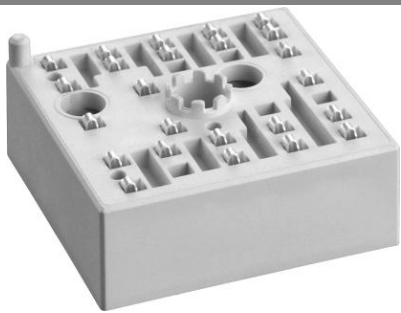




MiniSKiiP® 1

3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter
SKiiP 11NAB065V1

Features

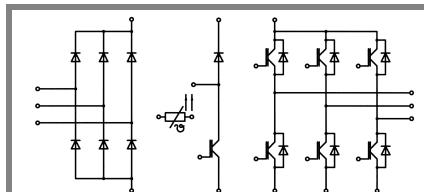
- Ultrafast NPT IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications*

- Inverter up to 3,5 kVA
- Typical motor power 1,5 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		12 (10)	A	
I _{CRM}		12	A	
V _{GES}		± 20	V	
T _j		- 40 ... + 150	°C	
Diode - Inverter, Chopper				
I _F	T _s = 25 (70) °C	12 (12)	A	
I _{FRM}		12	A	
T _j		- 40 ... + 150	°C	
Diode - Rectifier				
V _{RRM}	T _s = 70 °C	800	V	
I _F		35	A	
I _{FSM}		t _p = 10 ms, sin 180 °, T _j = 25 °C	220	A
i ² t		t _p = 10 ms, sin 180 °, T _j = 25 °C	240	A²s
T _j		- 40 ... + 150	°C	
Module				
I _{tRMS}	per power terminal (20 A / spring)	20	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} = 6 A, T _j = 25 (125) °C		2 (2,2)	2,5 (2,7)	V
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 0,5 mA	3	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		133 (183)	200 (250)	mΩ
C _{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		0,32		nF
C _{oes}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		0,08		nF
C _{res}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		0,03		nF
R _{th(j-s)}	per IGBT		1,9		K/W
t _{d(on)}	under following conditions		25		ns
t _r	V _{CC} = 300 V, V _{GE} = ± 15 V		30		ns
t _{d(off)}	I _{Cnom} = 6 A, T _j = 125°C		195		ns
t _f	R _{Gon} = R _{Goff} = 120 Ω		20		ns
E _{on}	inductive load		0,3		mJ
E _{off}			0,2		mJ
Diode - Inverter, Chopper					
V _F = V _{EC}	I _{Fnom} = 6 A, T _j = 25 (125) °C		1,3 (1,2)	1,5 (1,4)	V
V _(TO)	T _j = 25 (125) °C		1 (0,9)	1,1 (1)	V
r _T	T _j = 25 (125) °C		45 (50)	60 (70)	mΩ
R _{th(j-s)}	per diode		2,5		K/W
I _{RRM}	under following conditions		8,3		A
Q _{rr}	I _{Fnom} = 6 A, V _R = 300 V		0,6		μC
E _{rr}	V _{GE} = 0 V, T _j = 125 °C		0,2		mJ
	di _F /dt = 430 A/μs				
Diode - Rectifier					
V _F	I _{Fnom} = 15 A, T _j = 25 °C		1,1		V
V _(TO)	T _j = 150 °C		0,8		V
r _T	T _j = 150 °C		20		mΩ
R _{th(j-s)}	per diode		1,5		K/W
Temperature 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

