

MiniSKiiP<sup>®</sup> 3

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKIIP 36NAB126V1

#### Features

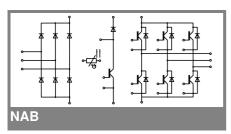
- Fast Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

### **Typical Applications\***

- Inverter up to 36 kVA
- Typical motor power 18,5 kW

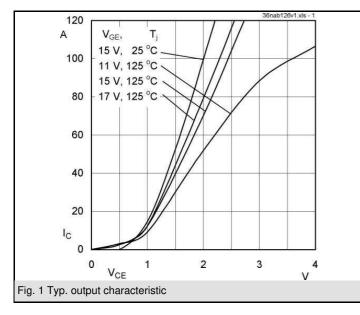
#### Remarks

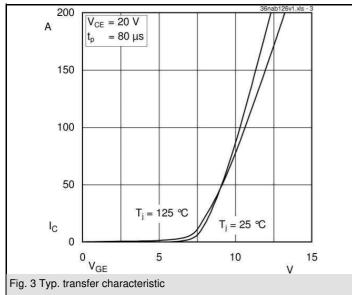
V<sub>CEsat</sub>, V<sub>F</sub> = chip level value

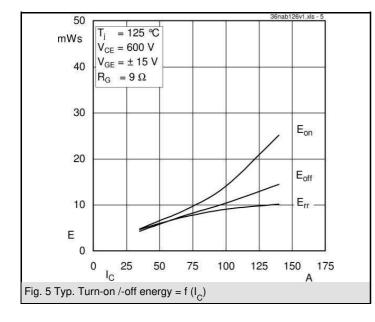


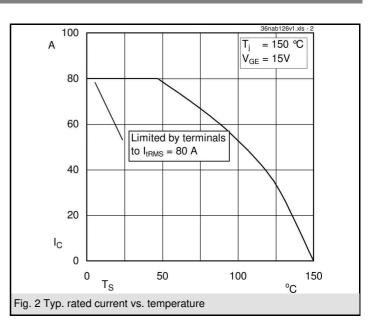
Absolute Maximum Ratings		$T_s$ = 25 °C, unless otherwise specified						
Symbol	Conditions	Values	Units					
IGBT - Inverter, Chopper								
V <sub>CES</sub>		1200	V					
Ι <sub>C</sub>	T <sub>s</sub> = 25 (70) °C	88 (66)	А					
ICRM		140	А					
V <sub>GES</sub>		± 20	V					
Т <sub>ј</sub>		- 40 + 150	°C					
Diode - In	verter, Chopper							
I <sub>F</sub>	T <sub>s</sub> = 25 (70) °C	91 (68)	А					
I <sub>FRM</sub>		140	А					
T <sub>j</sub>		- 40 + 150	°C					
Diode - R	ectifier	·						
V <sub>RRM</sub>		1600	V					
I <sub>F</sub>	T <sub>s</sub> = 70 °C	61	А					
I <sub>FSM</sub>	t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	700	А					
i²t	t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	2400	A²s					
Т <sub>ј</sub>		- 40 + 150	°C					
Module		· ·						
I <sub>tRMS</sub>	per power terminal (20 A / spring)	80	А					
T <sub>stg</sub>		- 40 + 125	°C					
V <sub>isol</sub>	AC, 1 min.	2500	V					

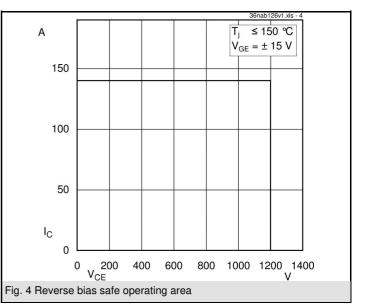
Characteristics		$T_s$ = 25 °C, unless otherwise specified				
Symbol	Conditions	min.	typ.	max.	Units	
IGBT - In	verter, Chopper					
V <sub>CEsat</sub>	I <sub>Cnom</sub> = 70 A, T <sub>i</sub> = 25 (125) °C		1,7 (2)	2,1 (2,4)	V	
V <sub>GE(th)</sub>	$V_{GE} = V_{CE}, I_C = 3 \text{ mA}$	5	5,8	6,5	V	
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 <sub>j</sub> = 25 (125) °C		10 (16)	13 (19)	mΩ	
C <sub>ies</sub>	V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 0 V, f = 1 MHz		4,8		nF	
C <sub>oes</sub>	$V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz		1		nF	
C <sub>res</sub>	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, \text{ f} = 1 \text{ MHz}$		0,6		nF	
R <sub>th(j-s)</sub>	per IGBT		0,5		K/W	
t <sub>d(on)</sub>	under following conditions		80		ns	
t,	$V_{CC}$ = 600 V, $V_{GE}$ = ± 15 V		25		ns	
t <sub>d(off)</sub>	I <sub>Cnom</sub> = 70 A, T <sub>j</sub> = 125°C		390		ns	
t <sub>f</sub> `´	$R_{Gon} = R_{Goff} = 9 \Omega$		90		ns	
E <sub>on</sub>	inductive load		9		mJ	
E <sub>off</sub>			7,7		mJ	
Diode - lı	nverter, Chopper					
V <sub>F</sub> = V <sub>EC</sub>	I <sub>Fnom</sub> = 70 A, T <sub>i</sub> = 25 (125) °C	1	1,5 (1,5)	1,7 (1,7)	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		7,1 (10)	8,6 (11)	mΩ	
R <sub>th(j-s)</sub>	per diode		0,7		K/W	
I <sub>RRM</sub>	under following conditions		77		Α	
Q <sub>rr</sub>	I <sub>Enom</sub> = 70 A, V <sub>R</sub> = 600 V		18		μC	
E <sub>rr</sub>	V <sub>GE</sub> = 0 V, T <sub>i</sub> = 125 °C		7,5		mJ	
	di <sub>F</sub> /dt = 2000 A/µs					
Diode - F	Rectifier					
V <sub>F</sub>	I <sub>Fnom</sub> = 35 A, T <sub>i</sub> = 25 °C	1	1,1		V	
V <sub>(TO)</sub>	T <sub>i</sub> = 150 °C		0,8		V	
r <sub>T</sub>	T <sub>i</sub> = 150 °C		11		mΩ	
R <sub>th(j-s)</sub>	per diode		0,9		K/W	
	ture Sensor					
R <sub>ts</sub>	3 %, T <sub>r</sub> = 25 (100) °C		1000(1670)		Ω	
Mechanie	cal Data					
W			95		g	

