

MiniSKiiP® 2

3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter
SKiiP 25NAB065V1

Features

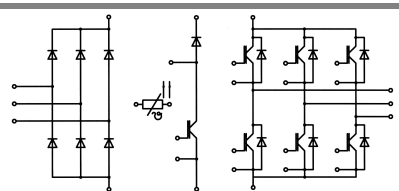
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications*

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

Remarks

- V_{CEsat} , V_F = chip level value



NAB

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter, Chopper			
V _{CES}	T _s = 25 (70) °C	600	V
I _C		38 (28)	A
I _{CRM}		60	A
V _{GES}		± 20	V
T _j		- 40 ... + 150	°C
Diode - Inverter, Chopper			
I _F	T _s = 25 (70) °C	40 (30)	A
I _{FRM}		60	A
T _j		- 40 ... + 150	°C
Diode - Rectifier			
V _{RRM}	T _s = 70 °C	800	V
I _F		46	A
I _{FSM}		370	A
i ² t		680	A ² s
T _j		- 40 ... + 150	°C
Module			
I _{tRMS}	per power terminal (20 A / spring)	60	A
T _{stg}		- 40 ... + 125	°C
V _{isol}	AC, 1 min.	2500	V

Characteristics		T _s = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter, Chopper					
V _{CEsat}	I _{Cnom} = 30 A, T _j = 25 (125) °C	3	2 (2,2)	2,5 (2,7)	V
V _{GE(th)}	V _{GE} = V _{CE} ; I _C = 0,5 mA		4	5	V
V _{CE(TO)}	T _j = 25 (125) °C		1,2 (1,1)	1,3 (1,2)	V
r _T	T _j = 25 (125) °C		27 (37)	40 (50)	mΩ
C _{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		1,5		nF
C _{oes}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		0,45		nF
C _{res}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		0,35		nF
R _{th(j-s)}	per IGBT		1,05		K/W
t _{d(on)}	under following conditions		20		ns
t _r	V _{CC} = 300 V, V _{GE} = ± 15 V		20		ns
t _{d(off)}	I _{Cnom} = 30 A, T _j = 125°C		185		ns
t _f	R _{Gon} = R _{Goff} = 20 Ω		15		ns
E _{on}	inductive load		1		mJ
E _{off}			0,6		mJ
Diode - Inverter, Chopper					
V _F = V _{EC}	I _{Fnom} = 30 A, T _j = 25 (125) °C		1,5 (1,5)	1,8 (1,8)	V
V _(TO)	T _j = 25 (125) °C		1 (0,9)	1,1 (1)	V
r _T	T _j = 25 (125) °C		18 (20)	23 (27)	mΩ
R _{th(j-s)}	per diode		1,5		K/W
I _{RRM}	under following conditions		45		A
Q _{rr}	I _{Fnom} = 30 A, V _R = 300 V		3,1		μC
E _{rr}	V _{GE} = 0 V, T _j = 125 °C		0,8		mJ
	di _F /dt = 2040 A/μs				
Diode - Rectifier					
V _F	I _{Fnom} = 25 A, T _j = 25 °C		1,1		V
V _(TO)	T _j = 150 °C		0,8		V
r _T	T _j = 150 °C		13		mΩ
R _{th(j-s)}	per diode		1,25		K/W
Temperature Sensor					
R _{ts}	3 %, T _r = 25 (100) °C		1000(1670)		Ω
Mechanical Data					
w			65		g
M _s	Mounting torque	2		2,5	Nm

