

# SKiiP 28ANB16V10



## MiniSKiiP<sup>®</sup> 2

### 3-phase bridge rectifier + brake chopper

#### SKiiP 28ANB16V10

#### Target Data

#### Features

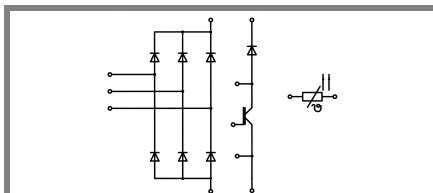
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

#### Typical Applications\*

- Input bridge for Inverter up to 39 kVA

#### Remarks

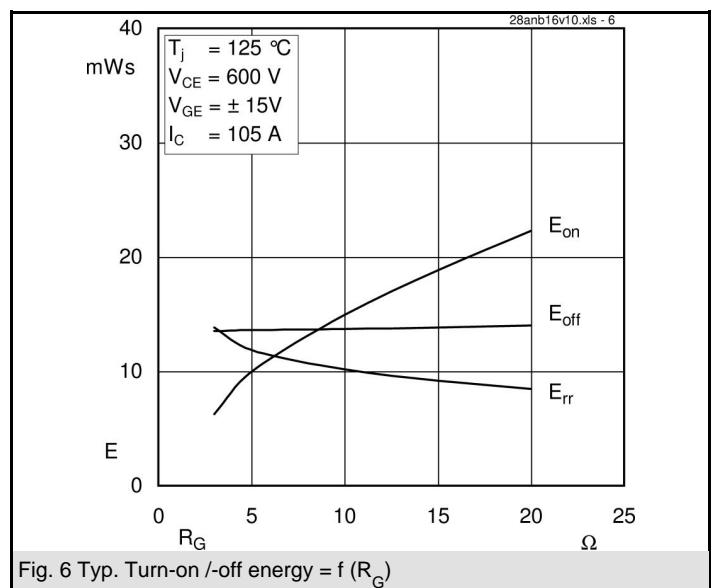
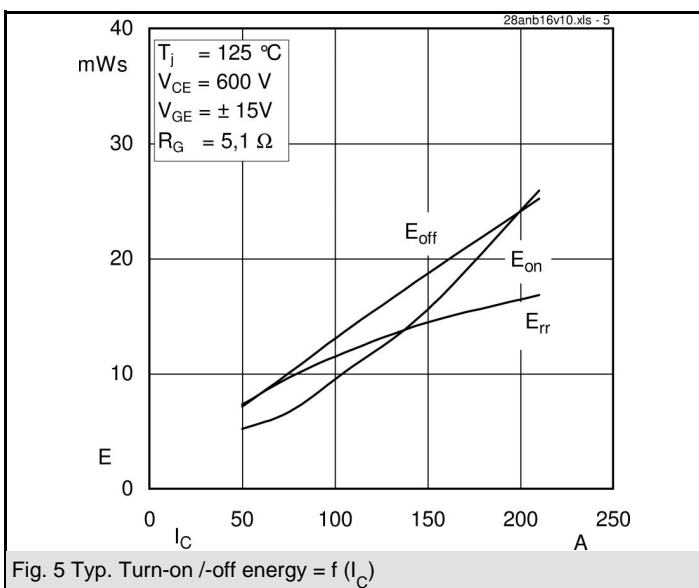
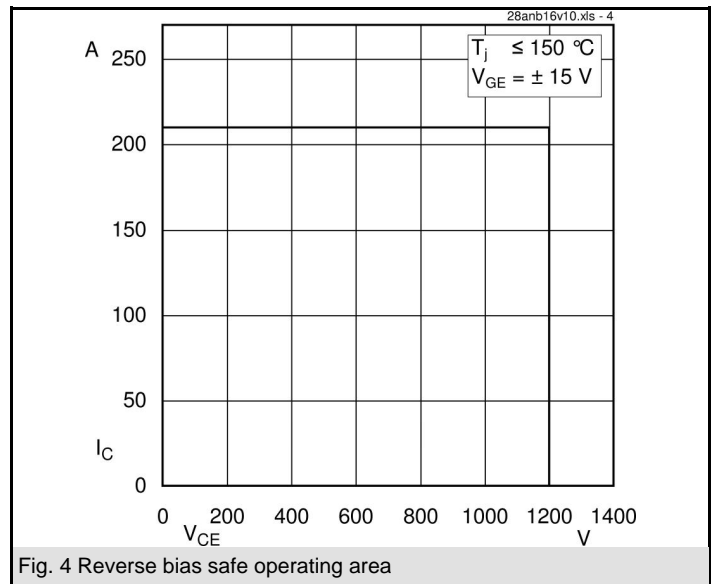
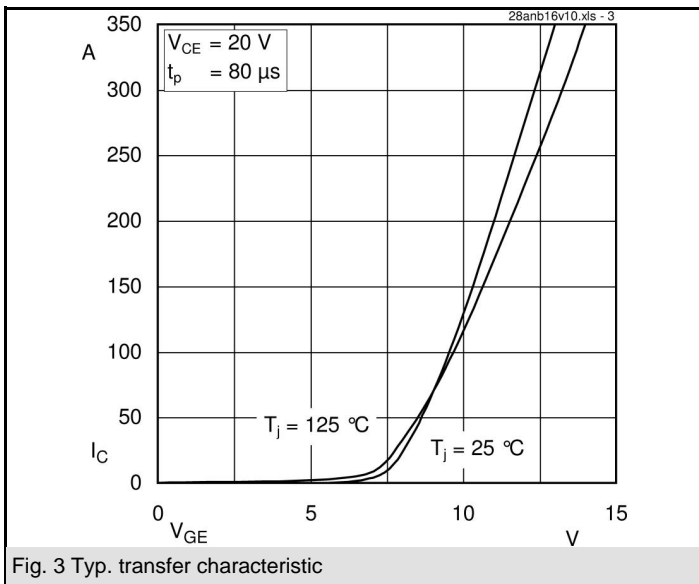
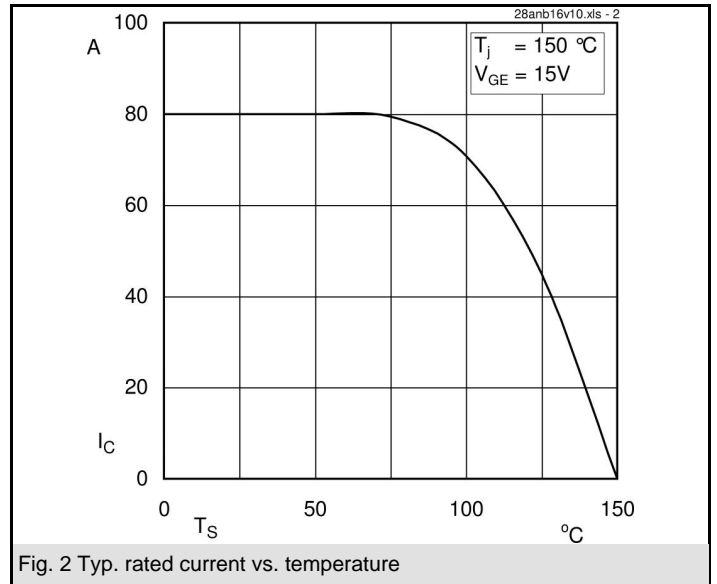
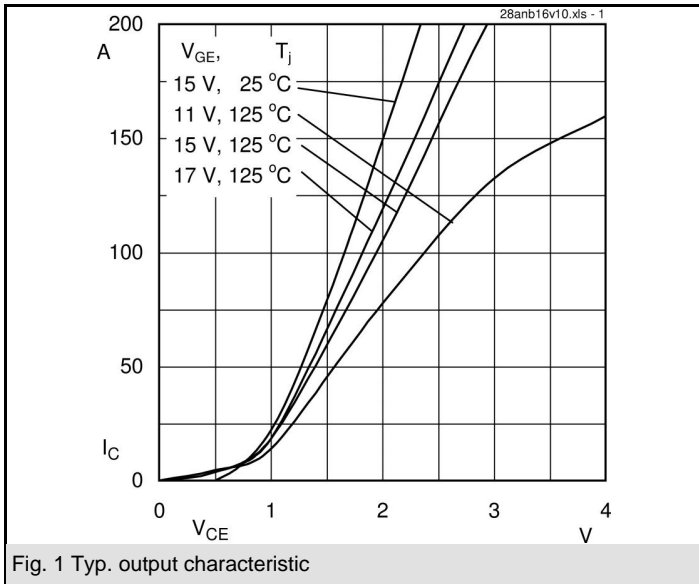
- $V_{CEsat}$ ,  $V_F$  = chip level value