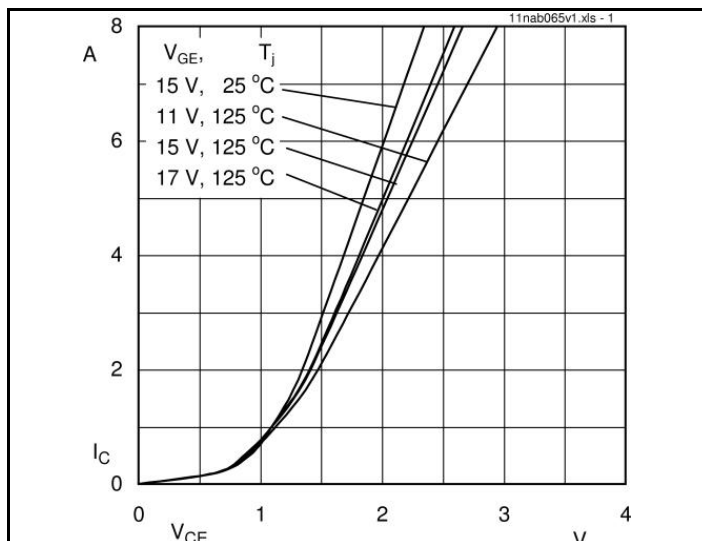


Fig. 1 Typ. output characteristic

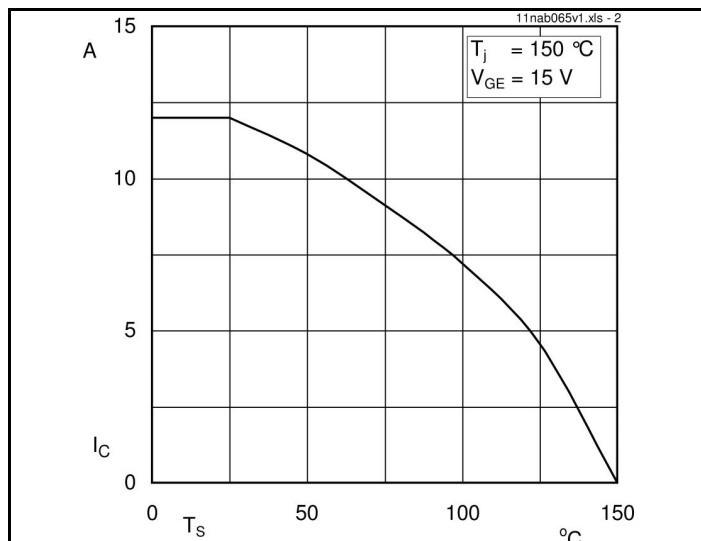


Fig. 2 Typ. rated current vs. temperature

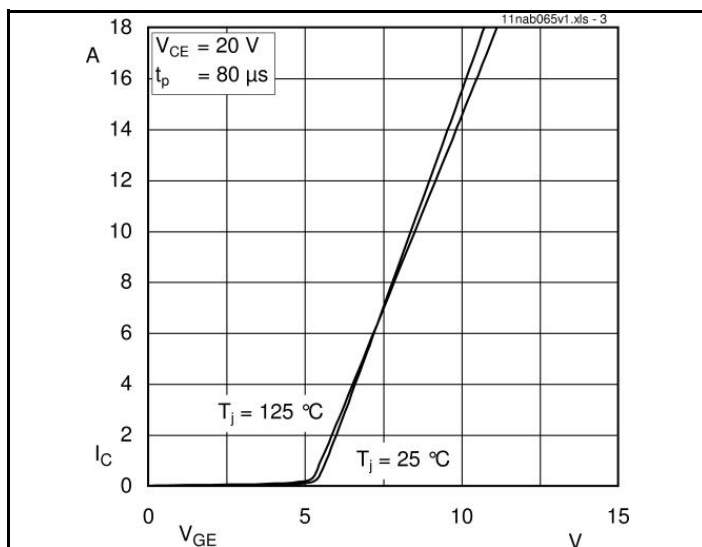


