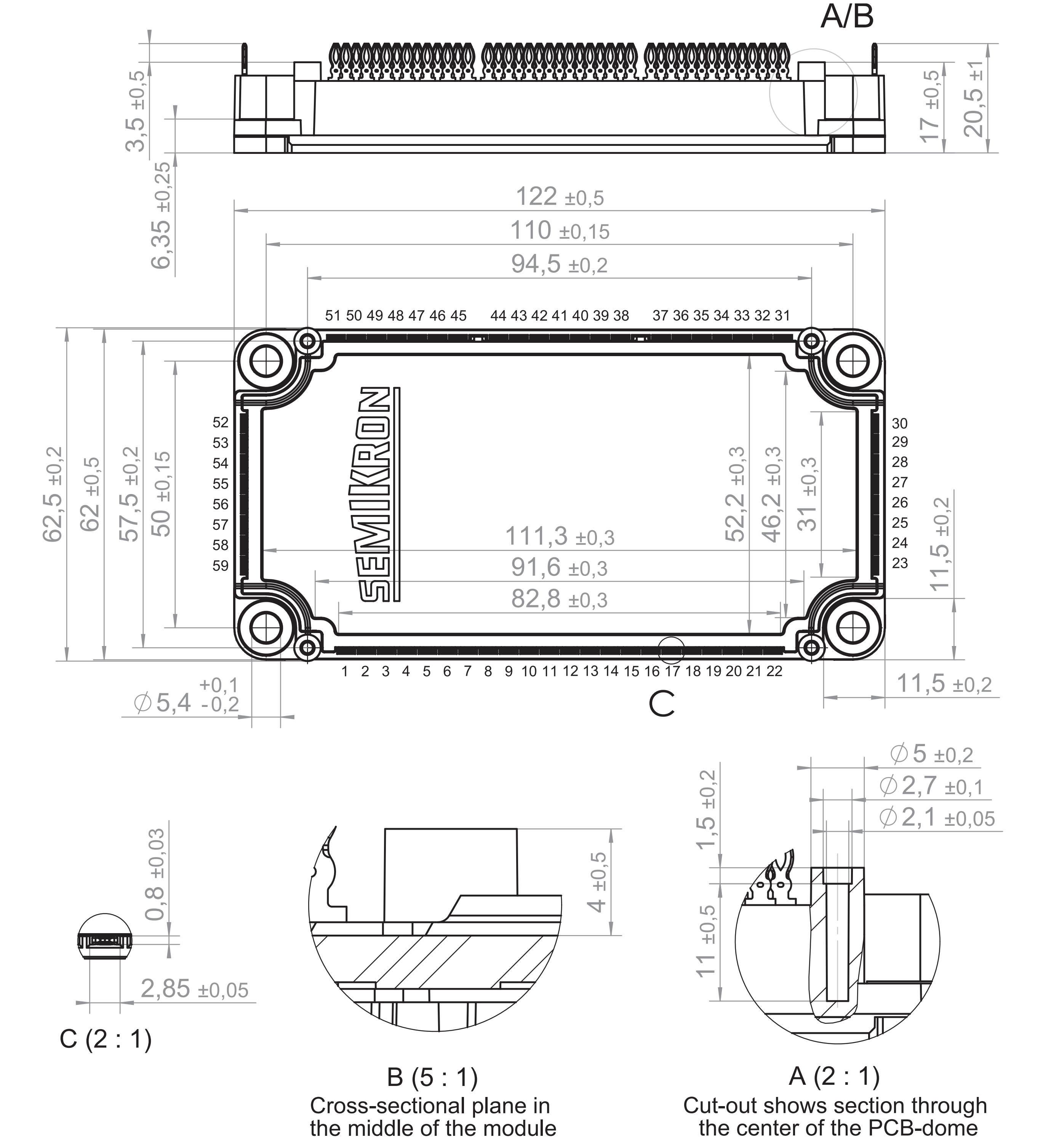
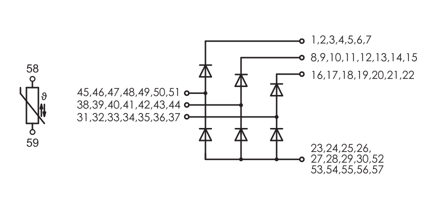


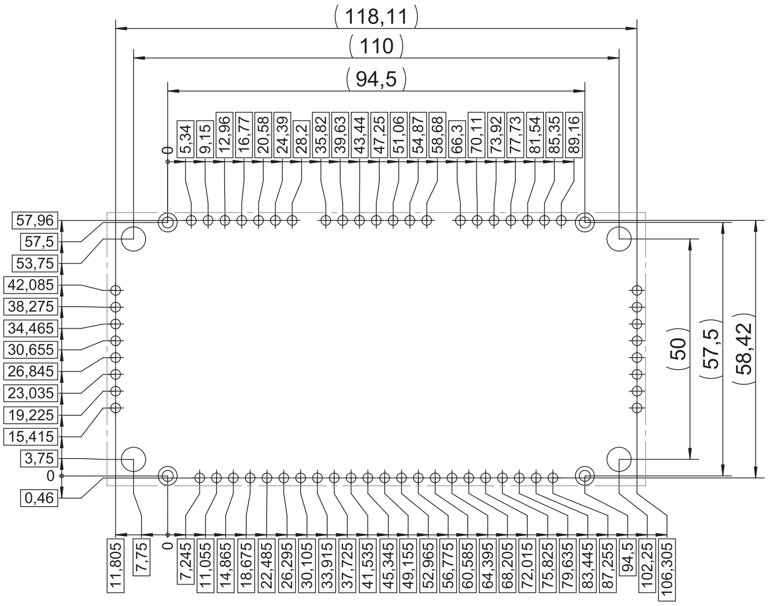
Fig. 8: Surge overload current vs. time


A/B
3,5 ±0,5
6,35 ±0,25
17 ±0,5
20,5 ±1
122 ±0,5
110 ±0,15
94,5 ±0,2
51 50 49 48 47 46 45
44 43 42 41 40 39 38
37 36 35 34 33 32 31
52 53 54 55 56 57 58 59
30 29 28 27 26 25 24 23
SEMIKRON
62,5 ±0,2
62 ±0,5
57,5 ±0,2
50 ±0,15
111,3 ±0,3
91,6 ±0,3
82,8 ±0,3
52,2 ±0,3
46,2 ±0,3
31 ±0,3
11,5 ±0,2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
11,5 ±0,2
∅5,4 +0,1 -0,2
C
∅5 ±0,2
∅2,7 ±0,1
∅2,1 ±0,05
1,5 ±0,2
11 ±0,5
4 ±0,5
0,8 ±0,03
2,85 ±0,05
C (2 : 1)
B (5 : 1)
Cross-sectional plane in the middle of the module
A (2 : 1)
Cut-out shows section through the center of the PCB-dome


1,2,3,4,5,6,7
8,9,10,11,12,13,14,15
16,17,18,19,20,21,22
58
59
45,46,47,48,49,50,51
38,39,40,41,42,43,44
31,32,33,34,35,36,37
23,24,25,26,
27,28,29,30,52
53,54,55,56,57

pinout

PCB drillhole pattern



- Tolerance for PCB holes ⌖ ⌀ 0,1
- Diameter of plated holes ø 2,14 mm - 2,29 mm
- Diameter of drill ø 2,35 mm

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

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