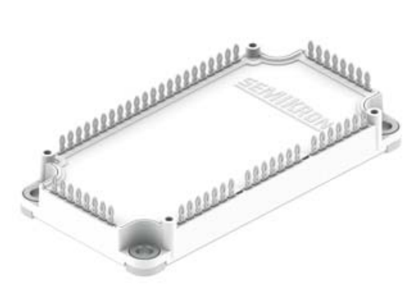


SEMiX® 6p

3-Phase Bridge Rectifier

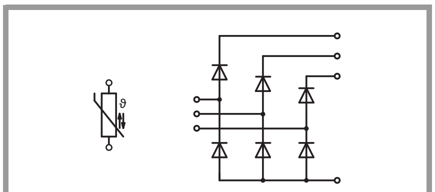
SEMiX636D16p

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

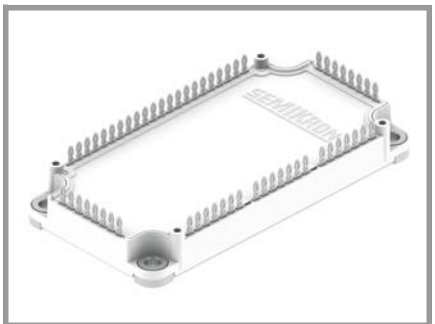
Symbol	Conditions		Values	Unit
Diode				
I_{FAV}	T_j = 175 °C sin 180°	T_c = 85 °C	482	A
		T_c = 100 °C	423	A
I_{FSM}	10 ms sin 180°	T_j = 25 °C	6000	A
		T_j = 150 °C	5500	A
i^2t	10 ms sin 180°	T_j = 25 °C	180000	A^2s
		T_j = 150 °C	151250	A^2s
V_{RSM}			1700	V
V_{RRM}			1600	V
T_j			-40 ... 175	°C

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Diode						
V_F	I_F = 310 A chiplevel	T_j = 25 °C		0.97	1.20	V
		T_j = 150 °C		0.84	1.07	V
V_F	I_F = 310 A terminal level	T_j = 25 °C		1.09	1.39	V
		T_j = 150 °C		1.03	1.32	V
V_{F0}	chiplevel Approximation for: I_{F1} = 310 A I_{F2} = 930 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		0.26	0.35	mΩ
		T_j = 150 °C		0.37	0.50	mΩ
I_R	T_j = 150 °C, V_{RRM}				6.5	mA
$R_{th(j-c)}$	per diode, cont.				0.1	K/W
$R_{th(j-c)}$	per diode, sin. 180°				0.122	K/W
$R_{th(j-c)}$	per diode, rec. 120°				0.128	K/W
$R_{th(c-s)}$	per diode (λ_{grease}=0.81 W/(m*K))			0.042		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

SEMiX636D16p

Features*

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- UL recognized file no. E63532
- Press-Fit pins
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- 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)
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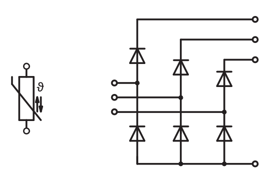


