

MiniSKiiP® 2

3-phase bridge rectifier +
brake chopper

SKiiP 28ANB16V2

Features

- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

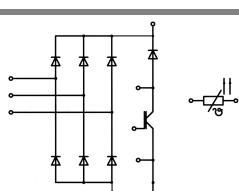
- Input bridge for Inverter up to 39 kVA

Remarks

- V_{CEsat} , V_F = chip level value

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT - Chopper				
V_{CES}		1200		V
I_C	$T_s = 25 \text{ (70)}^\circ\text{C}$	118 (88)	A	
I_{CRM}		210	A	
V_{GES}		± 20	V	
T_j		- 40 ... + 150	$^\circ\text{C}$	
Diode - Chopper				
I_F	$T_s = 25 \text{ (70)}^\circ\text{C}$	118 (88)	A	
I_{FRM}		210	A	
T_j		- 40 ... + 150	$^\circ\text{C}$	
Diode - Rectifier				
V_{RRM}		1600	V	
I_F	$T_s = 70^\circ\text{C}$	83	A	
I_{FSM}	$t_p = 10 \text{ ms, sin } 180^\circ, T_j = 25^\circ\text{C}$	1000	A	
$i_{\bar{t}}$	$t_p = 10 \text{ ms, sin } 180^\circ, T_j = 25^\circ\text{C}$	6600	A^2s	
T_j		- 40 ... + 150	$^\circ\text{C}$	
Module				
I_{tRMS}	per power terminal (20 A / spring)	120	A	
T_{stg}		- 40 ... + 125	$^\circ\text{C}$	
V_{isol}	AC, 1 min.	2500	V	

Characteristics		$T_s = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	min.	typ.	max.
IGBT - Chopper				
V_{CEsat}	$I_{Cnom} = 105 \text{ A}, T_j = 25 \text{ (125)}^\circ\text{C}$		1,7 (2)	2,1 (2,4)
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 3 \text{ mA}$	5	5,8	6,5
$V_{CE(TO)}$	$T_j = 25 \text{ (125)}^\circ\text{C}$		1 (0,9)	1,2 (1,1)
r_T	$T_j = 25 \text{ (125)}^\circ\text{C}$		6,7 (10)	8,6 (12)
C_{ies}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		8,4	nF
C_{oes}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		1,5	nF
C_{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		1,1	nF
$R_{th(j-s)}$	per IGBT		0,4	K/W
$t_{d(on)}$	under following conditions		65	ns
t_r	$V_{CC} = 600 \text{ V}, V_{GE} = \pm 15 \text{ V}$		30	ns
$t_{d(off)}$	$I_{Cnom} = 105 \text{ A}, T_j = 125^\circ\text{C}$		465	ns
t_f	$R_{Gon} = R_{Goff} = 5,1 \Omega$		95	ns
E_{on}	inductive load		10,1	mJ
E_{off}			13,6	mJ
Diode - Chopper				
$V_F = V_{EC}$	$I_{Fnom} = 105 \text{ A}, T_j = 25 \text{ (125)}^\circ\text{C}$		1,6 (1,6)	1,8 (1,8)
$V_{(TO)}$	$T_j = 25 \text{ (125)}^\circ\text{C}$		1 (0,8)	1,1 (0,9)
r_T	$T_j = 25 \text{ (125)}^\circ\text{C}$		5,7 (7,6)	6,7 (8,6)
$R_{th(j-s)}$	per diode		0,55	K/W
I_{RRM}	under following conditions		180	A
Q_{rr}	$I_{Fnom} = 105 \text{ A}, V_R = 600 \text{ V}$		26	μC
E_{rr}	$V_{GE} = 0 \text{ V}, T_j = 125^\circ\text{C}$ $di_F/dt = 4350 \text{ A}/\mu\text{s}$		11,8	mJ
Diode - Rectifier				
V_F	$I_{Fnom} = 75 \text{ A}, T_j = 25^\circ\text{C}$		1,2	V
$V_{(TO)}$	$T_j = 150^\circ\text{C}$		0,8	V
r_T	$T_j = 150^\circ\text{C}$		7	$\text{m}\Omega$
$R_{th(j-s)}$	per diode		0,7	K/W
Temperature Sensor				
R_{ts}	$3\%, T_r = 25 \text{ (100)}^\circ\text{C}$		1000(1670)	Ω
Mechanical Data				
w		65	g	
M_s	Mounting torque	2	2,5	Nm



