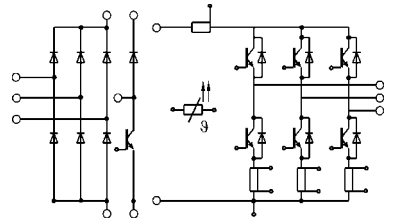


Absolute Maximum Ratings			
Symbol	Conditions ¹⁾	Values	Units
Inverter	(Chopper see SKiiP 22 NAB 12 T18)		
V _{CEs}		1200	V
V _{GES}		± 20	V
I _C	T _{heatsink} = 25 / 80 °C	16 / 11	A
I _{CM}	t _p < 1 ms; T _{heatsink} = 25 / 80 °C	32 / 22	A
I _F = -I _C	T _{heatsink} = 25 / 80 °C	16 / 11	A
I _{FM} = -I _{CM}	t _p < 1 ms; T _{heatsink} = 25 / 80 °C	32 / 22	A
Bridge Rectifier			
V _{RRM}		1500	V
I _D	T _{heatsink} = 80 °C	25	A
I _{FSM}	t _p = 10 ms; sin. 180 °, T _J = 25 °C	370	A
I ² t	t _p = 10 ms; sin. 180 °, T _J = 25 °C	680	A ² s
T _J		- 40 ... + 150	°C
T _{stg}		- 40 ... + 125	°C
V _{isol}	AC, 1 min.	2500	V

MiniSKiiP 2
SEMIKRON integrated intelligent Power
SKiiP 20 NAB 12 T17
SKiiP 20 NAB 12 I T12 ³⁾
3-phase bridge rectifier + braking chopper
3-phase bridge inverter
Case M2



UL recognized file no. E63532

Characteristics					
Symbol	Conditions ¹⁾	min.	typ.	max.	Units
IGBT - Inverter					
V _{CEsat}	I _C = 10 A T _J = 25 (125) °C	-	2,7(3,3)	3,2(3,9)	V
t _{d(on)}	V _{CC} = 600 V; V _{GE} = ± 15 V	-	55	110	ns
t _r	I _C = 10 A; T _J = 125 °C	-	50	100	ns
t _{d(off)}	R _{gon} = R _{goff} = 150 Ω	-	380	570	ns
t _f	inductive load	-	80	120	ns
E _{on} + E _{off}		-	2,7	-	mJ
C _{ies}	V _{CE} = 25 V; V _{GE} = 0 V, 1 MHz	-	0,53	-	nF
R _{thjh}	per IGBT	-	-	1,8	K/W
IGBT - Chopper *					
V _{CEsat}	I _C = 15 A T _J = 25 (125) °C	-	2,5(3,1)	3,0(3,7)	V
t _{d(on)}	V _{CC} = 600 V; V _{GE} = ± 15 V	-	55	110	ns
t _r	I _C = 15 A; T _J = 125 °C	-	45	90	ns
t _{d(off)}	R _{gon} = R _{goff} = 82 Ω	-	400	600	ns
t _f	inductive load	-	70	100	ns
E _{on} + E _{off}		-	4,0	-	mJ
C _{ies}	V _{CE} = 25 V; V _{GE} = 0 V, 1 MHz	-	1,0	-	nF
R _{thjh}	per IGBT	-	-	1,4	K/W
Diode ²⁾ - Inverter (Diode ²⁾ - Chopper see SKiiP 22 NAB 12 T18)					
V _F = V _{EC}	I _F = 10 A T _J = 25 (125) °C	-	2,0(1,8)	2,5(2,3)	V
V _{TO}	T _J = 125 °C	-	1,0	1,2	V
r _T	T _J = 125 °C	-	80	110	mΩ
I _{RRM}	I _F = 10 A, V _R = - 600 V	-	12	-	A
Q _{rr}	di _F /dt = - 300 A/μs	-	1,8	-	μC
E _{off}	V _{GE} = 0 V, T _J = 125 °C	-	0,4	-	mJ
R _{thjh}	per diode	-	-	2,4	K/W
Diode - Rectifier					
V _F	I _F = 25 A T _J = 25 °C	-	1,2	-	V
R _{thjh}	per diode	-	-	2,6	K/W
Temperature Sensor					
R _{TS}	T = 25 / 100 °C		1000 / 1670		Ω
Shunts (SKiiP 20 NAB 12 I T12)					
R _{cs(dc)}	5 % ⁴⁾		16,5		mΩ
R _{cs(ac)}	1 %		10		mΩ
Mechanical Data					
M ₁	Mounting torque	2	-	2,5	Nm
Case			M2		

