

MiniSKiiP<sup>®</sup> 2

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKiiP 23NAB126V1

#### Features

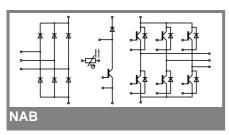
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

### **Typical Applications\***

- Inverter up to 16 kVA
- Typical motor power 7,5 kW

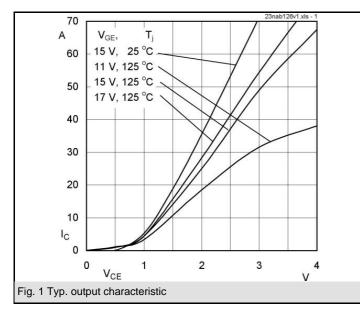
#### Remarks

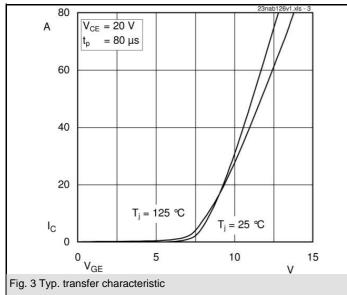
V<sub>CEsat</sub>, V<sub>F</sub> = chip level value

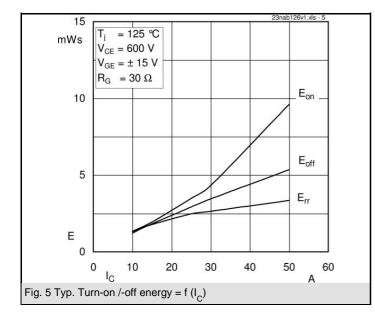


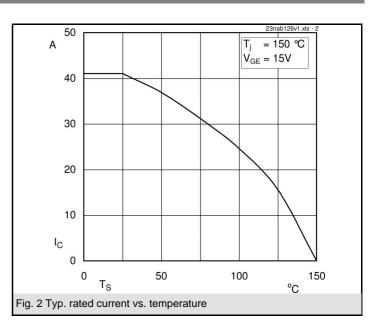
Absolute Maximum Ratings		$T_s$ = 25 °C, unless otherwise specified						
Symbol	Conditions	Values	Units					
IGBT - Inverter, Chopper								
V <sub>CES</sub>		1200	V					
I <sub>C</sub>	T <sub>s</sub> = 25 (70) °C	41 (31)	А					
I <sub>CRM</sub>		50	А					
V <sub>GES</sub>		± 20	V					
Т <sub>ј</sub>		- 40 + 150	°C					
Diode - In	verter, Chopper		·					
I <sub>F</sub>	T <sub>s</sub> = 25 (70) °C	30 (22)	А					
I <sub>FRM</sub>		50	А					
T <sub>j</sub>		- 40 + 150	°C					
Diode - R	ectifier	L						
V <sub>RRM</sub>		1600	V					
I <sub>F</sub>	T <sub>s</sub> = 70 °C	46	А					
I <sub>FSM</sub>	t <sub>p</sub> = 10 ms, sin 180 °, T <sub>i</sub> = 25 °C	370	А					
i²t	t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	680	A²s					
Т <sub>ј</sub>		- 40 + 150	°C					
Module								
I <sub>tRMS</sub>	per power terminal (20 A / spring)	40	А					
T <sub>stg</sub>		- 40 + 125	°C					
V <sub>isol</sub>	AC, 1 min.	2500	V					

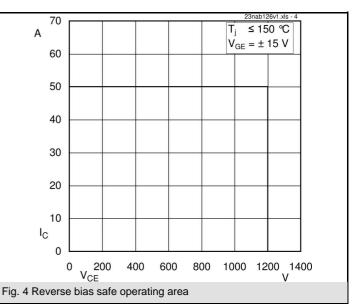
Characteristics		T <sub>s</sub> = 25 °C,	$T_s = 25$ °C, unless otherwise specified						
Symbol	Conditions	min.	typ.	max.	Units				
IGBT - Inverter, Chopper									
V <sub>CEsat</sub>	I <sub>Cnom</sub> = 25 A, T <sub>j</sub> = 25 (125) °C		1,7 (2)	2,1 (2,4)	V				
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_{C} = 1 \text{ mA}$	5	5,8	6,5	V				
V <sub>CE(TO)</sub>	T <sub>j</sub> = 25 (125) °C		1 (0,9)	1,2 (1,1)	V				
r <sub>T</sub>	$T_{j} = 25 (125) \ ^{\circ}C$		28 (44)	36 (52)	mΩ				
Cies	V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 0 V, f = 1 MHz		1,8		nF				
C <sub>oes</sub>	V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 0 V, f = 1 MHz		0,3		nF				
C <sub>res</sub>	$V_{CE}^{2}$ = 25 V, $V_{GE}^{2}$ = 0 V, f = 1 MHz		0,2		nF				
R <sub>th(j-s)</sub>	per IGBT		0,9		K/W				
t <sub>d(on)</sub>	under following conditions		85		ns				
t, Č	$V_{CC}$ = 600 V, $V_{GE}$ = ± 15 V		30		ns				
t <sub>d(off)</sub>	I <sub>Cnom</sub> = 25 A, T <sub>j</sub> = 125°C		465		ns				
t <sub>f</sub>	$R_{Gon} = R_{Goff} = 30 \ \Omega$		100		ns				
E <sub>on</sub>	inductive load		3,5		mJ				
E <sub>off</sub>			3		mJ				
Diode - Ir	verter, Chopper				•				
V <sub>F</sub> = V <sub>EC</sub>	I <sub>Fnom</sub> = 25 A, T <sub>i</sub> = 25 (125) °C		1,8 (1,8)	2,1 (2,2)	V				
V <sub>(TO)</sub>	T <sub>i</sub> = 25 (125) °C		1 (0,8)	1,1 (0,9)	V				
r <sub>T</sub>	T <sub>i</sub> = 25 (125) °C		32 (40)	40 (52)	mΩ				
R <sub>th(j-s)</sub>	per diode		1,7		K/W				
I <sub>RRM</sub>	under following conditions		33		Α				
Q <sub>rr</sub>	I <sub>Enom</sub> = 25 A, V <sub>R</sub> = 600 V		5,7		μC				
Err	V <sub>GE</sub> = 0 V, T <sub>i</sub> = 125 °C		2,5		mJ				
	di <sub>F</sub> /dt = 1140 A/µs								
Diode - R	ectifier	•							
V <sub>F</sub>	I <sub>Enom</sub> = 25 A, T <sub>i</sub> = 25 °C		1,1		V				
V <sub>(TO)</sub>	T <sub>i</sub> = 150 °C		0,8						
r <sub>T</sub>	T <sub>i</sub> = 150 °C		13						
R <sub>th(j-s)</sub>	per diode		1,25		K/W				
	ture Sensor	I							
R <sub>ts</sub>	3 %, T <sub>r</sub> = 25 (100) °C		1000(1670)		Ω				
Mechanic	al Data	L			1				
W			65		g				
Ms	Mounting torque	2		2,5	Nm				