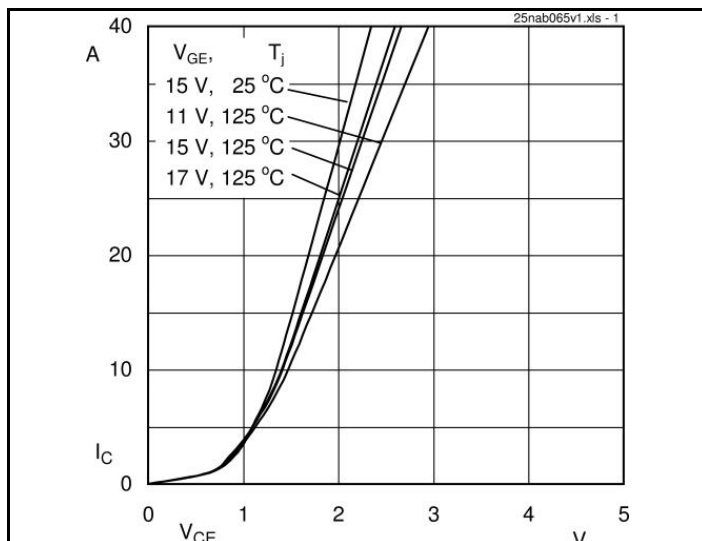


Fig. 1 Typ. output characteristic

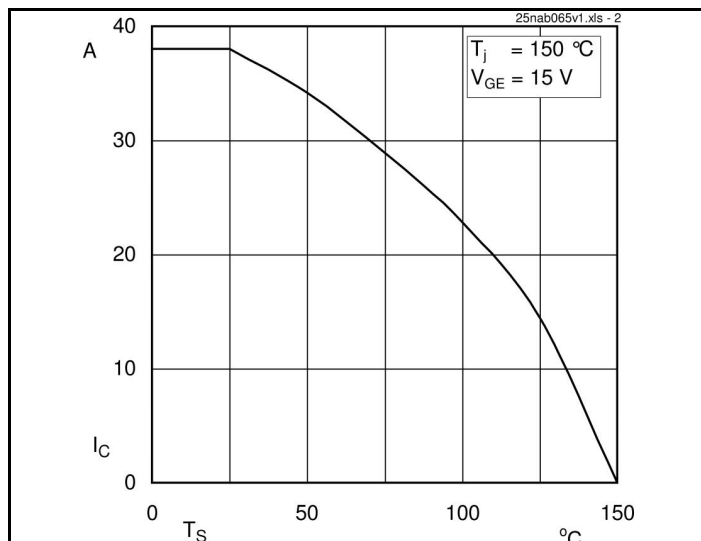


Fig. 2 Typ. rated current vs. temperature

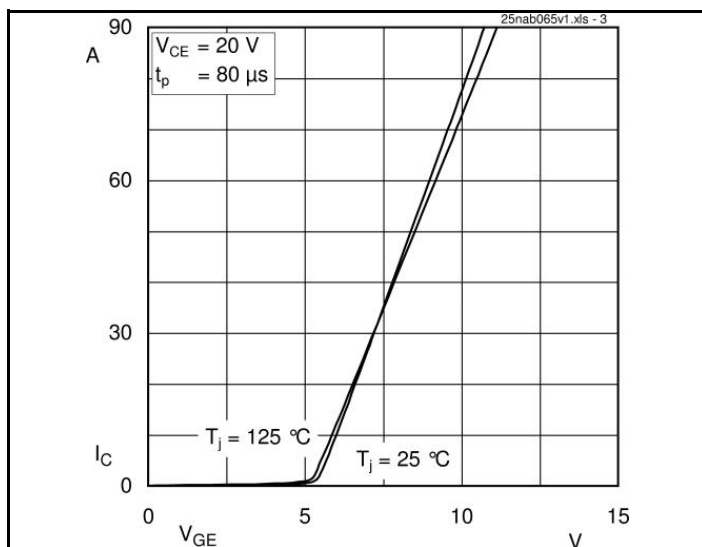


Fig. 3 Typ. transfer characteristic

