## SKiiP 25NAB066V1



MiniSKiiP<sup>®</sup>2

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKiiP 25NAB066V1

#### **Features**

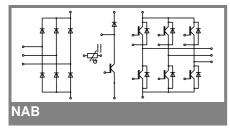
- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

### **Typical Applications\***

- Inverter up to 10 kVA
- Typical motor power 4,0 kW

#### **Remarks**

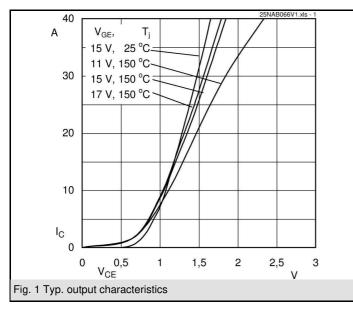
- Case temperature limited to T<sub>C</sub>= 125°C max.
- Product reliability results are valid for  $T_i = 150^{\circ}C$
- SC data:  $t_p \le 6$  s;  $V_{CE} \le 15$  V;  $T_j$ = 150°C,  $V_{CC}$  = 360 V  $V_{CEsat}$ ,  $V_F$  = chip level

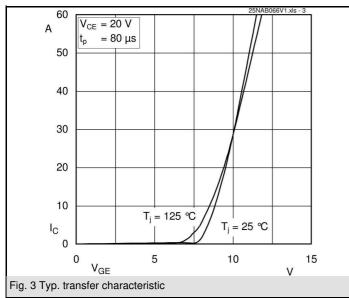


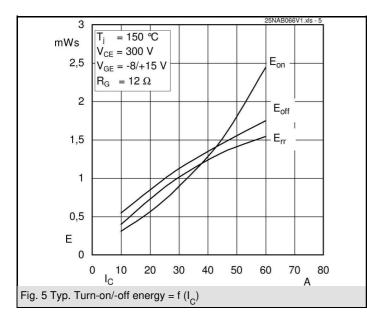
Absolute Maximum Ratings		T <sub>S</sub> = 25°C, unless otherwis	$T_S$ = 25°C, unless otherwise specified				
Symbol	Conditions	Values	Units				
IGBT - Inverter, Chopper							
V <sub>CES</sub>		600	V				
I <sub>C</sub>	T <sub>s</sub> = 25 (70) °C, T <sub>i</sub> = 150 °C	39 (27)	А				
I <sub>C</sub>	T <sub>s</sub> = 25 (70) °C, T <sub>j</sub> = 175 °C	43 (32)	A				
I <sub>CRM</sub>	t <sub>p</sub> = 1 ms	60	А				
V <sub>GES</sub>		± 20	V				
Diode - Inverter, Chopper							
I <sub>F</sub>	T <sub>s</sub> = 25 (70) °C, T <sub>i</sub> = 150 °C	33 (22)	А				
I <sub>F</sub>	T <sub>s</sub> = 25 (70) °C, T <sub>j</sub> = 175 °C	39 (29)	А				
I <sub>FRM</sub>	t <sub>p</sub> = 1 ms	60	А				
Diode - Rectifier							
V <sub>RRM</sub>		800	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>j</sub> = 25 °C	370	А				
i²t	t <sub>p</sub> = 10 ms, sin 180 °, T <sub>j</sub> = 25 °C	680	A²s				
I <sub>tRMS</sub>	per power terminal (20 A / spring)	40	А				
T <sub>j</sub>	IGBT, Diode	-40+175	°C				
T <sub>stg</sub>		-40+125	°C				
V <sub>isol</sub>	AC, 1 min.	2500	V				

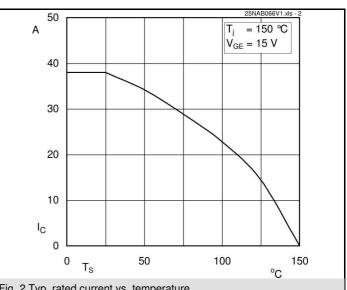
Characte	ristics	$T_S$ = 25°C, unless otherwise specified						
Symbol	Conditions	min.	typ.	max.	Units			
IGBT - Inverter, Chopper								
V <sub>CE(sat)</sub>	I <sub>Cnom</sub> = 30 A, T <sub>j</sub> = 25 (150) °C		1,45 (1,65)	1,85 (2,05)	V			
V <sub>GE(th)</sub>	$V_{GE} = V_{CE}, I_C = 1 \text{ mA}$		5,8		V			
V <sub>CE(TO)</sub>	T <sub>j</sub> = 25 (150) °C		0,9 (0,85)	1 (0,9)	V			
r <sub>CE</sub>	T <sub>j</sub> = 25 (150) °C		18 (27)	28 (38)	mΩ			
C <sub>ies</sub>	$V_{CE} = 25 \text{ V}, \text{ V}_{GE} = 0 \text{ V}, \text{ f} = 1 \text{ MHz}$		1,6		nF			
C <sub>oes</sub>	$V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz		0,19		nF			
C <sub>res</sub>	$V_{CE}$ = 25 V, $V_{GE}$ = 0 V, f = 1 MHz		0,17		nF			
R <sub>CC'+EE'</sub>	spring contact-chip T <sub>s</sub> = 25 (150 )°C				mΩ			
R <sub>th(j-s)</sub>	per IGBT		1,35		K/W			
t <sub>d(on)</sub>	under following conditions		20		ns			
t, `´	$V_{CC}$ = 300 V, $V_{GE}$ = -8V / 15 V		20		ns			
t <sub>d(off)</sub>	I <sub>Cnom</sub> = 30 A, T <sub>j</sub> = 150 °C		200		ns			
t <sub>f</sub>	$R_{Gon} = R_{Goff} = 12 \Omega$		45		ns			
$E_{on}$ ( $E_{off}$ )	inductive load		0,9 (1,2)		mJ			
Diode - In	verter, Chopper	•						
$V_{\rm F} = V_{\rm FC}$	I <sub>F</sub> = 30 A, T <sub>i</sub> = 25 (150) °C		1,5 (1,5)	1,7 (1,7)	V			
V <sub>(TO)</sub>	$T_i = 25 (150) °C$		1 (0,9)		V			
r <sub>T</sub>	T <sub>i</sub> = 25 (150) °C		16,7 (20)		mΩ			
R <sub>th(j-s)</sub>	per diode		2,1		K/W			
I <sub>RRM</sub>	under following conditions		46,3		Α			
Q <sub>rr</sub>	I <sub>Enom</sub> = 30 A, V <sub>R</sub> = 300 V		4		С			
Err	$V_{GE} = 0 V, T_i = 150^{\circ}C$		1,1		mJ			
	di <sub>F</sub> /dt = 1880 A/ s							
Diode - Rectifier								
V <sub>F</sub>	I <sub>Fnom</sub> = 25 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		13		mΩ			
R <sub>th(j-s)</sub>	per diode		1,5		K/W			
Temperature Sensor								
R <sub>ts</sub>	3 %, T <sub>r</sub> = 25 (100) °C		1000(1670)		Ω			
Mechanical Data								
w		1	65		g			
M <sub>s</sub>	Mounting torque	2		2,5	Nm			