#### ANB

Absolute Maximum Ratings		$T_s = 25\text{ °C}$ , unless otherwise specified		
Symbol	Conditions	Values	Units	
<b>IGBT - Chopper</b>				
$V_{CES}$	$T_s = 25\text{ (70) °C}$	1200	V	
$I_C$		118 (88)	A	
$I_{CRM}$		210	A	
$V_{GES}$		$\pm 20$	V	
$T_j$		- 40 ... + 150	°C	
<b>Diode - Chopper</b>				
$I_F$	$T_s = 25\text{ (70) °C}$	118 (88)	A	
$I_{FRM}$		210	A	
$T_j$		- 40 ... + 150	°C	
<b>Diode - Rectifier</b>				
$V_{RRM}$	$T_s = 70\text{ °C}$	1600	V	
$I_F$		83	A	
$I_{FSM}$		$t_p = 10\text{ ms, sin } 180\text{ °, } T_j = 25\text{ °C}$	1000	A
$i^2t$		$t_p = 10\text{ ms, sin } 180\text{ °, } T_j = 25\text{ °C}$	6600	A <sup>2</sup> s
$T_j$		- 40 ... + 150	°C	
<b>Module</b>				
$I_{RMS}$	per power terminal (20 A / spring)	80	A	
$T_{stg}$		- 40 ... + 125	°C	
$V_{isol}$	AC, 1 min.	2500	V	

Characteristics		$T_s = 25\text{ °C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Chopper</b>					
$V_{CEsat}$	$I_{Cnom} = 105\text{ A, } T_j = 25\text{ (125) °C}$		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 3\text{ mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,9)	1,2 (1,1)	V
$r_T$	$T_j = 25\text{ (125) °C}$		6,7 (10)	8,6 (12)	mΩ
$C_{ies}$	$V_{CE} = 25\text{ V, } V_{GE} = 0\text{ V, } f = 1\text{ MHz}$		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
$t_{d(off)}$	$I_{Cnom} = 105\text{ A, } T_j = 125\text{ °C}$		465		ns
$t_f$	$R_{Gon} = R_{Goff} = 5,1\text{ Ω}$		95		ns
$E_{on}$	inductive load		10,1		mJ
$E_{off}$			13,6		mJ
<b>Diode - Chopper</b>					
$V_F = V_{EC}$	$I_{Fnom} = 105\text{ A, } T_j = 25\text{ (125) °C}$		1,6 (1,6)	1,8 (1,8)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,8)	1,1 (0,9)	V
$r_T$	$T_j = 25\text{ (125) °C}$		5,7 (7,6)	6,7 (8,6)	mΩ
$R_{th(j-s)}$	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
$E_{rr}$	$V_{GE} = 0\text{ V, } T_j = 125\text{ °C}$		11,8		mJ
	$di_F/dt = 4350\text{ A/μs}$				
<b>Diode - Rectifier</b>					
$V_F$	$I_{Fnom} = 75\text{ A, } T_j = 25\text{ °C}$		1,2		V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0,8		V
$r_T$	$T_j = 150\text{ °C}$		7		mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
<b>Temperature Sensor</b>					
$R_{ts}$	3 %, $T_r = 25\text{ (100) °C}$		1000(1670)		Ω
<b>Mechanical Data</b>					
w			65		g
$M_s$	Mounting torque	2		2,5	Nm