ANB

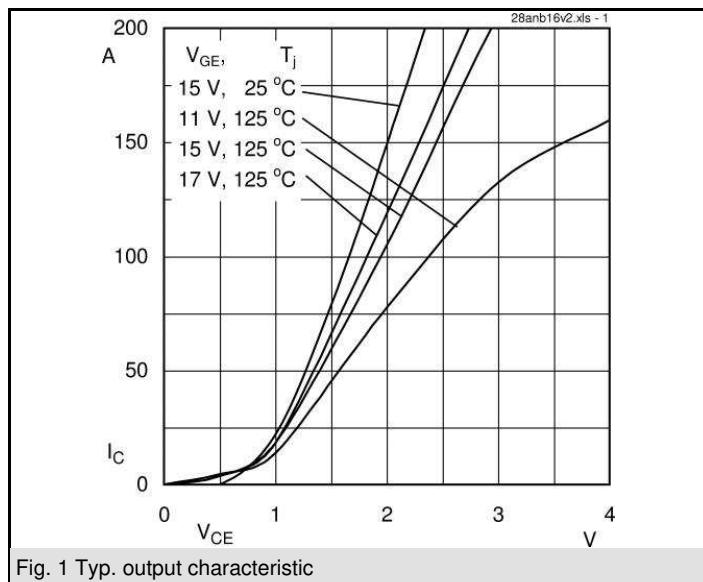


Fig. 1 Typ. output characteristic

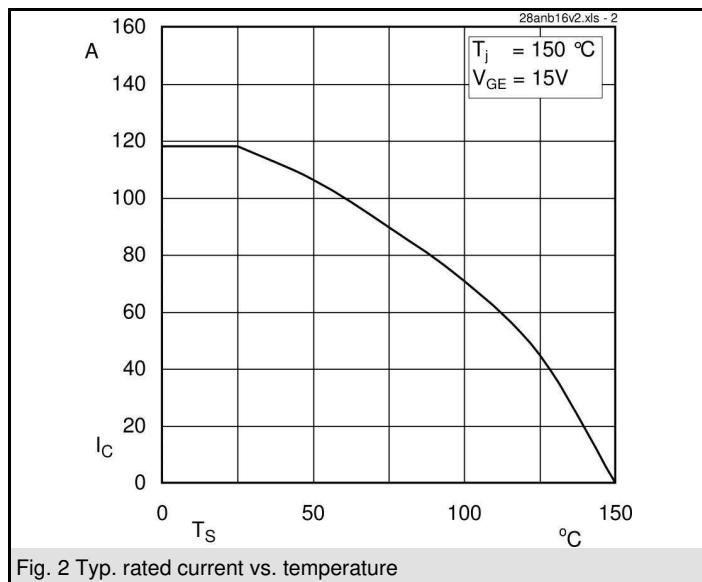


Fig. 2 Typ. rated current vs. temperature

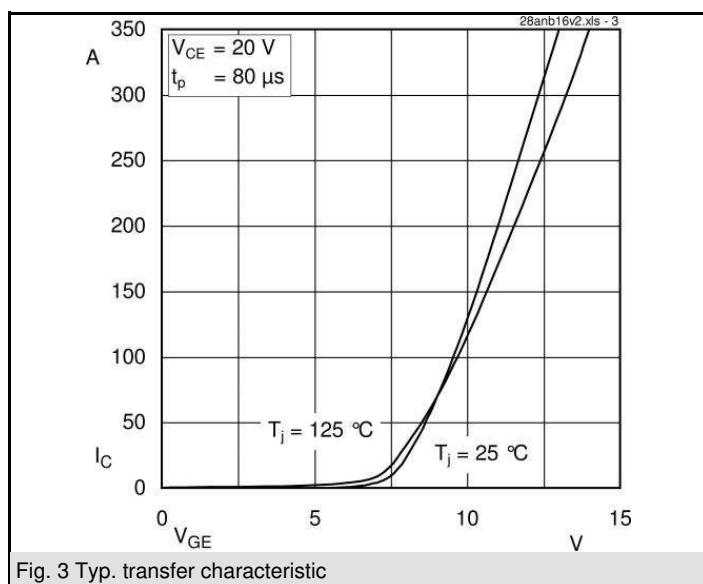


Fig. 3 Typ. transfer characteristic