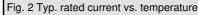
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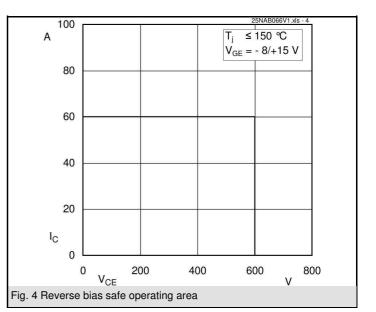


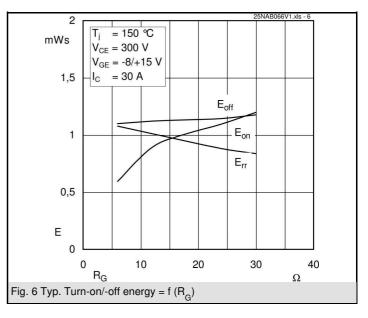




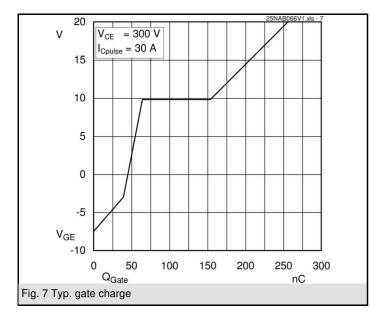


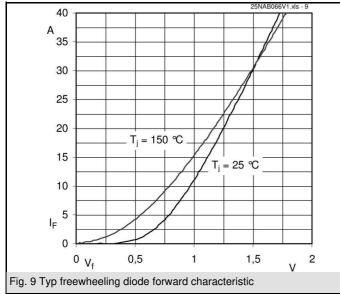


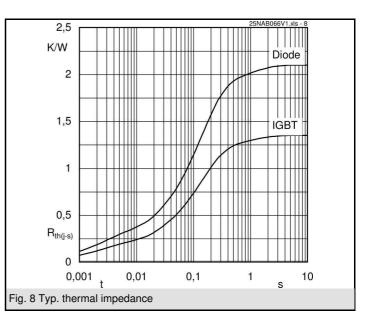


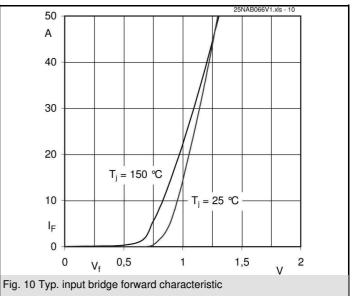


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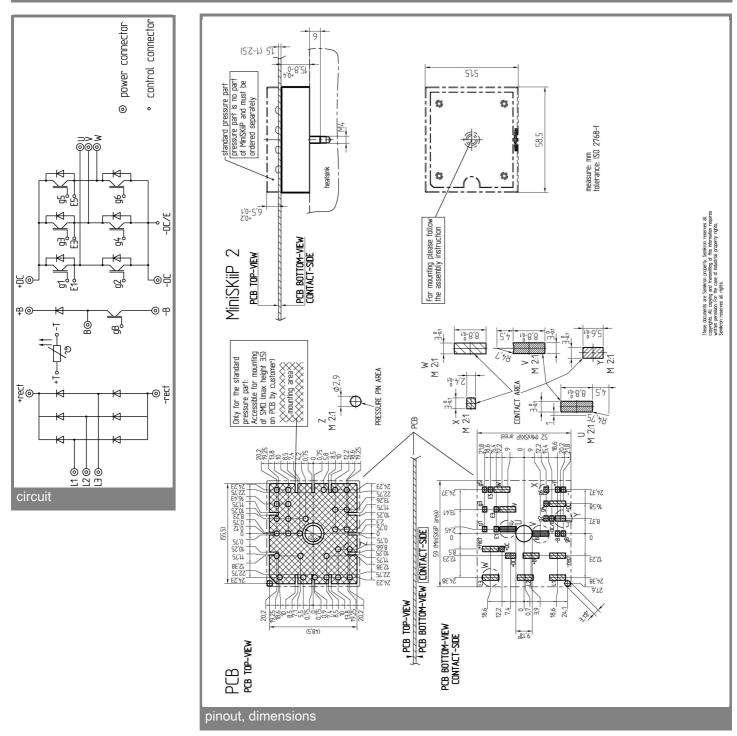








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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

\* 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.