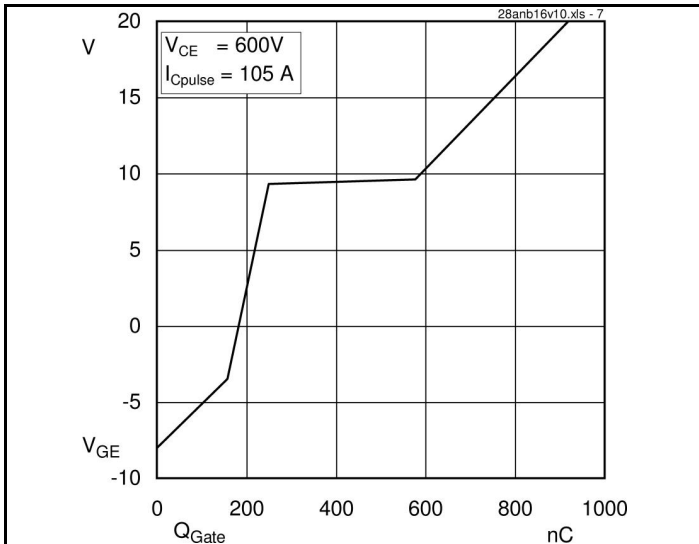


Fig. 7 Typ. gate charge characteristic

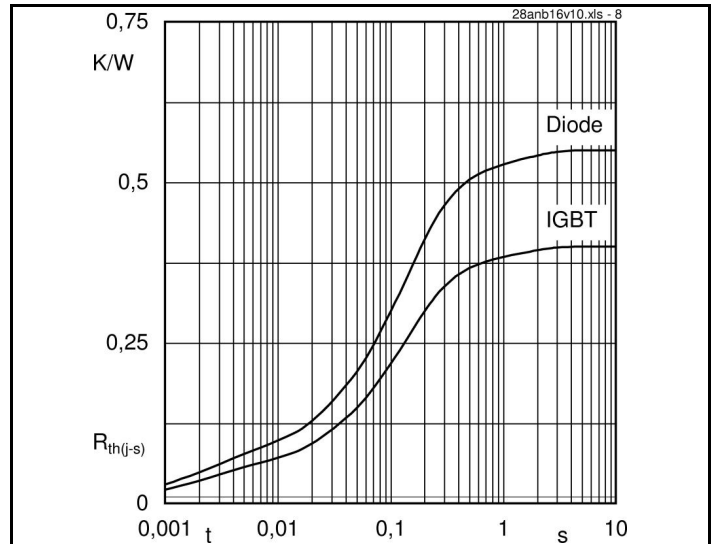


Fig. 8 Typ. thermal impedance

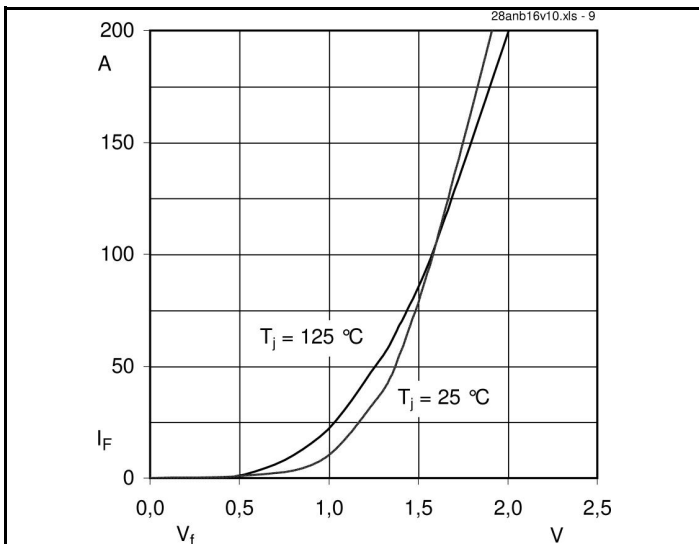


Fig. 9 Typ. freewheeling diode forward characteristic