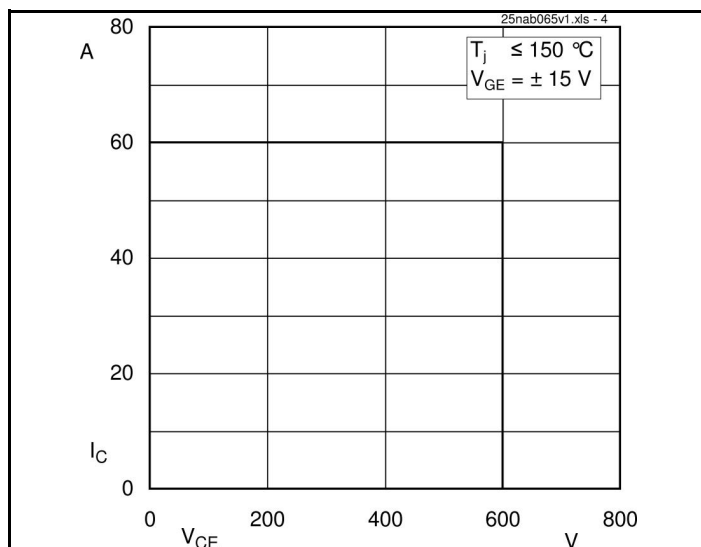


Fig. 4 Reverse bias safe operating area

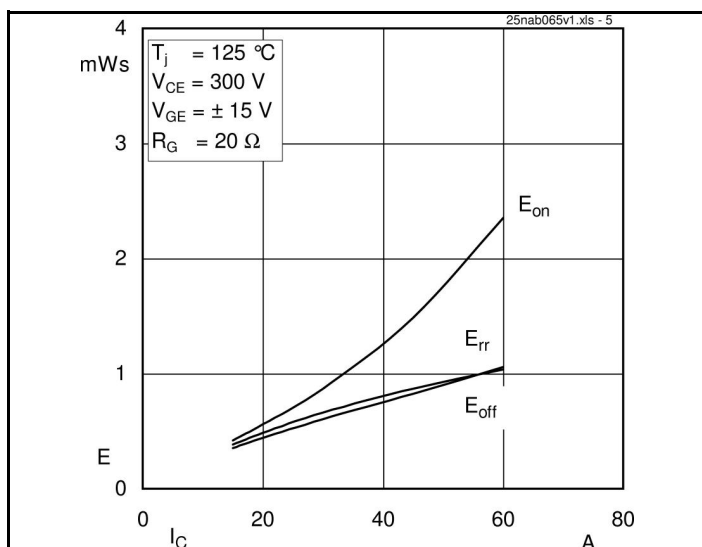


Fig. 5 Typ. Turn-on /-off energy = $f(I_C)$

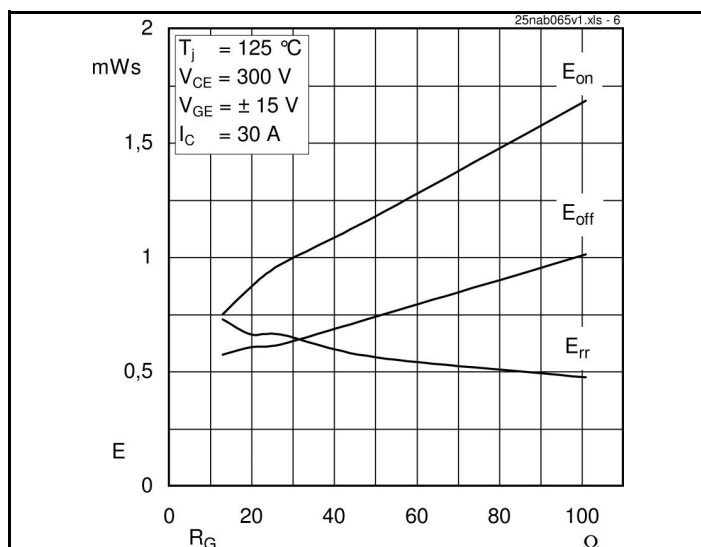
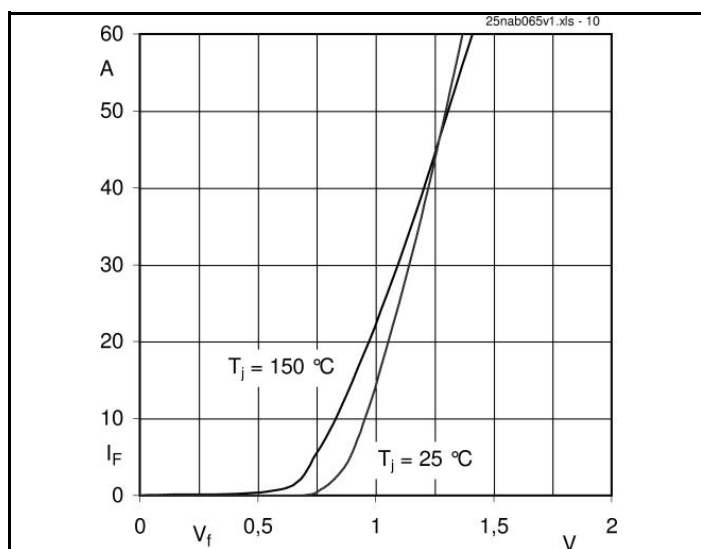
