

MiniSKiiP® 2

3-phase bridge rectifier +  
brake chopper + 3-phase  
bridge inverter  
SKiiP 24NAB126V1

## Features

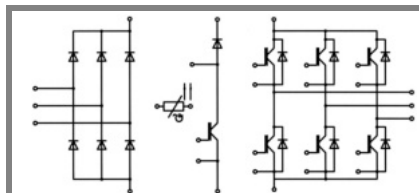
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

## Typical Applications\*

- Inverter up to 19 kVA
- Typical motor power 11 kW

## Remarks

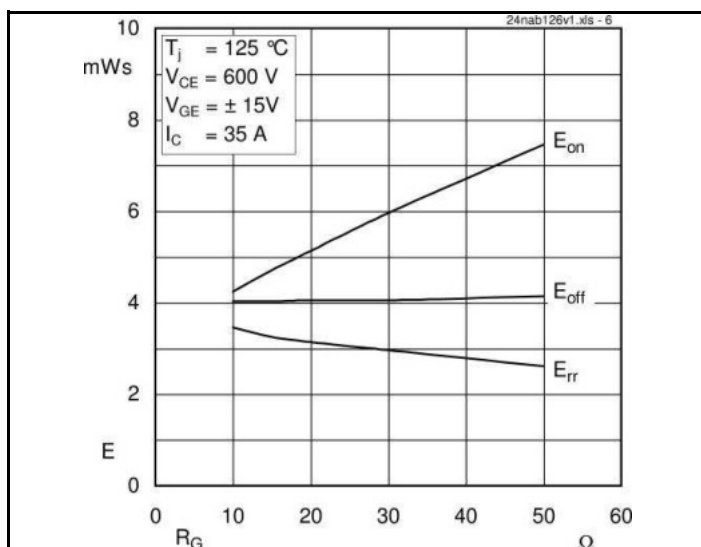
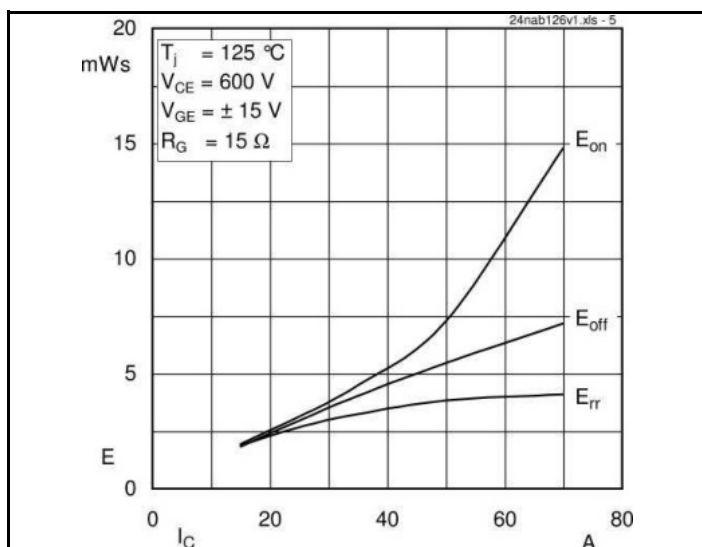
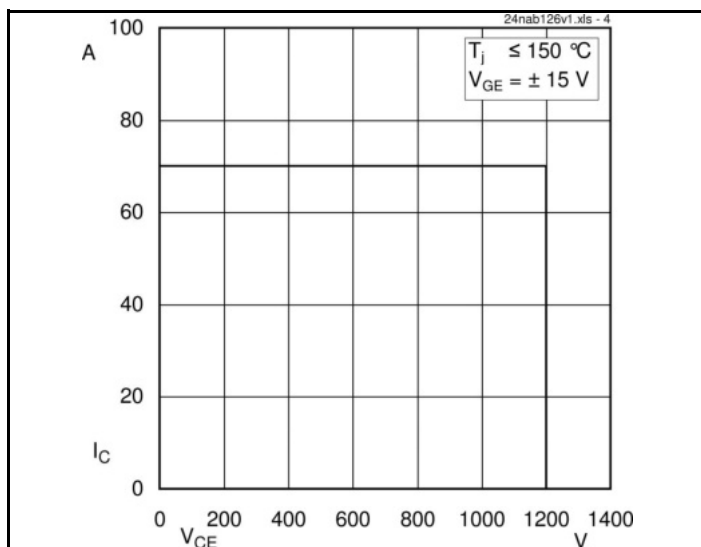
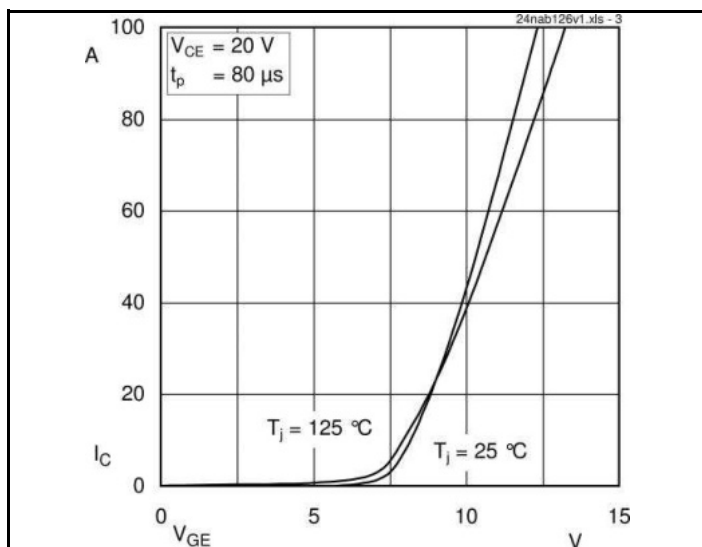
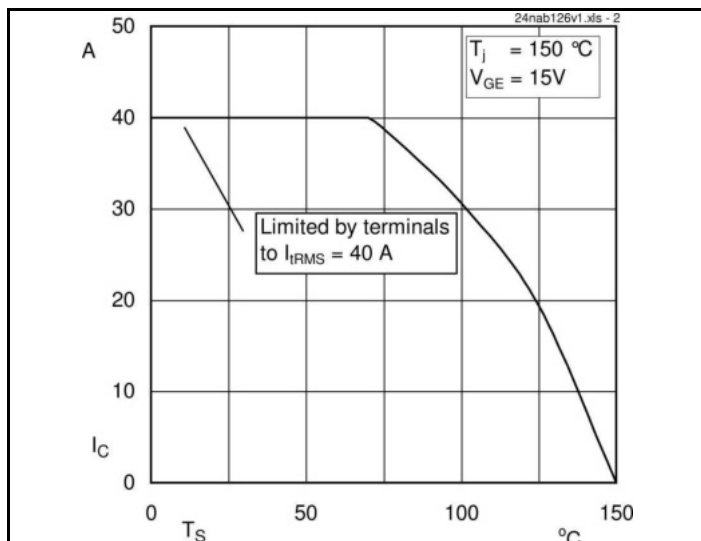
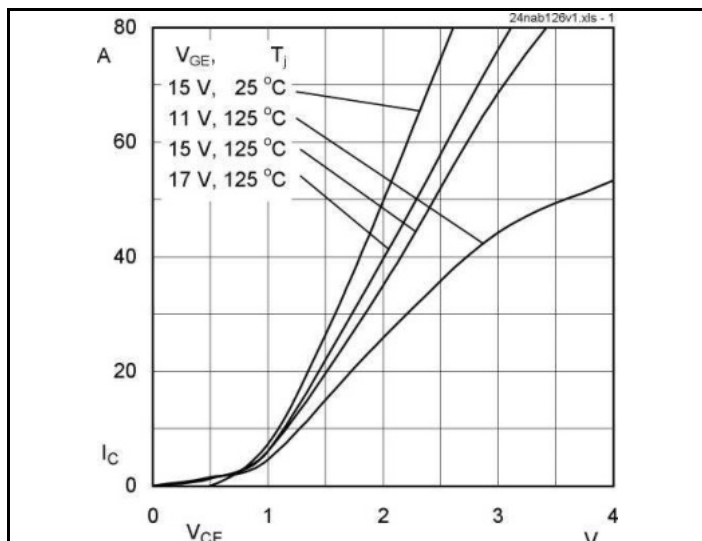
- $V_{CEsat}$ ,  $V_F$  = chip level value