- ¹⁾ T_{heatsink} = 25 °C, unless otherwise specified
- ²⁾ CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
- ³⁾ With integrated DC and AC shunts
- ⁴⁾ accuracy of pure shunt, please note that for DC shunt no separate sensing contact is used.

* For diagrams of the Chopper IGBT please refer to SKiiP 22 NAB 12 T18

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

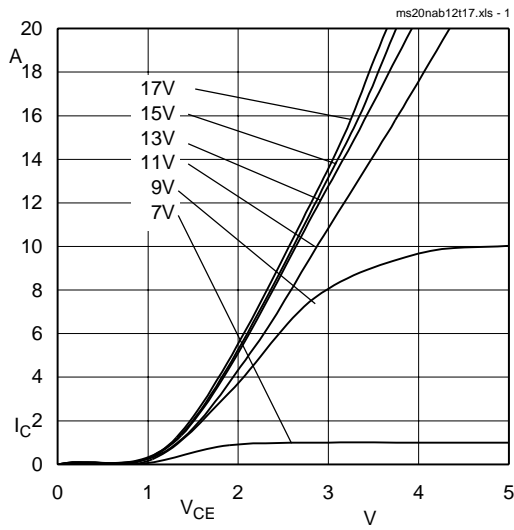


Fig. 1 Typ. output characteristic, $t_p = 80 \mu s$; $25^\circ C$

