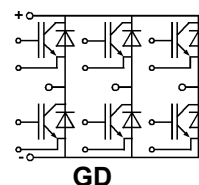
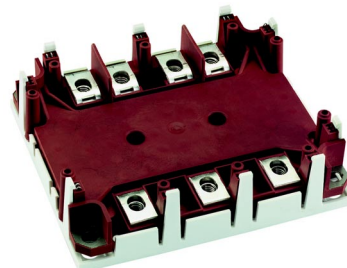


SKiM® 4 IGBT Modules

SKiM 200 GD 128 D

Preliminary Data



Features

- N channel, homogeneous planar IGBT Silicon structure with n+ buffer layer in SPT (soft punch through) technology
- Low inductance case
- Fast & soft inverse CAL diodes ⁸⁾
- Isolated by DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- Spring contact system to attach driver PCB to the control terminals
- Integrated temperature sensor

Typical Applications

- Switched mode power supplies
- Three phase inverters for AC motor speed control
- Switching (not for linear use)

Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
V _{CES}		1200	V
V _{CGR}	R _{GE} = 20 kΩ	1200	V
I _C	T _{HS} = 25/70 °C	186 / 142	A
I _{CM}	T _{HS} = 25/70 °C; t _p = 1 ms	372 / 284	A
V _{GES}		± 20	V
P _{tot}	per IGBT, T _{HS} = 25 °C	520	W
T _j , (T _{stg})		- 40 ... +150 (125)	°C
T _{cop}	max. case operating temperature	125	°C
V _{isol}	AC, 1 min.	2500	V
humidity	IEC-EN 60721-3-3		
climate	IEC 68 T.1	40/125/56	
Inverse Diode			
I _F = -I _C	T _{HS} = 25/70 °C	160 / 120	A
I _{FM} = -I _{CM}	T _{HS} = 25/70 °C; t _p = 1 ms	320 / 240	A
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	1 400	A
I ² t	t _p = 10 ms; T _j = 150 °C	5 000	A ² s

Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
V _{(BR)CES}	V _{GE} = 0, I _C = 1 mA	≥ V _{CES}	-	-	V
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 6 mA	4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0 V _{CE} = V _{CES} } T _j = 125 °C	-	12	-	mA
I _{GES}	V _{GE} = 20 V, V _{CE} = 0	-	-	500	nA
V _{CESat} ⁴⁾	I _C = 150 A } V _{GE} = 15 V; T _j = 25 °C }	-	2,0	2,3	V
C _{ies}	V _{GE} = 0	-	11	-	nF
C _{oes}	V _{CE} = 25 V	-	1,0	-	nF
C _{res}	f = 1 MHz	-	0,7	-	nF
L _{CE}		-	-	20	nH
R _{CC'+EE'}	resistance, terminal-chip; T _{HS} = 25 °C	-	1,15	-	mΩ
t _{d(on)}	V _{CC} = 600 V	-	120	-	ns
t _r	V _{GE} = +15 V / -15 V ³⁾	-	50	-	ns
t _{d(off)}	I _C = 150 A, ind. load	-	635	-	ns
t _f	R _{Gon} = R _{Goff} = 6,8 Ω	-	45	-	ns
E _{on}	T _j = 125 °C	-	15,5	-	mJ
E _{off}		-	13,5	-	mJ
Inverse Diode ⁸⁾					
V _F = V _{EC} ⁴⁾	I _F = 150 A } V _{GE} = 0 V; T _j = 25 (125) °C }	-	2,0 (1,8)	2,5	V
V _F = V _{EC} ⁴⁾	I _F = 100 A } V _{GE} = 0 V; T _j = 25 (125) °C }	-	1,75 (1,5)	-	V
V _{TO}	T _j = 125 °C	-	1,1	-	V
r _T	T _j = 125 °C	-	6	-	mΩ
I _{RRM}	I _F = 200 A; T _j = 25 (125) °C ²⁾	-	TBD	-	A
Q _{rr}	I _F = 200 A; T _j = 25 (125) °C ²⁾	-	TBD	-	μC
Thermal Characteristics ⁵⁾					
R _{thjh}	per IGBT	-	-	0,24	°C/W
R _{thjD}	per diode	-	-	0,37	°C/W
R' _{thjc} ⁶⁾	per IGBT	-	-	tbd	°C/W
R' _{thjD} ⁶⁾	per diode	-	-	tbd	°C/W
Temperature Sensor					
R _{TS}	T = 25 °C / 100 °C	-	1,0 / 1,67	-	kΩ
tolerance	T = 25 °C / 100 °C	-	3,0 / 2,0	-	%