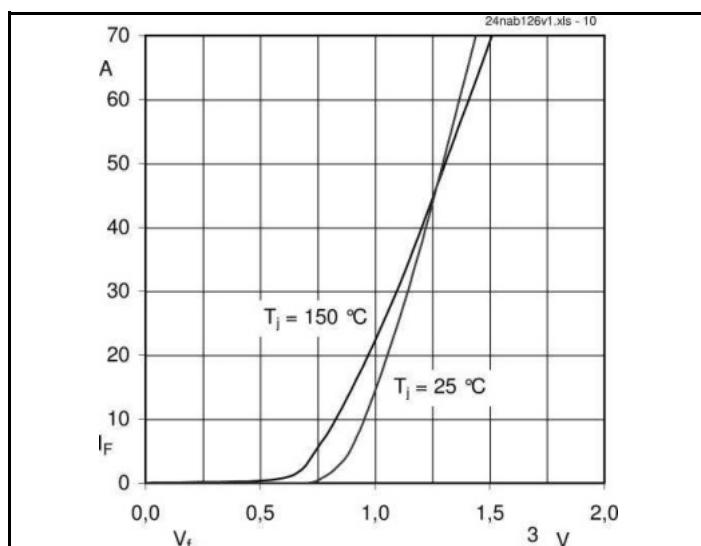
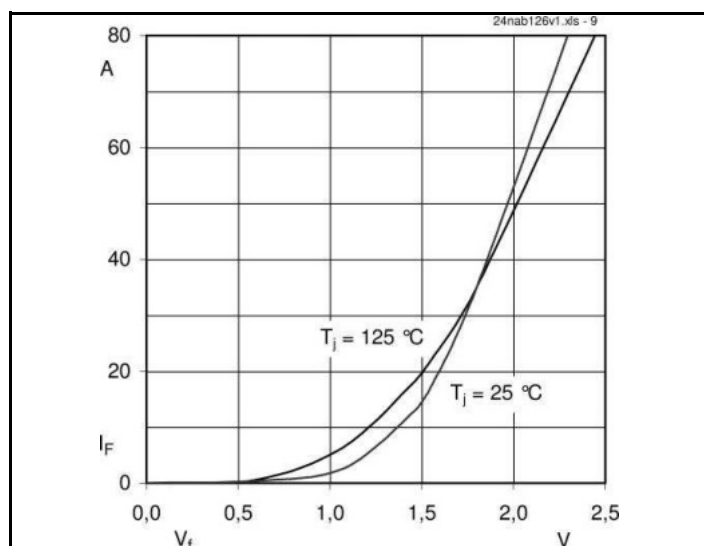
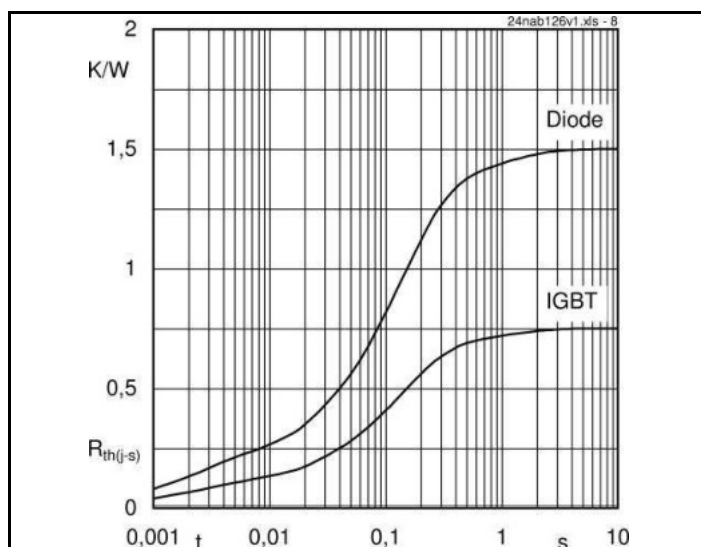
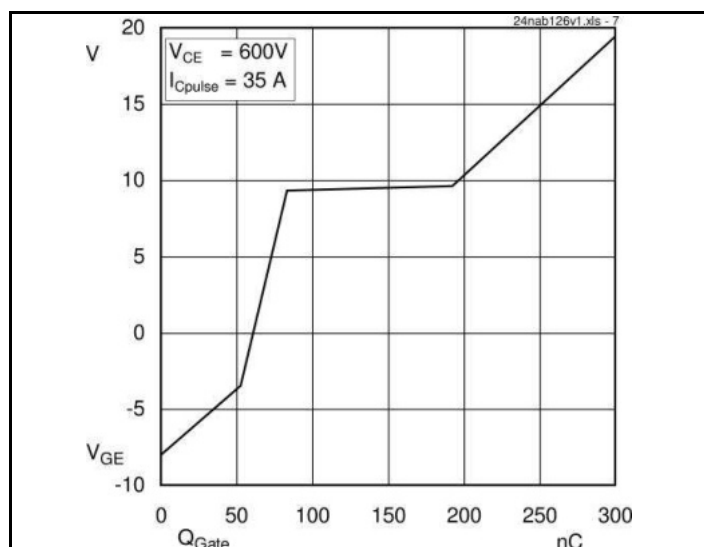


