



SKiM 4

SPT IGBT Module

SKiM 150GD128D

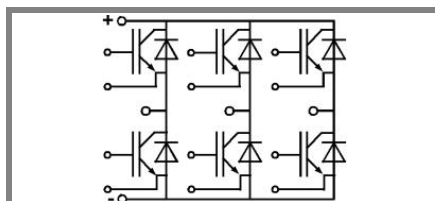
Target Data

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
- Isolated by Al₂O₃ DCB (Direct Copper Bonded) ceramic plate
- Pressure contact technology for thermal contacts
- Spring contact system to attach driver PCB to the control
- Integrated temperature sensor

Typical Applications

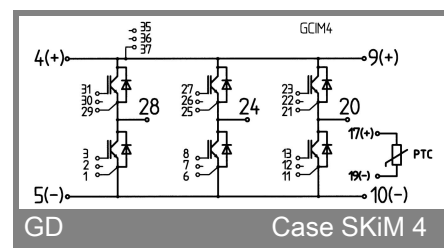
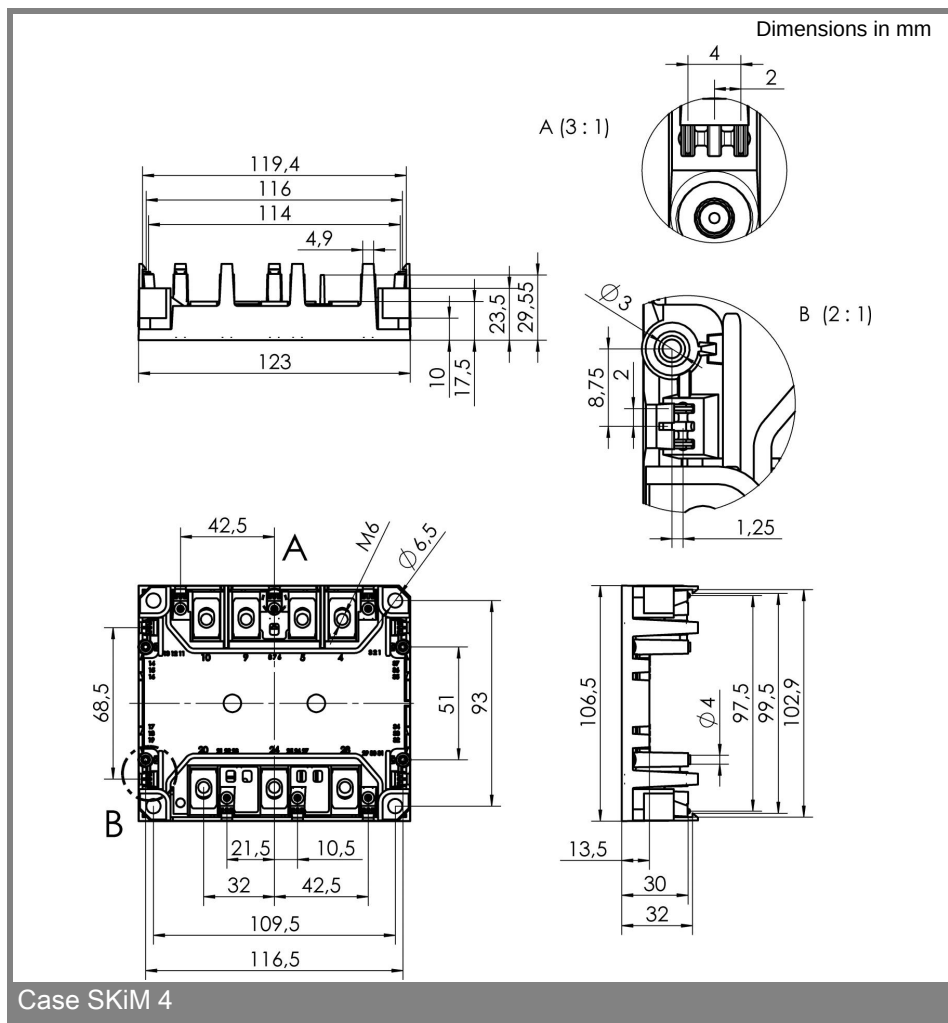
- Switched mode power supplies
- Three phase inverters for AC motor speed control
- Switching (not for linear use)



GD

Absolute Maximum Ratings		$T_{case} = 25^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_s = 25 (80)^{\circ}\text{C}$	110 (80)	A
I_{CM}	$T_s = 25 (80)^{\circ}\text{C}$, $t_p = 1 \text{ ms}$	220 (160)	A
V_{GES}		± 20	V
$T_j (T_{stg})$		-40 ... 150 (125)	$^{\circ}\text{C}$
T_{cop}	max. case operating temperature	125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	2500	V
Inverse diode			
I_F	$T_s = 25 (80)^{\circ}\text{C}$	110 (70)	A
$I_{FM} = -I_{CM}$	$T_s = 25 (80)^{\circ}\text{C}$, $t_p = 1 \text{ ms}$	220 (160)	A
I_{FSM}	$t_p = 10 \text{ ms}$; sin.; $T_j = 150^{\circ}\text{C}$	1100	A

Characteristics		T _{case} = 25°C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{GE} = V _{CE} ; I _C = 8 mA	4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0; V _{CE} = V _{CES} ; T _j = 25 (125) °C		0,1	0,3	mA
V _{CEO}	T _j = 25 °C		1 (0,9)	1,15 (1,05)	V
r _{CE}	T _j = 25 () °C		9 (12)	12 (15)	mΩ
V _{CEsat}	I _C = 100 A; V _{GE} = 15 V, T _j = 25 (125) °C on chip level		1,9 (2,1)	2,35 (2,55)	V
C _{ies}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		9		nF
C _{oes}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		1		nF
C _{res}	V _{GE} = 0; V _{CE} = 25 V; f = 1 MHz		1		nF
L _{CE}				20	nH
R _{CC'+EE'}	resistance, terminal-chip T _c = 25 °C		1,15		mΩ
t _{d(on)}	V _{CC} = 600 V				ns
t _r	I _C = 100 A				ns
t _{d(off)}	R _{Gon} = R _{Goff} = Ω				ns
t _f	T _j = 125 °C				ns
E _{on} (E _{off})	V _{GE} ± 15 V		11,5 (9,5)		mJ
E _{on} (E _{off})	with SKHI 64; T _j = 125 °C V _{CC} = 600 V; I _C = 100 A				mJ
Inverse diode					
V _F = V _{EC}	I _F = 100 A; V _{GE} = 0 V; T _j = 25 (125) °C		2 (1,8)	2,5 (2,3)	V
V _{TO}	T _j = 25 (125) °C		1,1	1,45 (1,25)	V
r _T	T _j = 25 (125) °C		9	13 (11)	mΩ
I _{RRM}	I _F = 100 A; T _j = 125 °C				A
Q _{rr}	V _{GE} = 0 V di/dt = A/μs				μC
E _{rr}	R _{Gon} = R _{Goff} = Ω				mJ
Thermal characteristics					
R _{th(j-s)}	per IGBT			0,4	K/W
R _{th(j-s)}	per FWD			0,5	K/W
Temperature Sensor					
R _{TS}	T = 25 (100) °C		1 (6,7)		kΩ
tolerance	T = 25 (100) °C		3 (2)		%
Mechanical data					
M ₁	to heatsink (M5)	2		3	Nm
M ₂	for terminals (M6)	4		5	Nm
w				310	g



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

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