

MiniSKiiP®1

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter SKiiP 13NAB066V1

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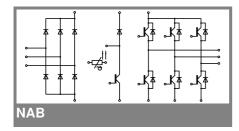
- Trench IGBTs
- Robust and soft freeweheeling diodes in CAL technology
- · Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications*

- Inverter up to 5,6 kVA
- Typical motor power 3,0 kW

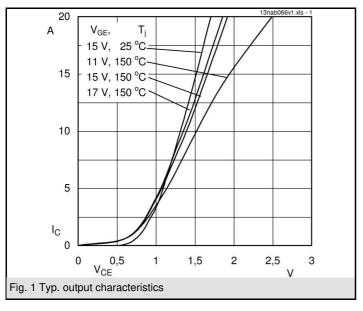
Remarks

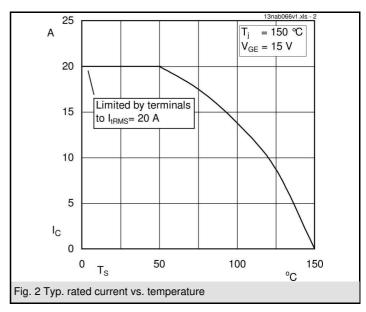
- Case temperature limited to T_C = 125°C max.
- · Product reliability results are valid for T_i=150°C
- SC data: $t_p \le 6$ s; $V_{GE} \le 15$ V; T_j = 150°C; V_{CC} = 360 V V_{CEsat} , V_F = chip level value

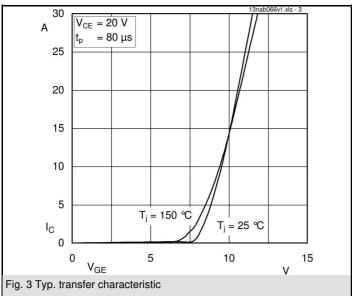


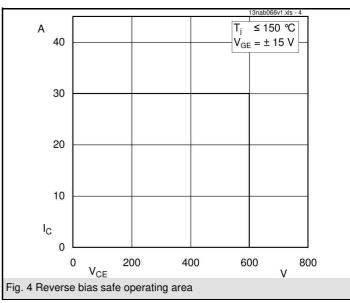
Absolute	Absolute Maximum Ratings T _s = 25°C, unless otherwise specified						
Symbol	Conditions	Values	Units				
IGBT - Inverter, Chopper							
V_{CES}		600	V				
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 150 ^{\circ}C$	24 (17)	Α				
I _C	$T_s = 25 (70) ^{\circ}C, T_j = 175 ^{\circ}C$	27 (20)	Α				
I _{CRM}	$t_p = 1 \text{ ms}$	30	Α				
V_{GES}		± 20	V				
Diode - Inverter, Chopper							
I _F	$T_s = 25 (70) ^{\circ}C, T_i = 150 ^{\circ}C$	24 (16)	Α				
I _F	$T_s = 25 (70) ^{\circ}\text{C}, T_j = 175 ^{\circ}\text{C}$	28 (21)	Α				
I _{FRM}	$t_p = 1 \text{ ms}$	30	Α				
Diode - Rectifier							
V_{RRM}		800	V				
I _F	T _s = 70 °C	35	Α				
I _{FSM}	$t_p = 10 \text{ ms, sin } 180 ^\circ, T_j = 25 ^\circ\text{C}$	220	Α				
i²t	$t_p = 10 \text{ ms, sin } 180 ^\circ, T_j = 25 ^\circ\text{C}$	240	A²s				
I _{tRMS}	per power terminal (20 A / spring)	20	Α				
T _i	IGBT, Diode	-40+175	°C				
T _{stg}		-40+125	°C				
V _{isol}	AC, 1 min.	2500	V				