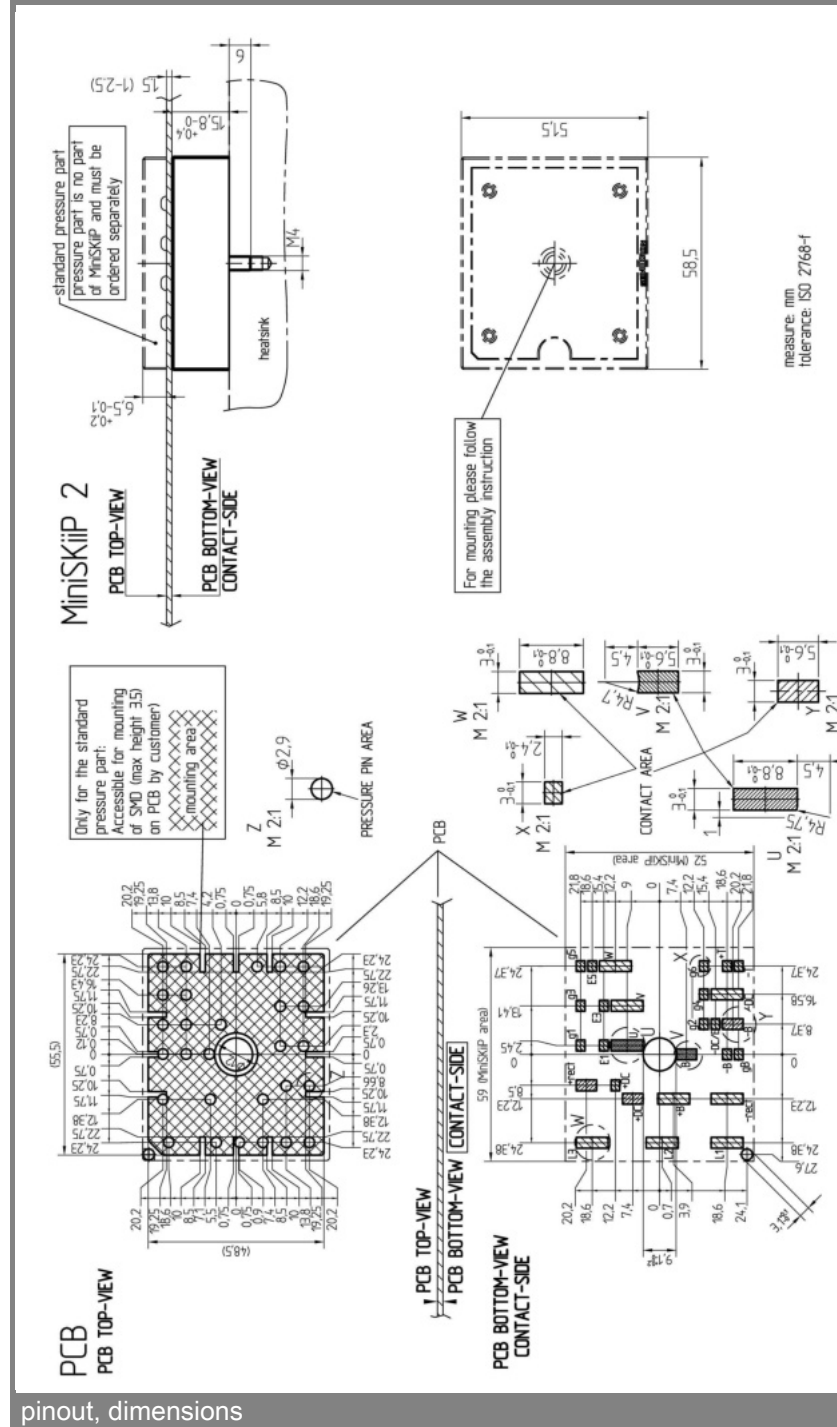
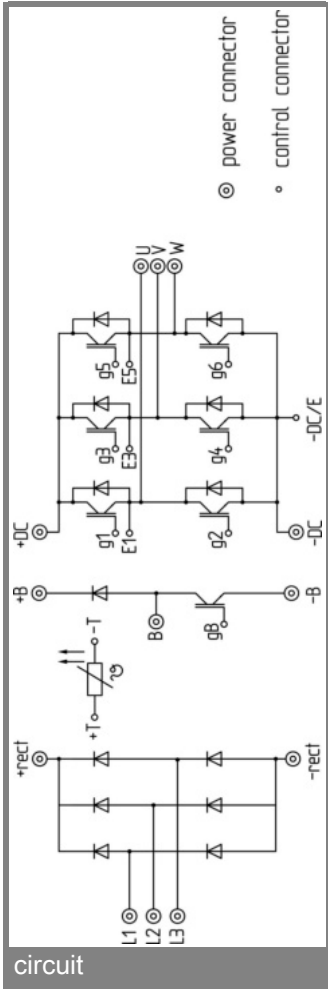
NAB