¹⁾ T_{HS} = 25 °C, unless otherwise specified

²⁾ TBD

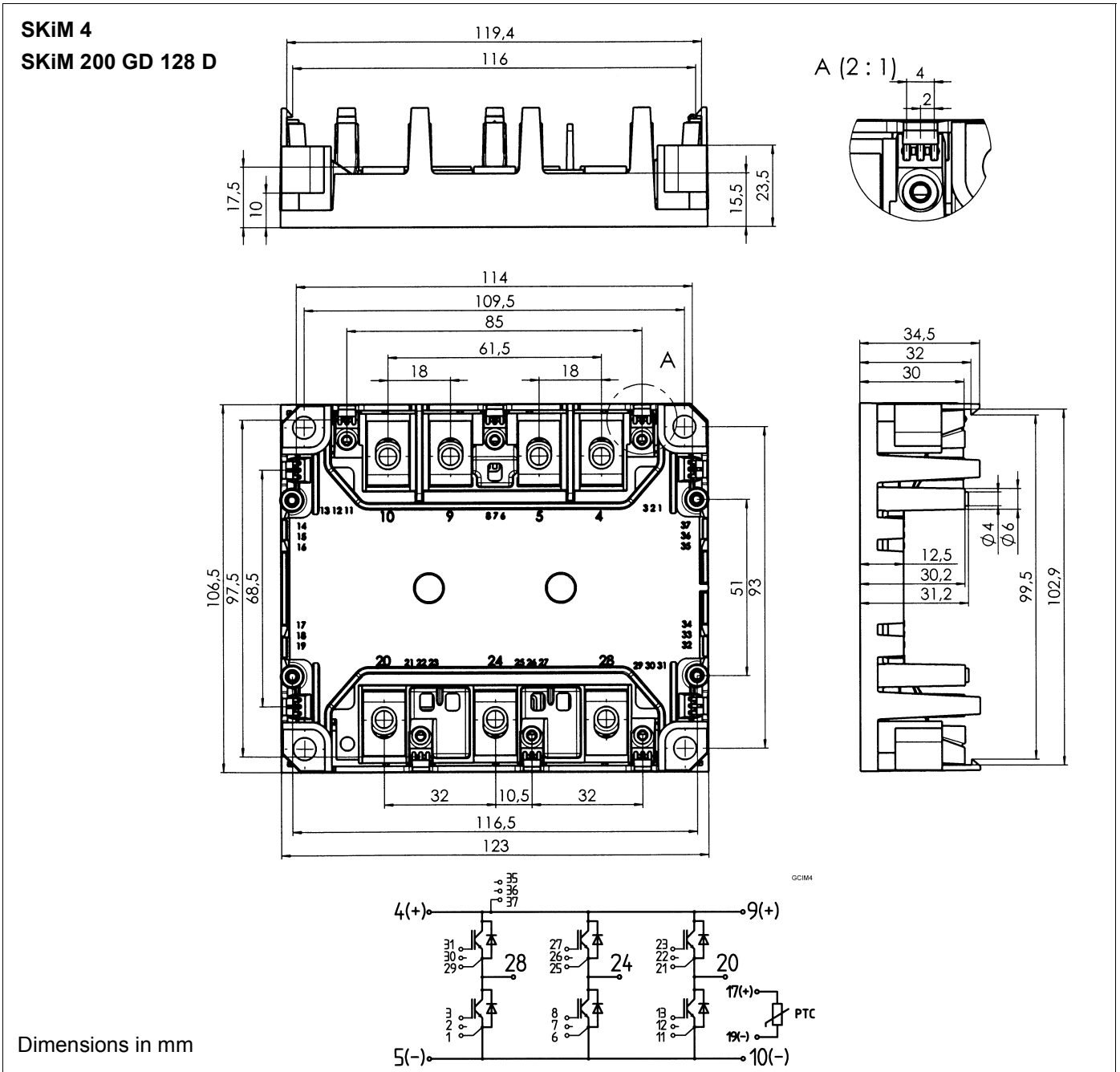
³⁾ Use V_{GEoff} = - 5 ... - 15 V

⁴⁾ Measured at chip level

⁵⁾ See mounting instructions

⁶⁾ Corresponding value. This value cannot be measured. It is only given for comparison.

⁸⁾ CAL = Controlled Axial Lifetime Technology



Case outline and circuit diagram

Mechanical Data			Values			Units
Symbol	Conditions		min.	typ.	max.	
M ₁	to heatsink, SI Units to heatsink, US Units	(M5)	2	—	3	Nm lb.in.
M ₂	for terminals, SI Units for terminals, US Units	(M6)	4	—	5	Nm lb.in.
a			—	—	5x9,81	m/s ²
w			—	—	310	g

This is an electrostatic discharge sensitive device (ESDS).
Please observe the international standard IEC 747-1, Chapter IX.

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