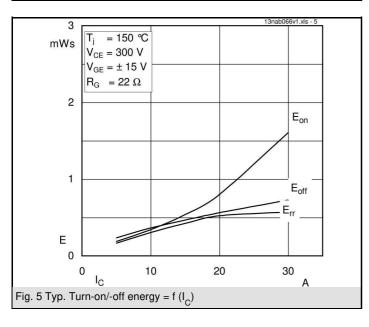
Character	Characteristics T _s = 25°C, unless otherwise speci								
Symbol	Conditions	min.	typ.	max.	Units				
IGBT - Inverter, Chopper									
V _{CE(sat)}	I _{Cnom} = 15 A, T _j = 25 (150) °C		1,45 (1,65)	1,85 (2,05)	V				
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1 \text{ mA}$		V						
V _{CE(TO)}	T _j = 25 (150) °C		0,9 (0,7)	1,1 (1)	V				
r _{CE}	$T_{j} = 25 (150) ^{\circ}\text{C}$		37 (63) 0,86	50 (70)	mΩ				
C _{ies}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		nF -						
C _{oes}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,18		nF				
C _{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,12		nF				
R _{CC'+EE'}	spring contact-chip T _s = 25 (150)°C				mΩ K/W				
$R_{th(j-s)}$	per IGBT		1,8						
$t_{d(on)}$	under following conditions		20		ns				
t _r	$V_{CC} = 300 \text{ V}, V_{GE} = \pm 15 \text{V}$		30		ns				
t _{d(off)}	I _{Cnom} = 15 A, T _j = 150 °C		155		ns				
t _f	$R_{Gon} = R_{Goff} = 22 \Omega$		45		ns				
$E_{on} \left(E_{off} \right)$	inductive load		0,6 (0,5)		mJ				
Diode - In	verter, Chopper								
$V_F = V_{EC}$	I _F = 15 A, T _i = 25 (150) °C		1,4 (1,4)	1,7 (1,7)	V				
$V_{(TO)}$	T _j = 25 (150) °C		0,9 (0,8)	1 (0,9)	V				
r _T	$T_j = 25 (150) ^{\circ}C$		33 (40)	47 (53)	mΩ				
$R_{th(j-s)}$	per diode		2,5		K/W				
I _{RRM}	under following conditions		19,8		Α				
Q_{rr}	I _{Fnom} = 15 A, V _R = 300 V		1,9		С				
E _{rr}	$V_{GE} = 0 \text{ V}, T_j = 150^{\circ}\text{C}$		0,5		mJ				
	$di_{F}/dt = 930 \text{ A/ s}$								
Diode - Re	ectifier								
V_{F}	I _{Fnom} = 15 A, T _i = 25 °C		1,1		V				
$V_{(TO)}$	T _i = 150 °C	0,8			V				
r _T	T _j = 150 °C	20			mΩ				
$R_{th(j-s)}$	per diode	1,5			K/W				
	ure Sensor	•			•				
R _{ts}	3 %, T _r = 25 (100) °C		1000(1670)		Ω				
Mechanical Data									
w			35		g				
M_s	Mounting torque	2		2,5	Nm				

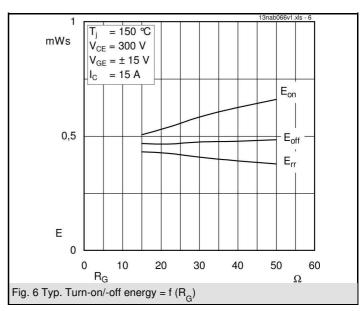


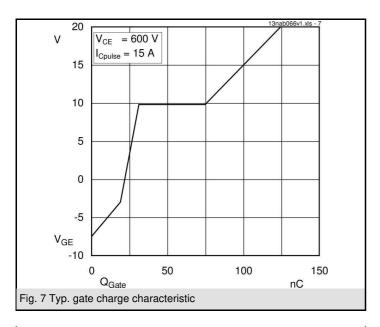


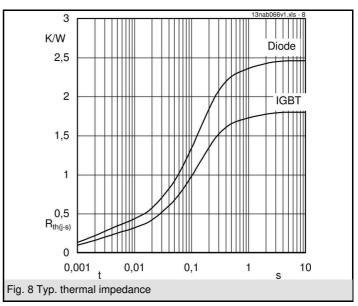


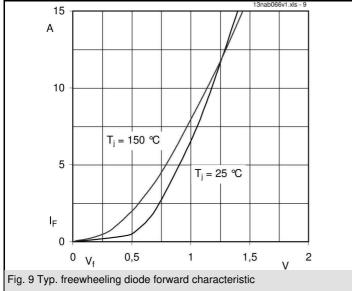


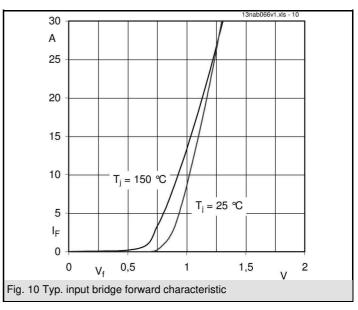


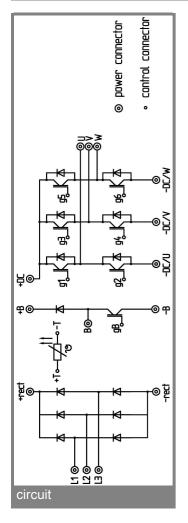


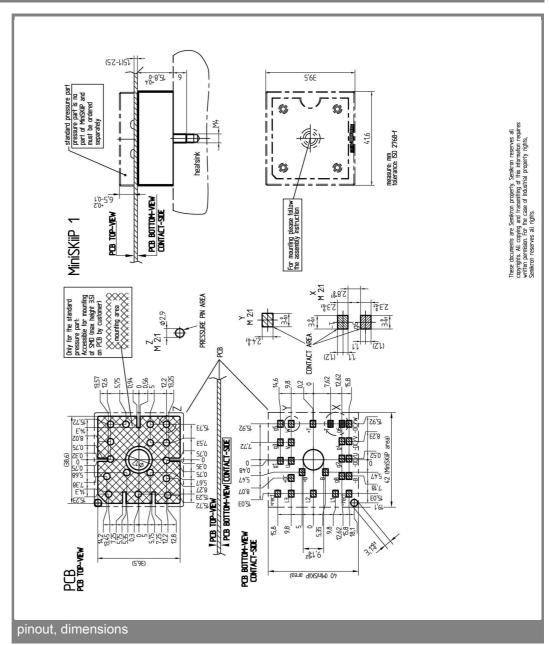












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

4 28-08-2006 SEN © by SEMIKRON

^{*} 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.