Fig. 3 Typ. transfer characteristic

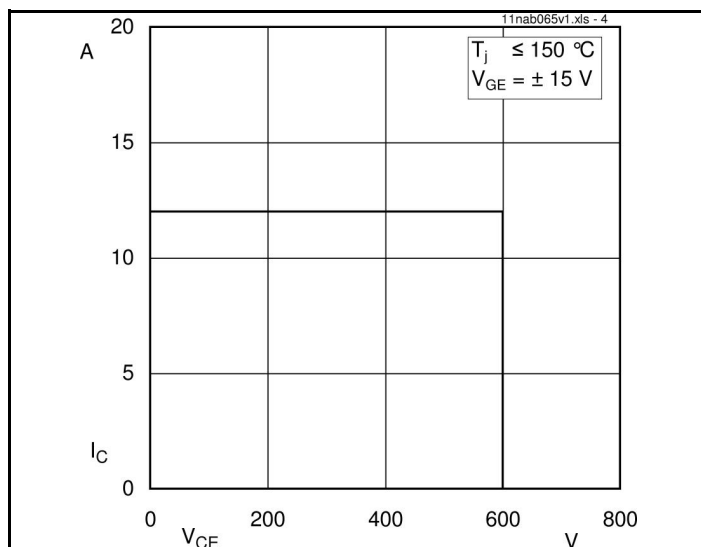


Fig. 4 Reverse bias safe operating area

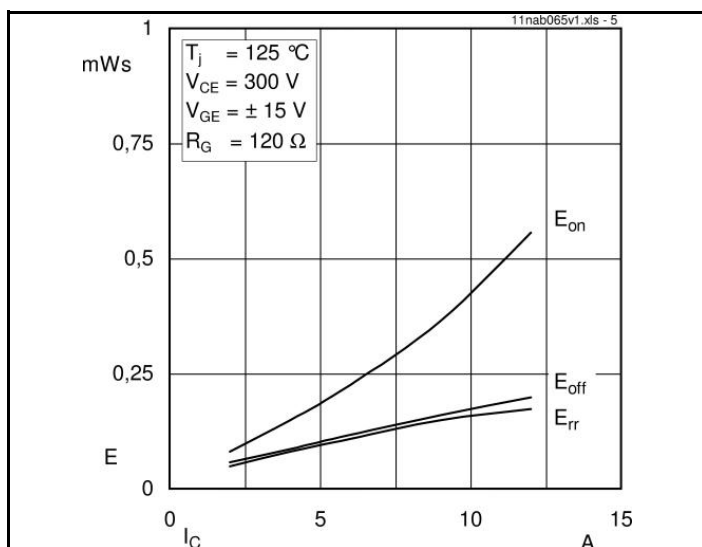


Fig. 5 Typ. Turn-on /-off energy = $f(I_C)$