D

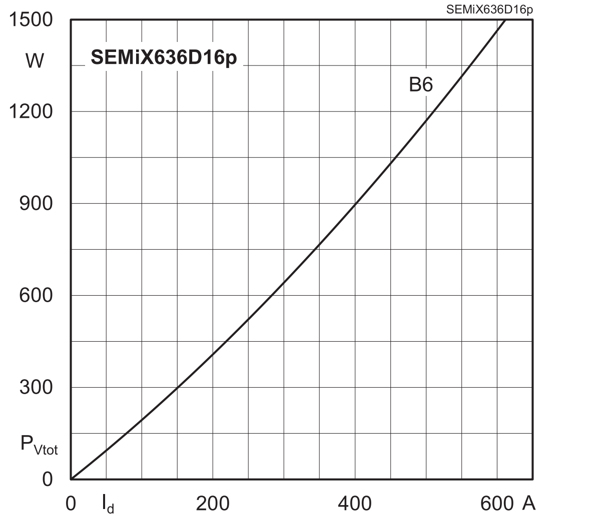


Fig. 4L: Power dissipation per module vs. direct current

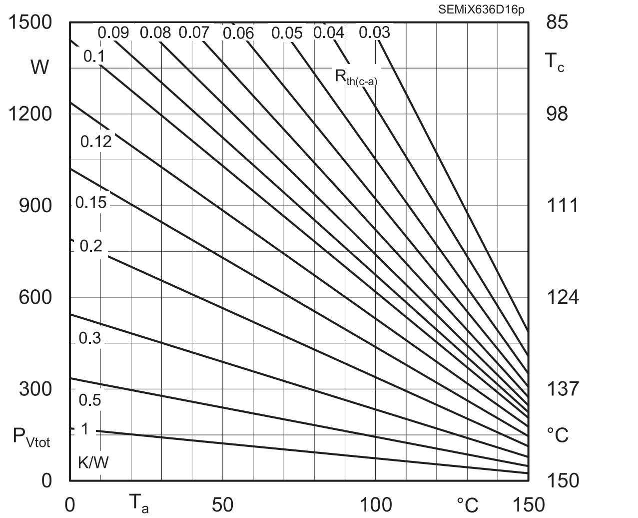


Fig. 4R: Power dissipation per module vs. ambient temperature

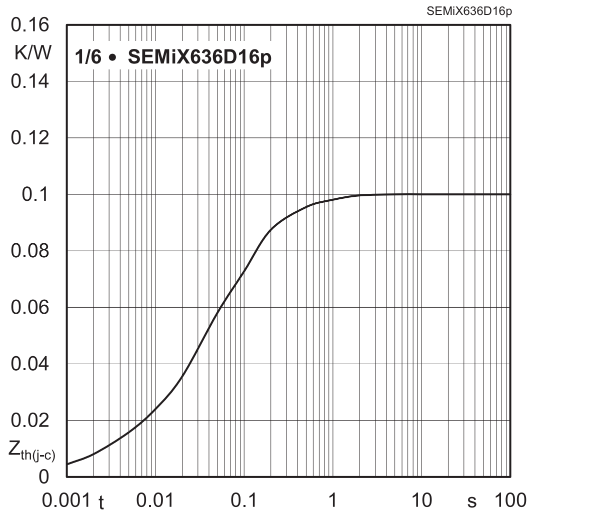


Fig. 6: Transient thermal impedance vs. time

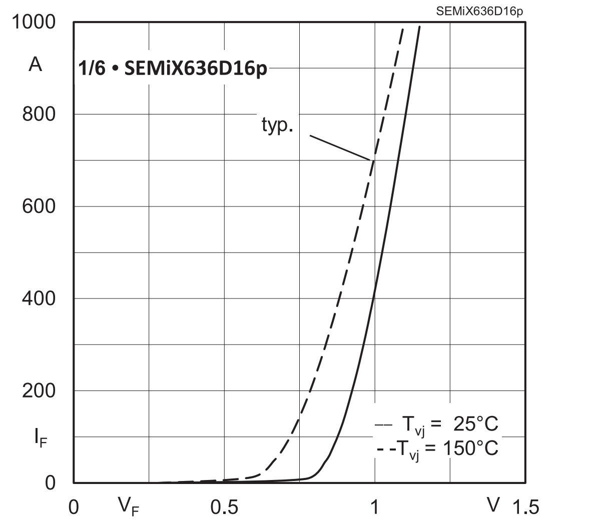


Fig. 7: On-state characteristics (chiplevel)