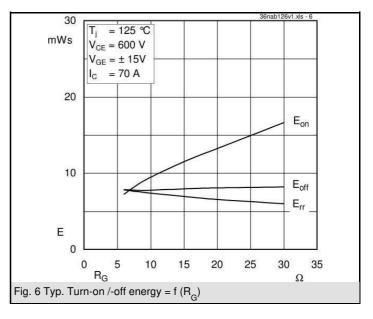


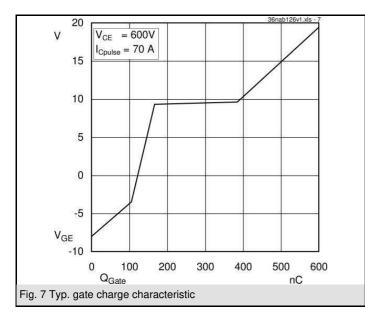


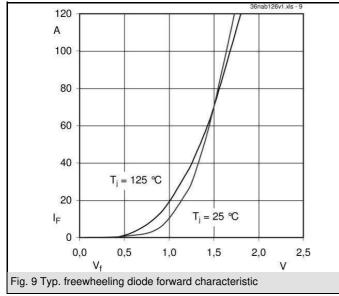


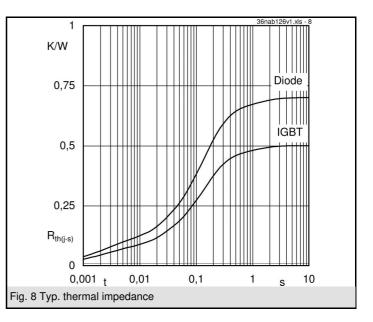


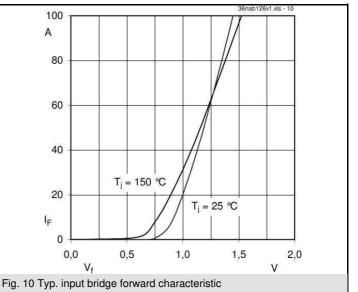


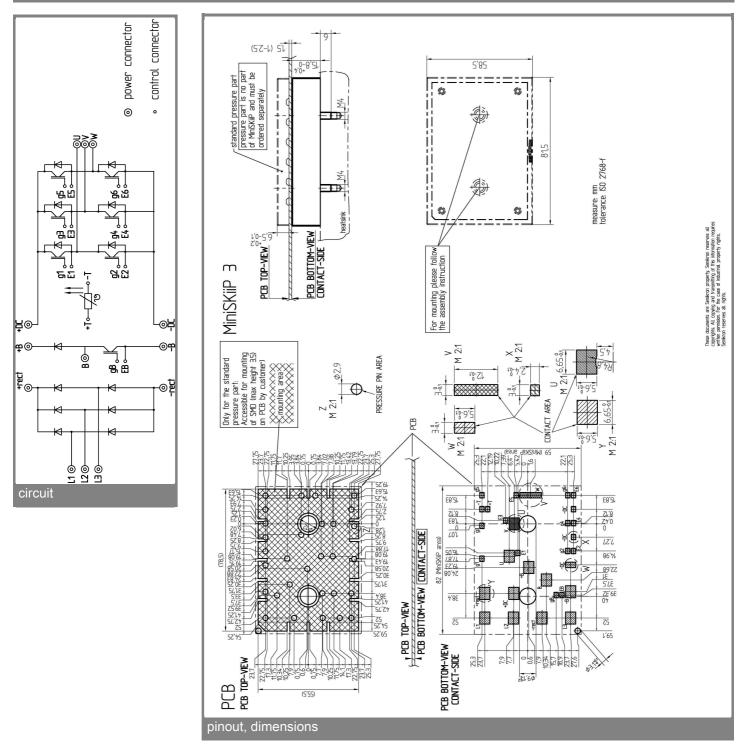












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

\* 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.