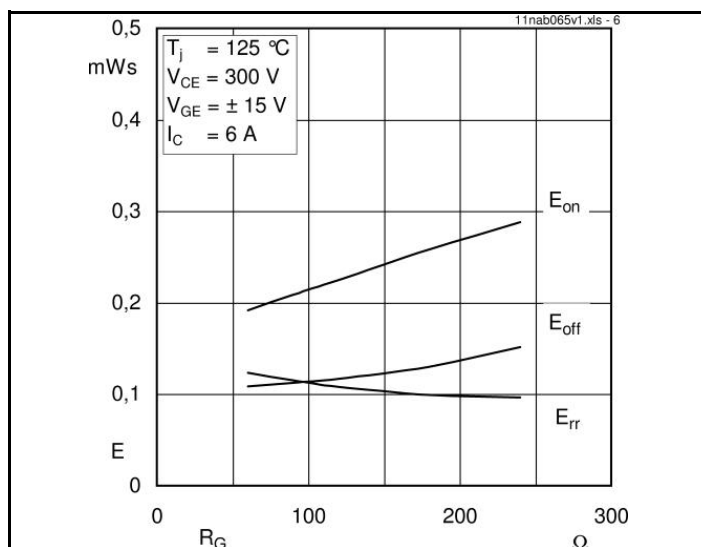
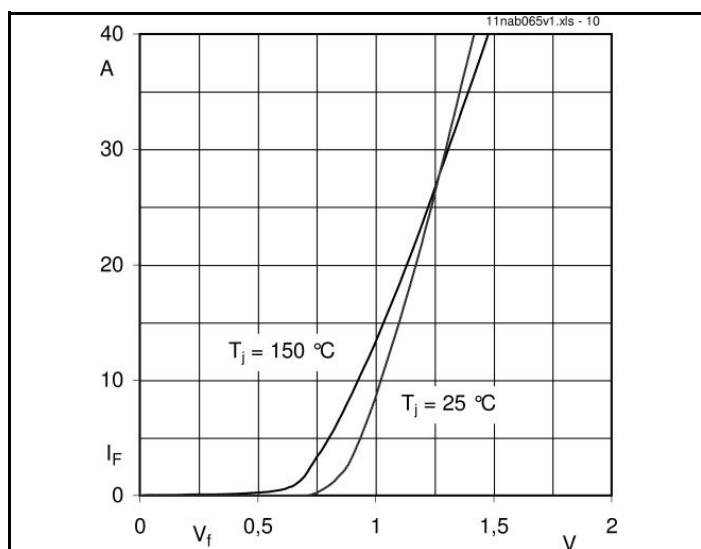
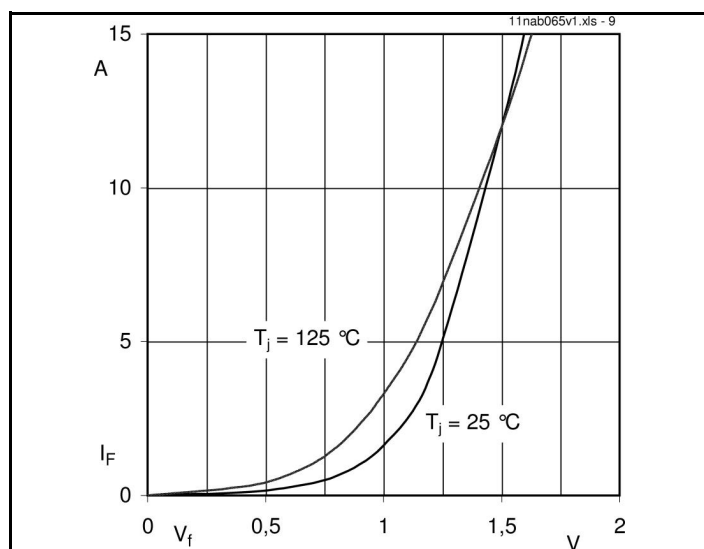
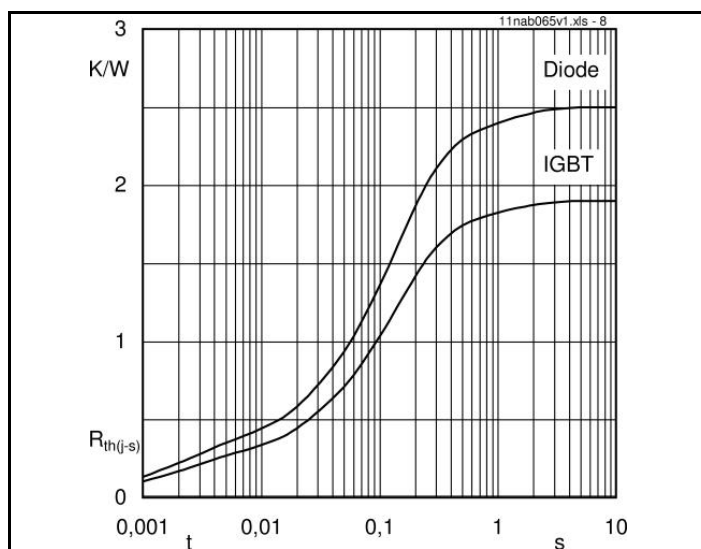
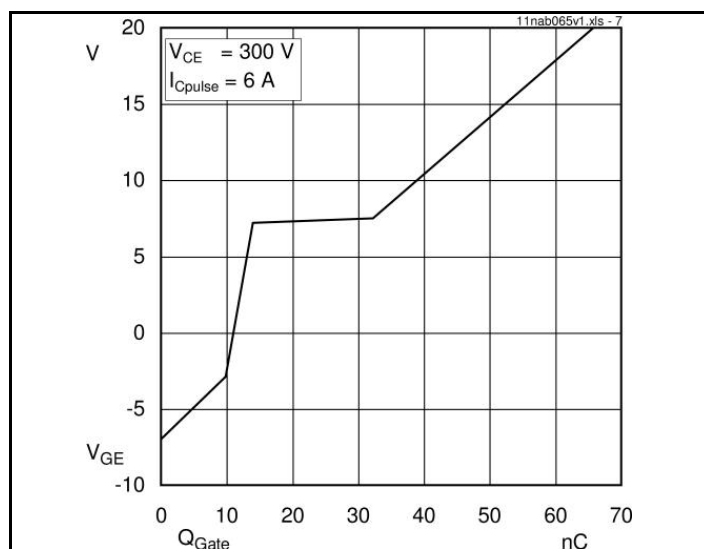
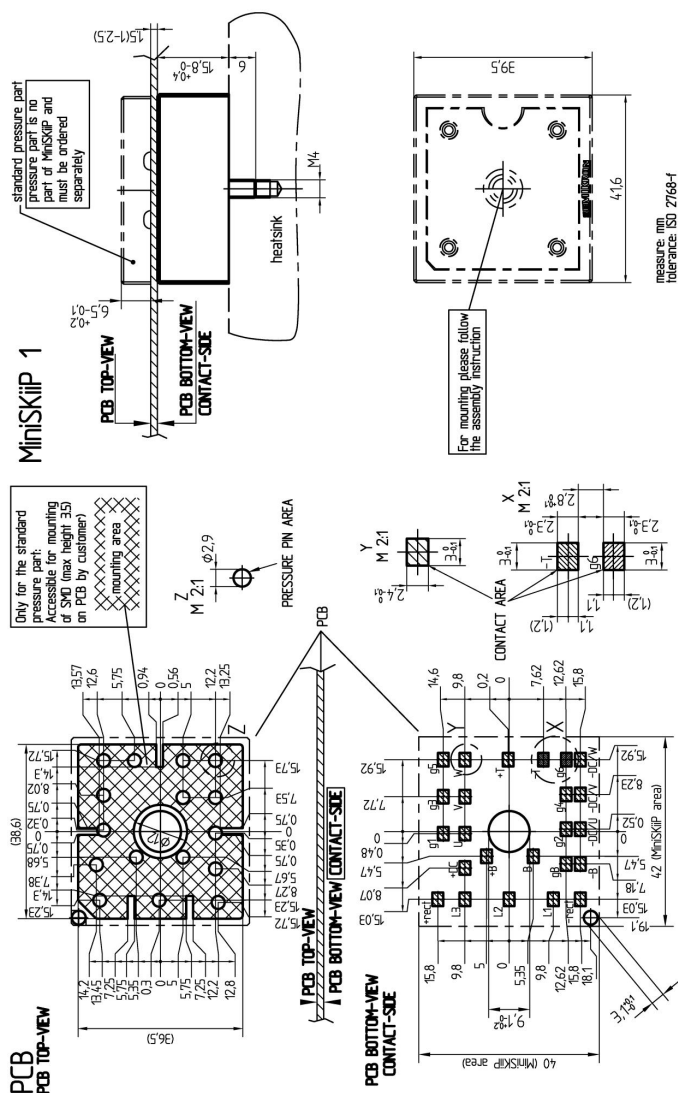
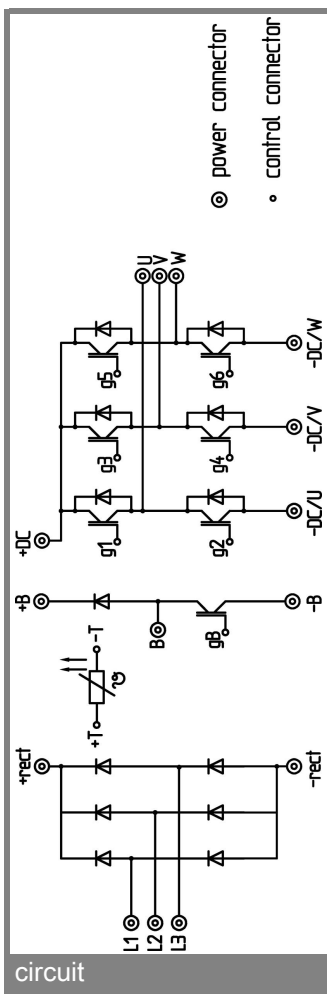


Fig. 6 Typ. Turn-on /-off energy = $f(R_G)$





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

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