

MiniSKiiP<sup>®</sup>2

3-phase bridge inverter

SKiiP 28AC066V1

#### **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\*

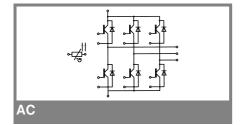
- Inverter up to 22 kVA
- Typical motor power 11kW

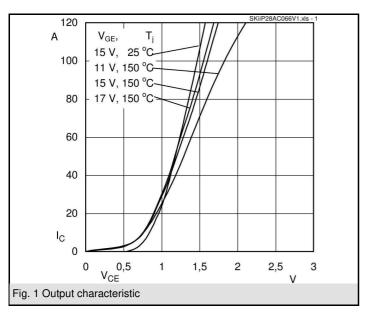
#### Remarks

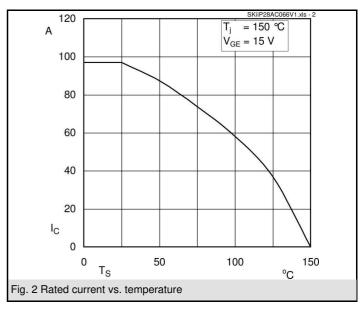
- Case temperature limited to T<sub>C</sub> = 125°C max.
- · Product reliability results are valid for  $T_i = 150$ °C
- SC data:  $t_p \le 6$  s;  $V_{GE} \le 15$  V;  $T_j$  = 150°C;  $V_{CC}$  = 360 V  $V_{CEsat}$ ,  $V_F$  = chip level value

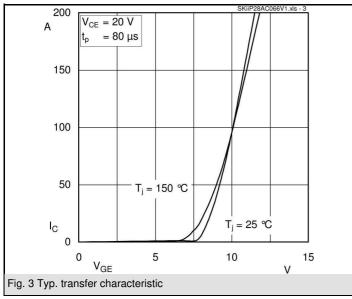
Absolute	Maximum Ratings	<sub>S</sub> = 25 °C, unless otherwise specified						
Symbol	Conditions	Values	Units					
IGBT - Inverter								
$V_{CES}$		600	V					
I <sub>C</sub>	$T_s = 25 (70) ^{\circ}C, T_j = 150 ^{\circ}C$	101 (68)	Α					
I <sub>C</sub>	$T_s = 25 (70) ^{\circ}\text{C}  , T_j = 175 ^{\circ}\text{C}$	112 (83)	Α					
I <sub>CRM</sub>	t <sub>p</sub> = 1 ms	200	Α					
$V_{GES}$		±20	V					
T <sub>j</sub>		-40+175	°C					
Diode - Inverter								
I <sub>F</sub>	$T_s = 25 (70) ^{\circ}C , T_i = 150 ^{\circ}C$	103 (67)	Α					
I <sub>F</sub>	$T_s = 25 (70) ^{\circ}C, T_i = 175 ^{\circ}C$	112 (81)	Α					
I <sub>FRM</sub>	$t_p = 1 \text{ ms}$	200	Α					
$T_j$		-40+175	°C					
I <sub>tRMS</sub>	per power terminal (20 A / spring)	100	Α					
T <sub>stg</sub>	$T_{op} \le T_{stg}$	-40+125	°C					
V <sub>isol</sub>	AC, 1 min.	2500	V					

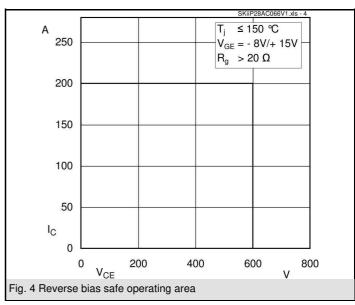
Characteristics		T <sub>C</sub> = 25 °C, unless otherwise specified						
	Conditions	min.	typ.	max.	Units			
IGBT - Inv		•			•			
$egin{array}{l} V_{CEsat} \ V_{GE(th)} \ V_{CE(TO)} \end{array}$	$I_{Cnom} = 100 \text{ A}, T_j = 25 (150) ^{\circ}\text{C}$ $V_{GE} = V_{CE}, I_C = 2 \text{ mA}$ $T_i = 25 (150) ^{\circ}\text{C}$	1,05	1,45 (1,65) 5,8 0,9 (0,8)	1,85 (2,05) 1,1 (1)	V V			
r <sub>T</sub> C <sub>ies</sub> C <sub>oes</sub> C <sub>res</sub>	$T_{j}^{J} = 25 (150) ^{\circ}C$ $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$ $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$ $V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		5,5 (8,5) 6,15 1,12 0,9	7,5 (10,5)	mΩ nF nF nF			
R <sub>CC'+EE'</sub> R <sub>th(j-s)</sub>	spring contact-chip T <sub>s</sub> = 25 (150 )°C per IGBT		0,6		mΩ K/W			
t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	under following conditions $V_{CC}$ = 300 V, $V_{GE}$ = -8V/+15V $I_{Cnom}$ = 100 A, $T_{j}$ = 150 °C $R_{Gon}$ = $R_{Goff}$ = 8,2 $\Omega$		40 40 410 50		ns ns ns			
E <sub>on</sub> (E <sub>off</sub> )	inductive load		3,4 (3,5)		mJ			
Diode - Inverter								
$V_F = V_{EC}$ $V_{(TO)}$ $r_T$ $R_{th(j-s)}$	$I_{Fnom} = 100 \text{ A}, T_j = 25 (150) ^{\circ}\text{C}$ $T_j = 25 (150) ^{\circ}\text{C}$ $T_j = 25 (150) ^{\circ}\text{C}$ per diode		1,3 (1,3) 0,9 (0,8) 4 (5) 0,8		V V mΩ K/W			
I <sub>RRM</sub> Q <sub>rr</sub> E <sub>rr</sub>	under following conditions $I_{Fnom} = 100 \text{ A}, V_R = 300 \text{ V}$ $V_{GE} = 0 \text{ V}, T_j = 150 \text{ °C}$ $di_F/dt = 2560 \text{ A/ s}$		102 15,5 3,3		A C mJ			
Temperature Sensor								
R <sub>ts</sub>	3 %, T <sub>r</sub> = 25 (100) °C		1000(1670)		Ω			
Mechanical Data								
m M <sub>s</sub>	Mounting torque	2	65	2,5	g Nm			