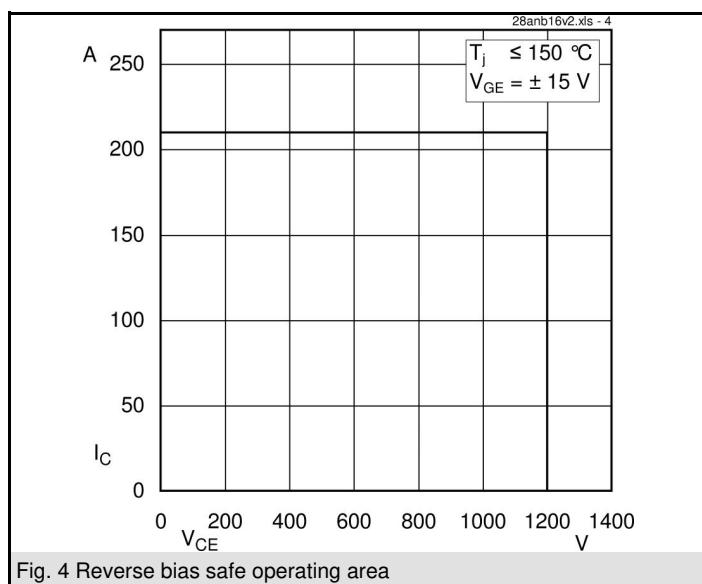


Fig. 4 Reverse bias safe operating area

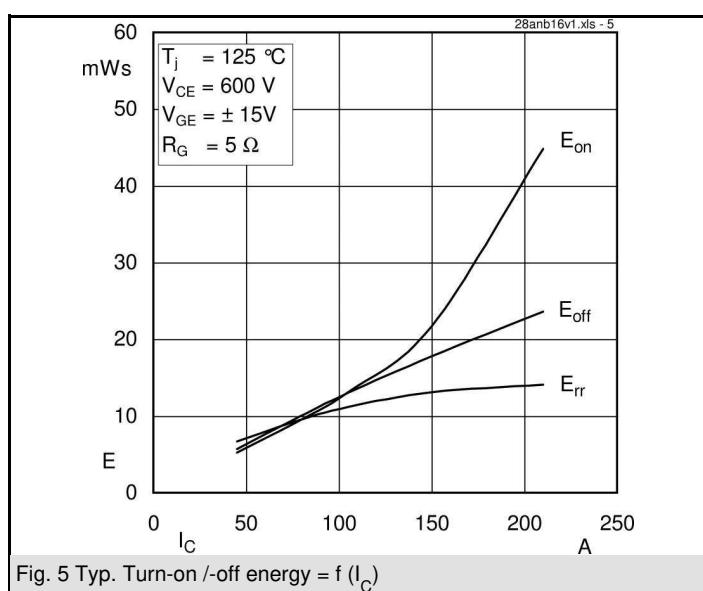


Fig. 5 Typ. Turn-on /-off energy = f (I_C)

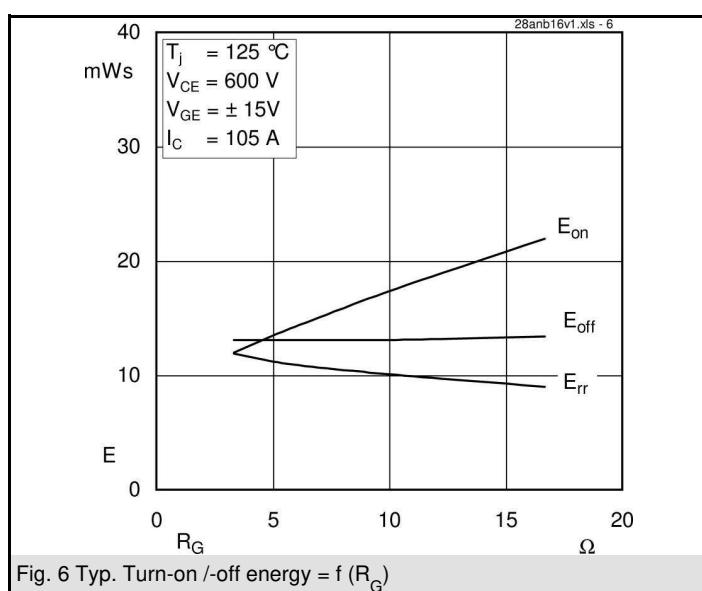


Fig. 6 Typ. Turn-on /-off energy = f (R_G)