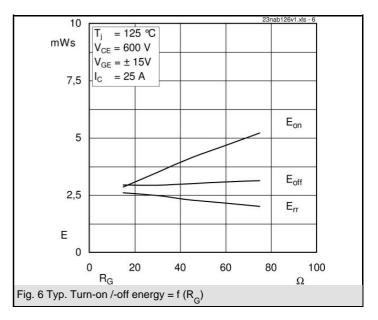


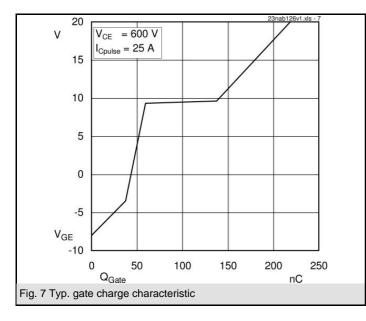


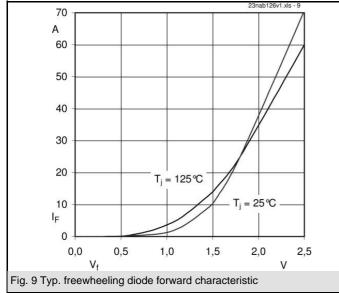


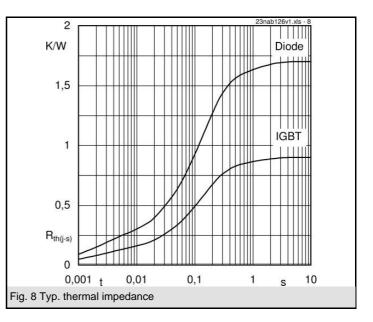


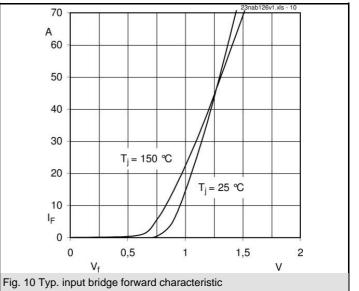


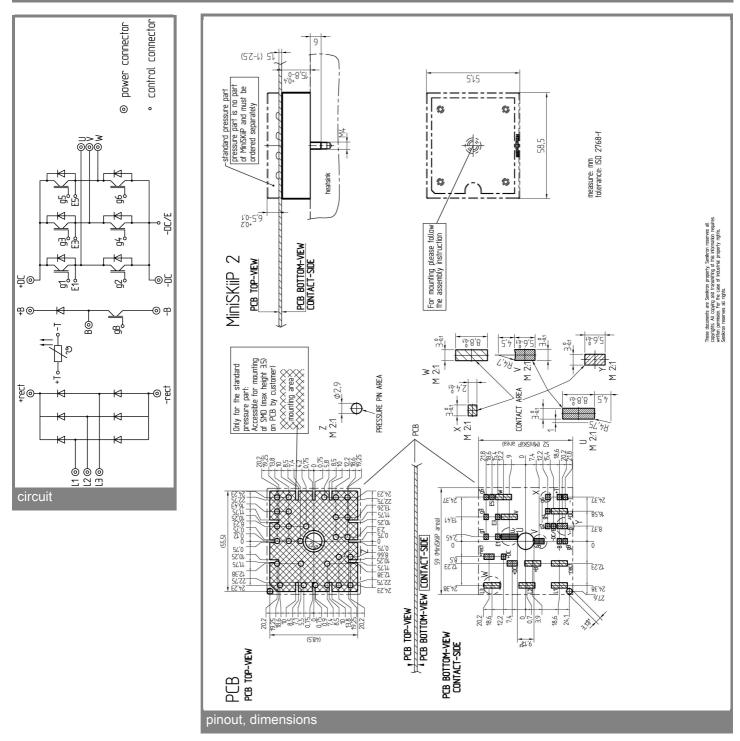












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

\* 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.