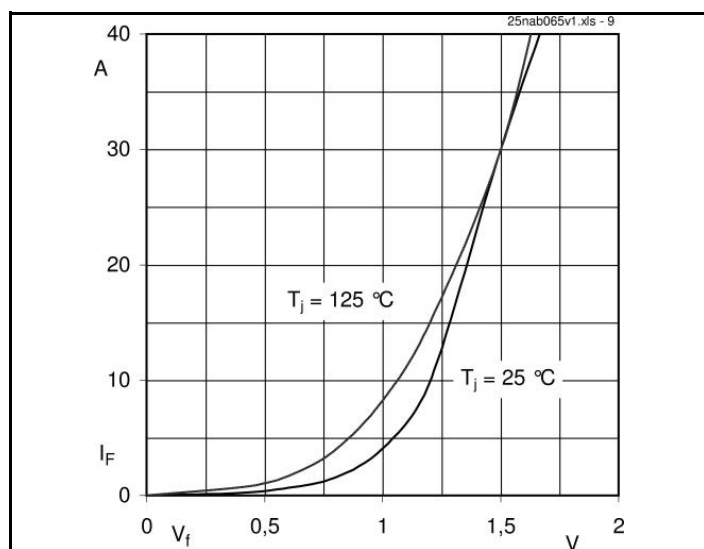
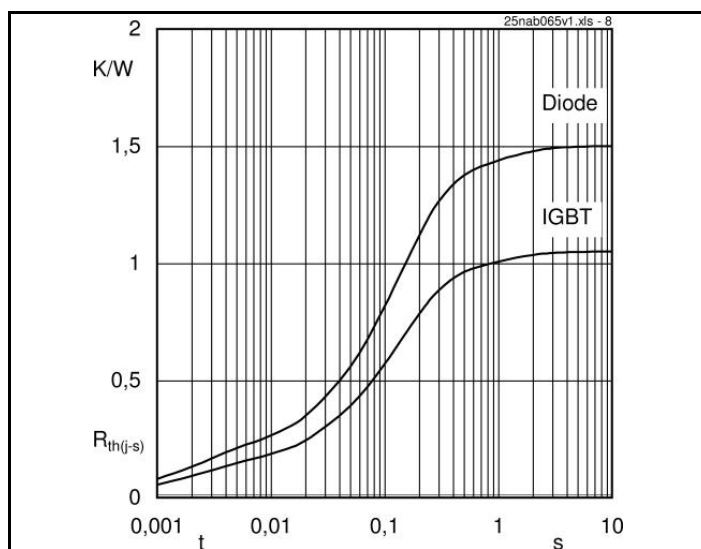
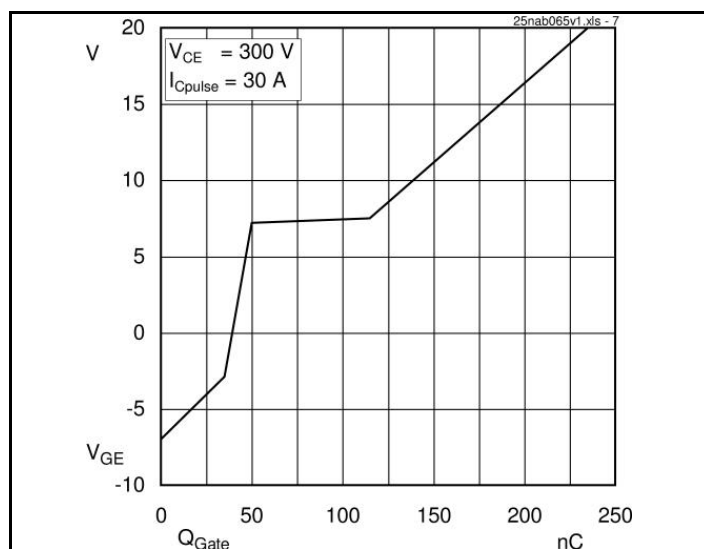
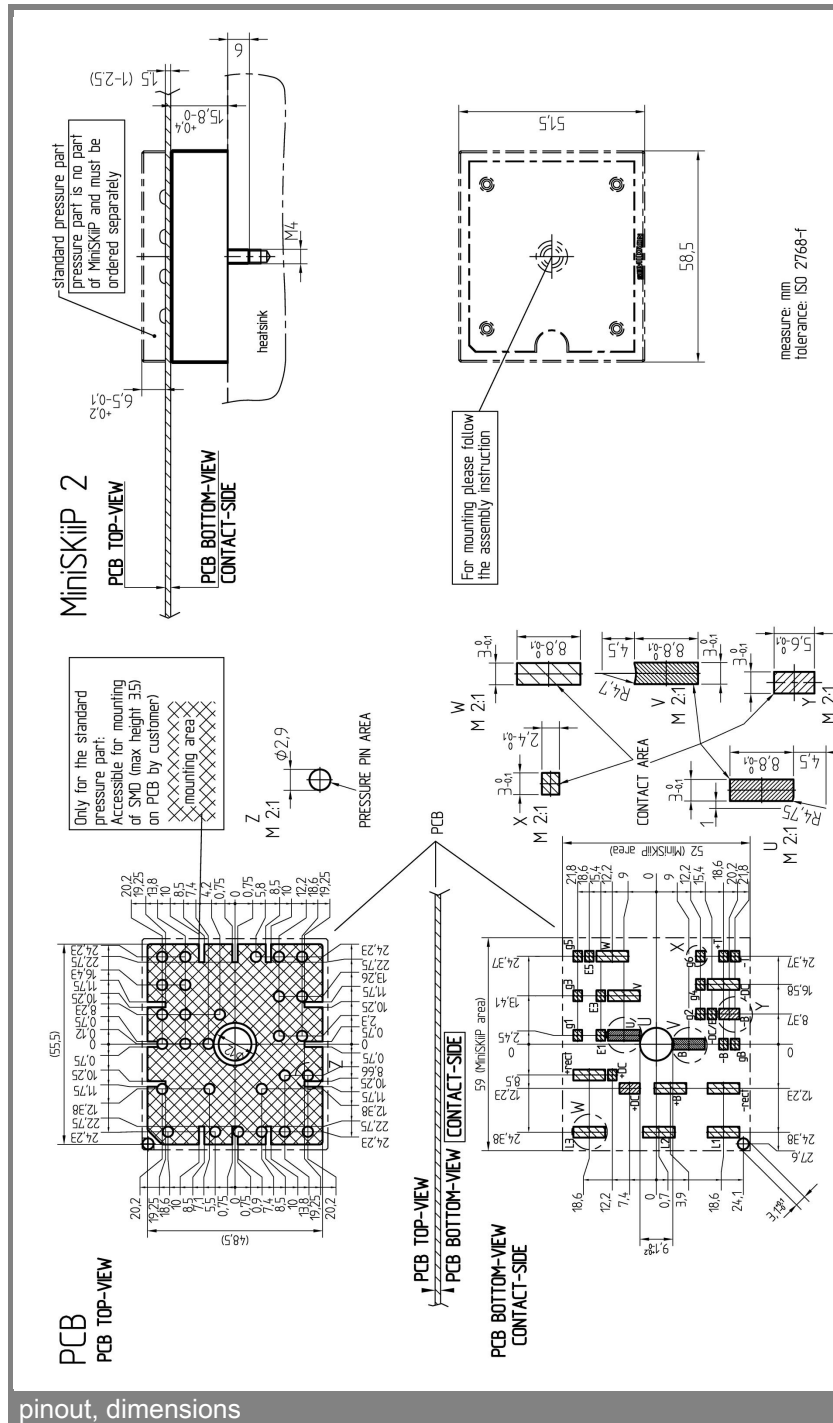
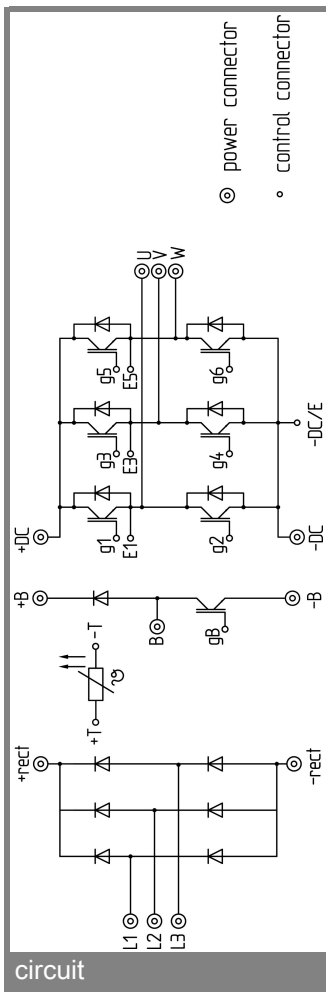


Fig. 6 Typ. Turn-on /-off energy = $f(R_G)$





These documents are Semkron property. Semkron reserves all copyrights. All copying and transmitting of this information requires written permission. For the case of industrial property rights, Semkron assumes no liability.

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.