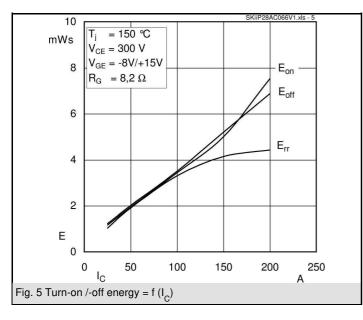


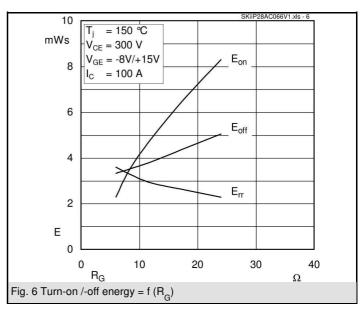


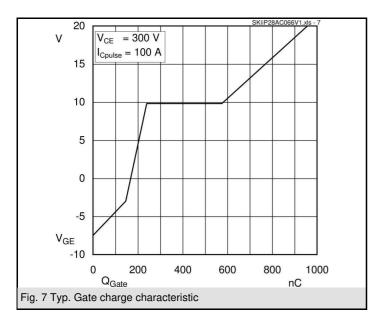


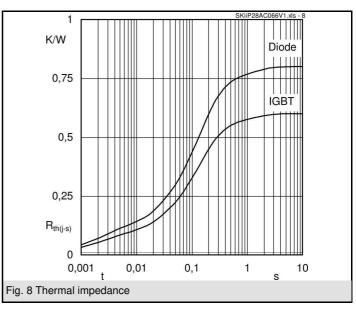


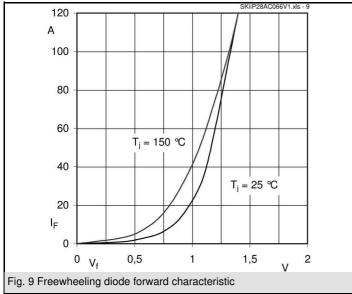


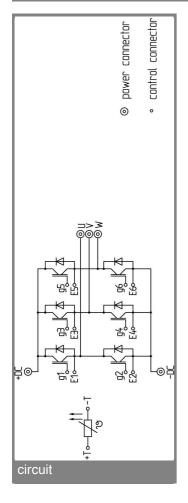


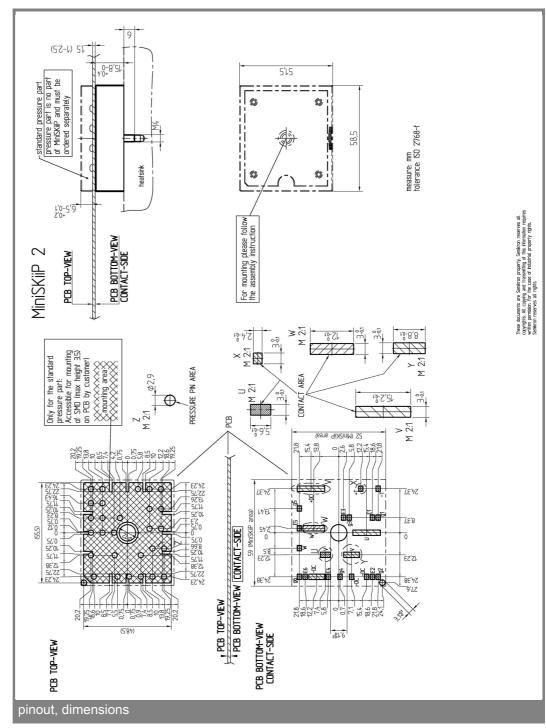












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

<sup>\*</sup> 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.