Absolute Maximum Ratings		T <sub>s</sub> = 25 °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT - Inverter, Chopper				
V <sub>CES</sub>	T <sub>s</sub> = 25 (70) °C	1200	V	
I <sub>C</sub>		52 (40)	A	
I <sub>CRM</sub>		70	A	
V <sub>GES</sub>		± 20	V	
T <sub>j</sub>		- 40 ... + 150	°C	
Diode - Inverter, Chopper				
I <sub>F</sub>	T <sub>s</sub> = 25 (70) °C	38 (29)	A	
I <sub>FRM</sub>		70	A	
T <sub>j</sub>		- 40 ... + 150	°C	
Diode - Rectifier				
V <sub>RRM</sub>	T <sub>s</sub> = 70 °C	1600	V	
I <sub>F</sub>		46	A	
I <sub>FSM</sub>		t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	370	A
i <sup>2</sup> t		t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	680	A²s
T <sub>j</sub>		- 40 ... + 150	°C	
Module				
I <sub>tRMS</sub>	per power terminal (20 A / spring)	40	A	
T <sub>stg</sub>		- 40 ... + 125	°C	
V <sub>isol</sub>	AC, 1 min.	2500	V	

Characteristics		$T_s = 25\text{ °C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Inverter, Chopper</b>					
$V_{CEsat}$	$I_{Cnom} = 35\text{ A}$ , $T_j = 25\text{ (125) °C}$		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 1,5\text{ mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,9)	1,2 (1,1)	V
$r_T$	$T_j = 25\text{ (125) °C}$		20 (31)	26 (37)	mΩ
$C_{ies}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		2,4		nF
$C_{oes}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		0,5		nF
$C_{res}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		0,3		nF
$R_{th(j-s)}$	per IGBT		0,75		K/W
$t_{d(on)}$	under following conditions		80		ns
$t_r$	$V_{CC} = 600\text{ V}$ , $V_{GE} = \pm 15\text{ V}$		30		ns
$t_{d(off)}$	$I_{Cnom} = 35\text{ A}$ , $T_j = 125\text{ °C}$		410		ns
$t_f$	$R_{Gon} = R_{Goff} = 15\text{ Ω}$		120		ns
$E_{on}$	inductive load		4,6		mJ
$E_{off}$			4		mJ
<b>Diode - Inverter, Chopper</b>					
$V_F = V_{EC}$	$I_{Fnom} = 35\text{ A}$ , $T_j = 25\text{ (125) °C}$		1,8 (1,8)	2,1 (2,2)	V
$V_{(TO)}$	$T_j = 25\text{ (125) °C}$		1 (0,8)	1,1 (0,9)	V
$r_T$	$T_j = 25\text{ (125) °C}$		23 (31)	29 (37)	mΩ
$R_{th(j-s)}$	per diode		1,5		K/W
$I_{RRM}$	under following conditions		43		A
$Q_{rr}$	$I_{Fnom} = 35\text{ A}$ , $V_R = 600\text{ V}$		7		μC
$E_{rr}$	$V_{GE} = 0\text{ V}$ , $T_j = 125\text{ °C}$ $di_F/dt = 1450\text{ A/μs}$		3,3		mJ
<b>Diode - Rectifier</b>					
$V_F$	$I_{Fnom} = 25\text{ A}$ , $T_j = 25\text{ °C}$		1,1		V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0,8		V
$r_T$	$T_j = 150\text{ °C}$		13		mΩ
$R_{th(j-s)}$	per diode		1,25		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







These documents are Sencleron property. Sencleron reserves all copyrights. All copying and transmitting of this information requires written permission for the case of industrial property rights. Sencleron reserves all rights.

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.