SKiiP 28ANB16V2 CONVERTER, INVERTER, BRAKE

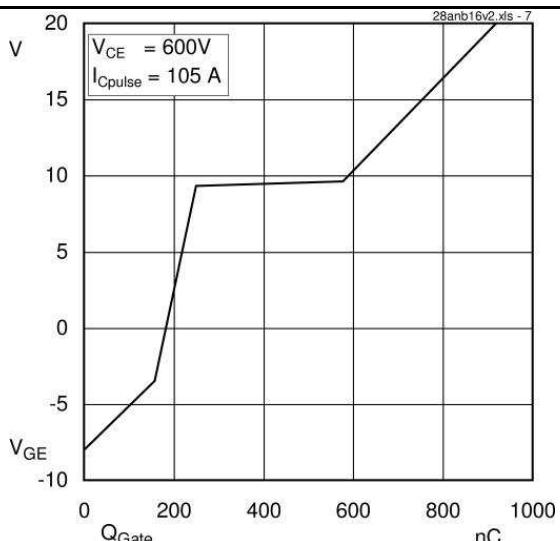


Fig. 7 Typ. gate charge characteristic

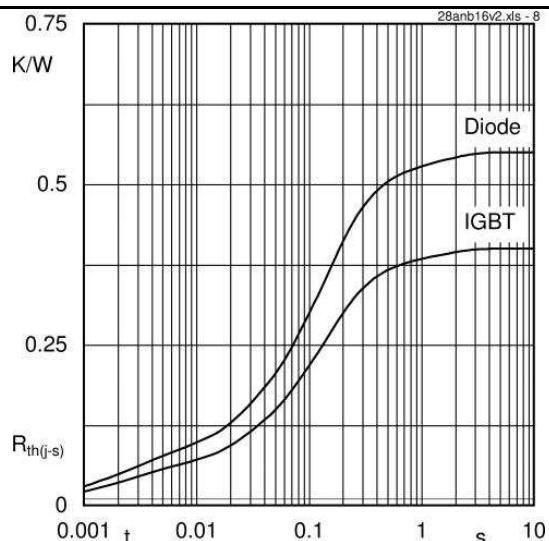


Fig. 8 Typ. thermal impedance

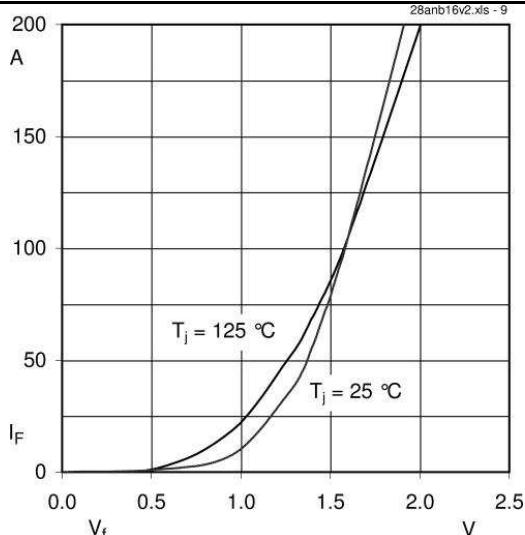


Fig. 9 Typ. freewheeling diode forward characteristic