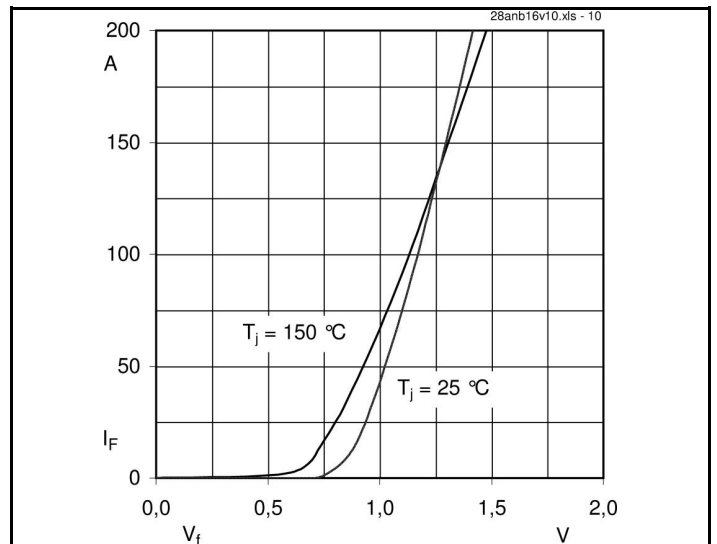
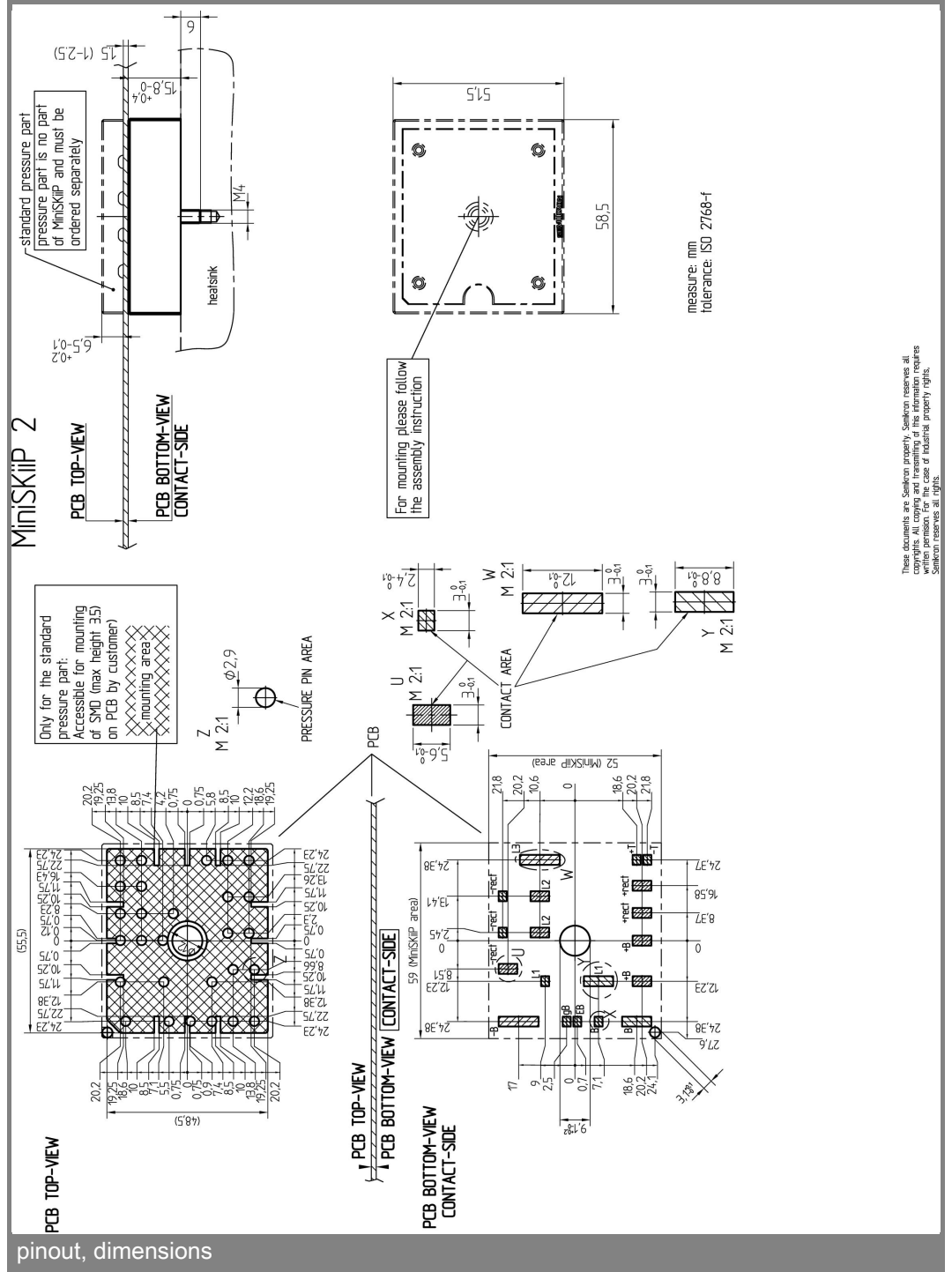
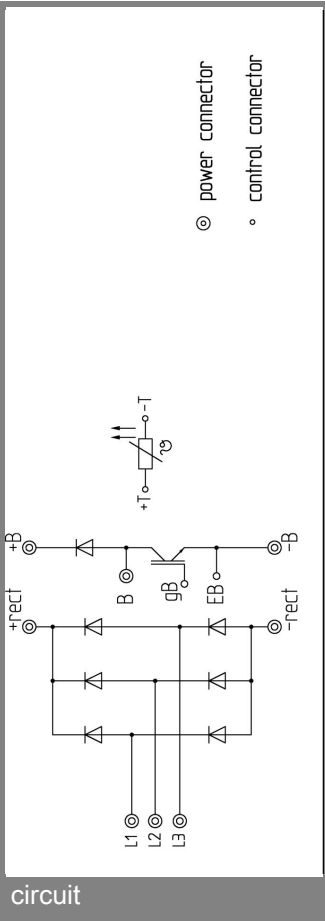


Fig. 10 Typ. input bridge forward characteristic



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

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.