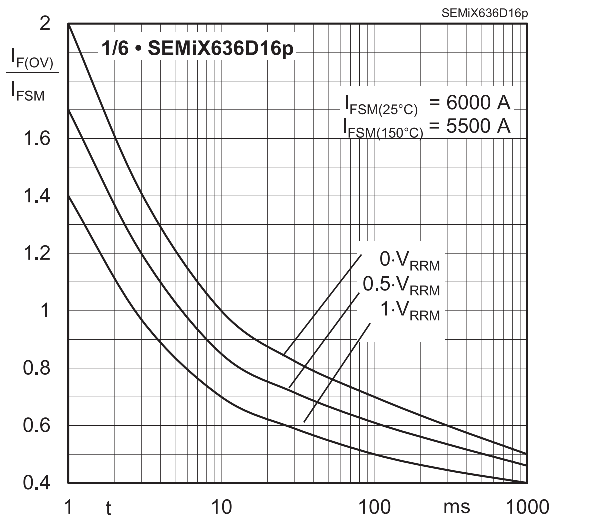
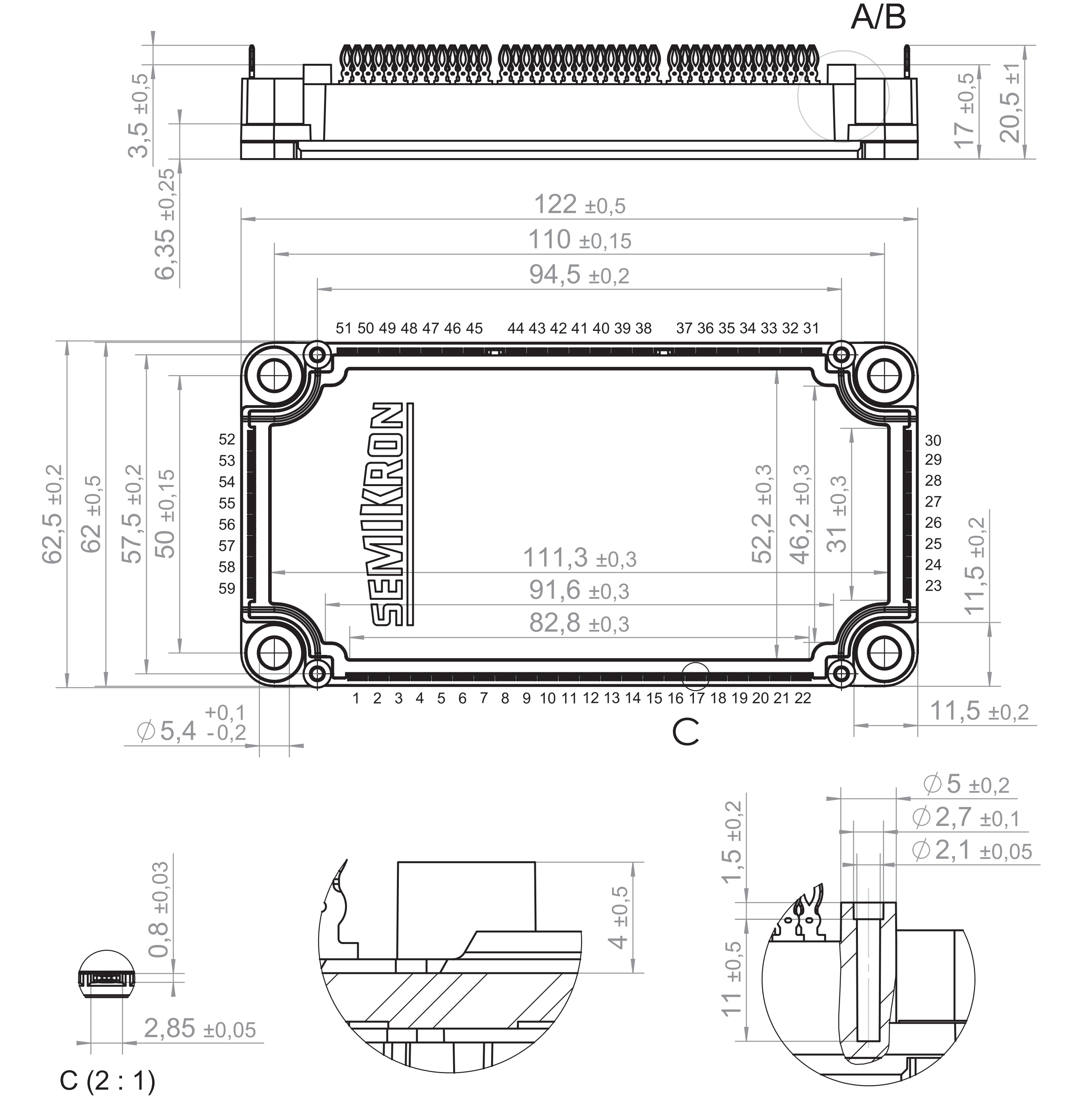


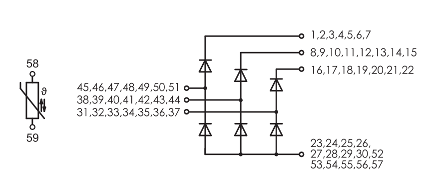
Fig. 8: Surge overload current vs. time



C (2 : 1)

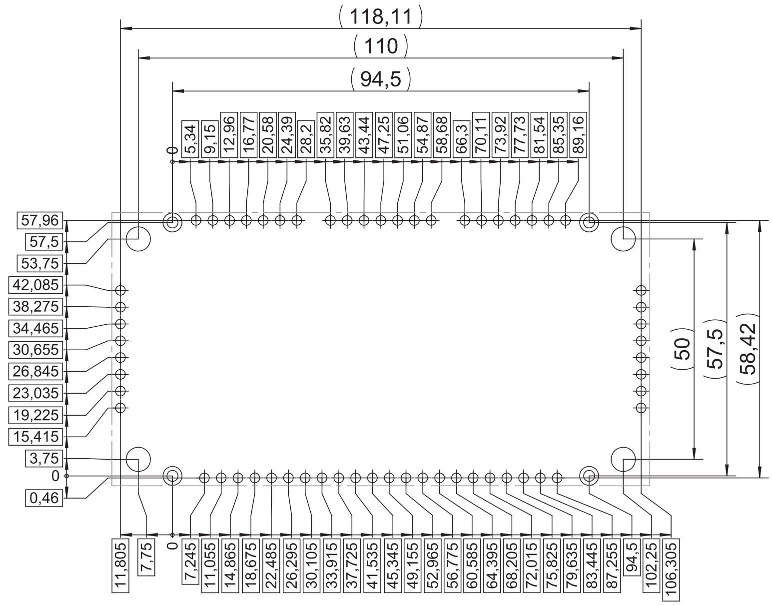
B (5 : 1)
Cross-sectional plane in the middle of the module

A (2 : 1)
Cut-out shows section through the center of the PCB-dome



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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