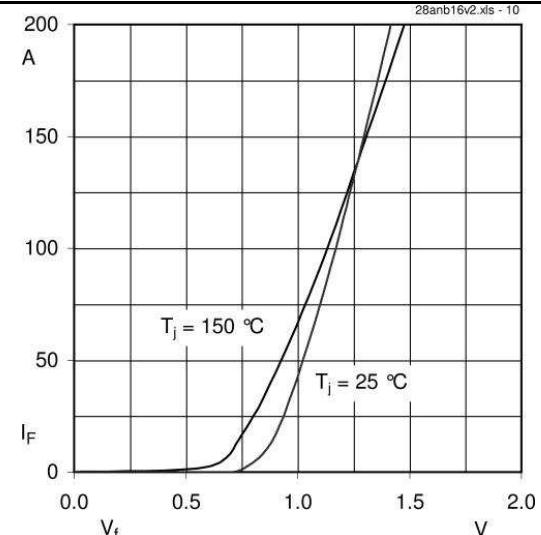
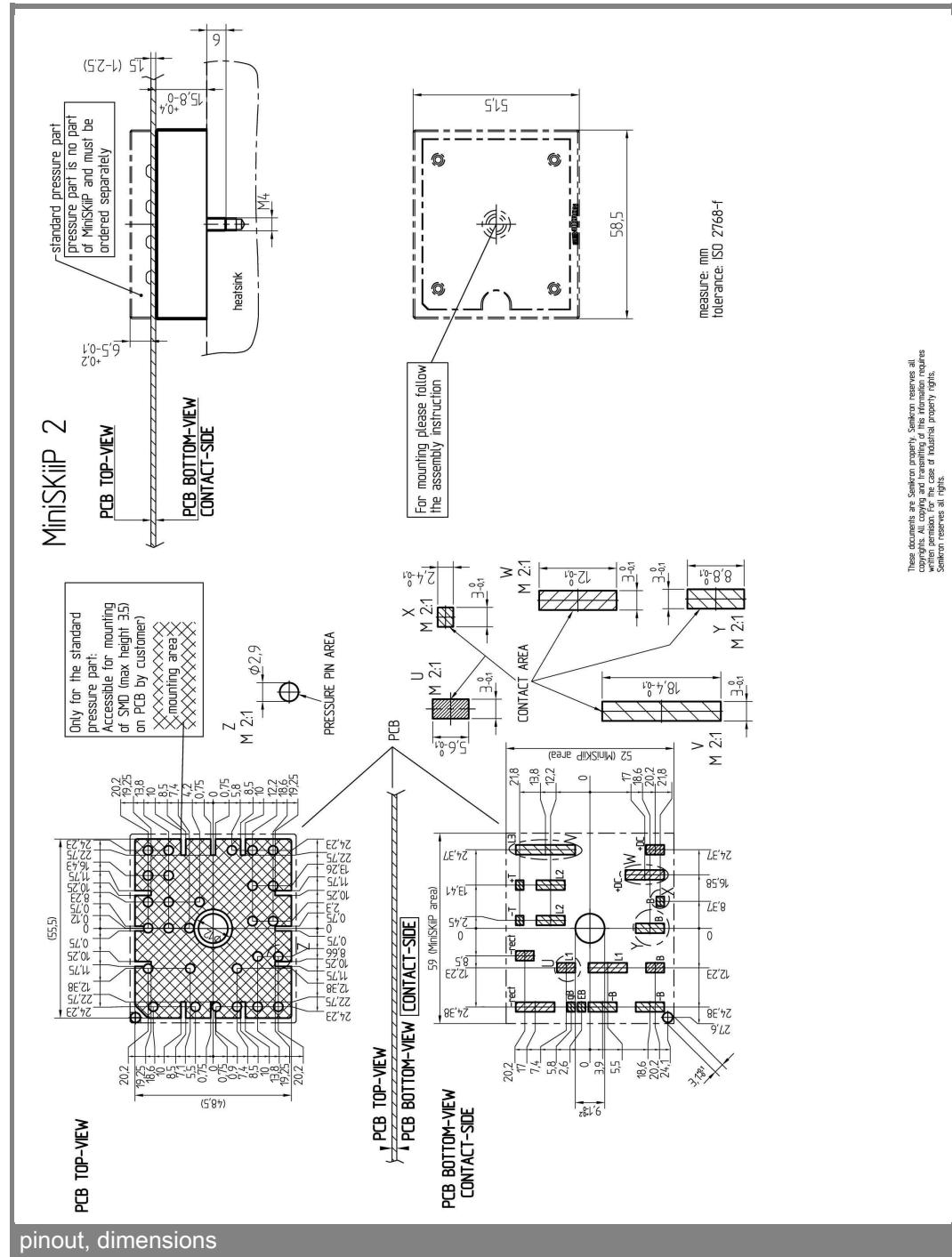
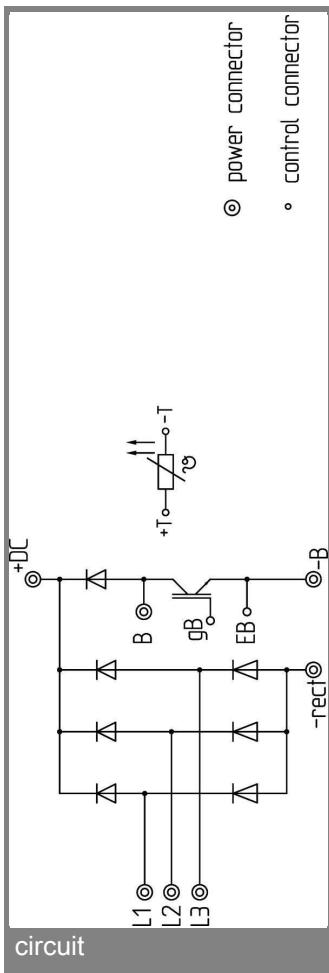


Fig. 10 Typ. input bridge forward characteristic



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

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