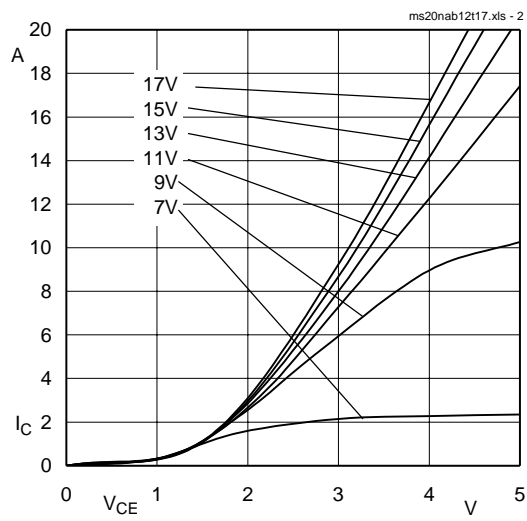


Fig. 2 Typ. output characteristic, $t_p = 80 \mu s$; $125^\circ C$

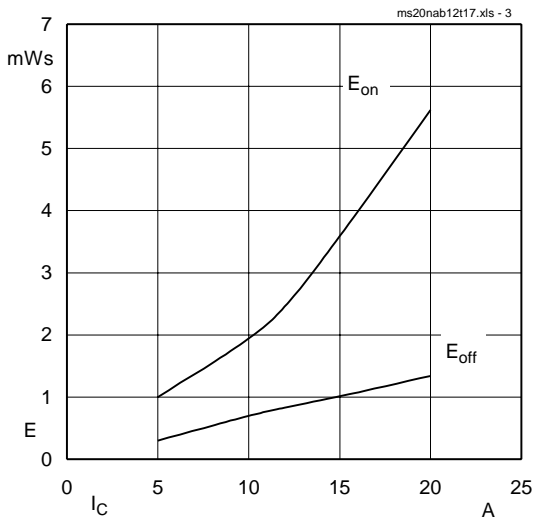


Fig. 3 Turn-on /-off energy = $f(I_c)$

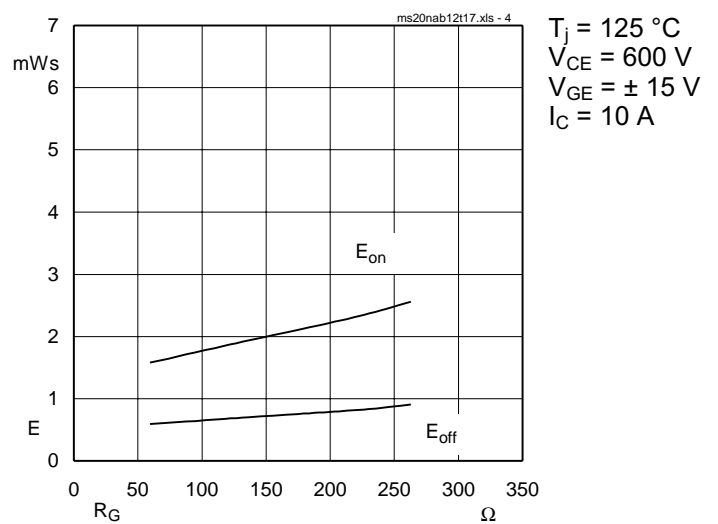


Fig. 4 Turn-on /-off energy = $f(R_G)$

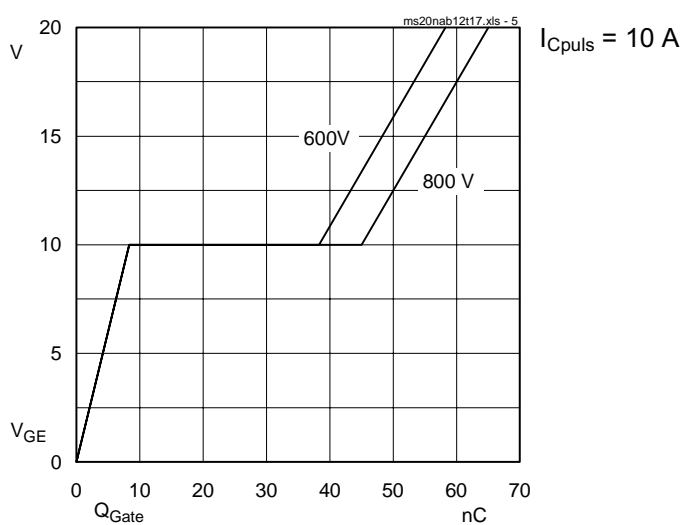


Fig. 5 Typ. gate charge characteristic

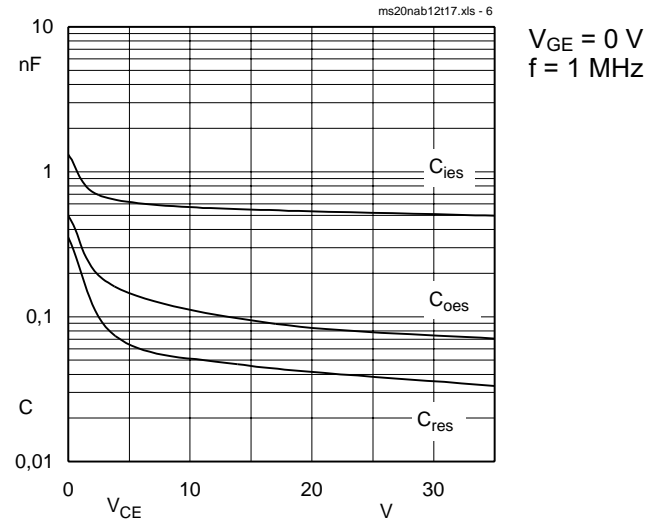


Fig. 6 Typ. capacitances vs. V_{CE}

MiniSKiiP 1200 V

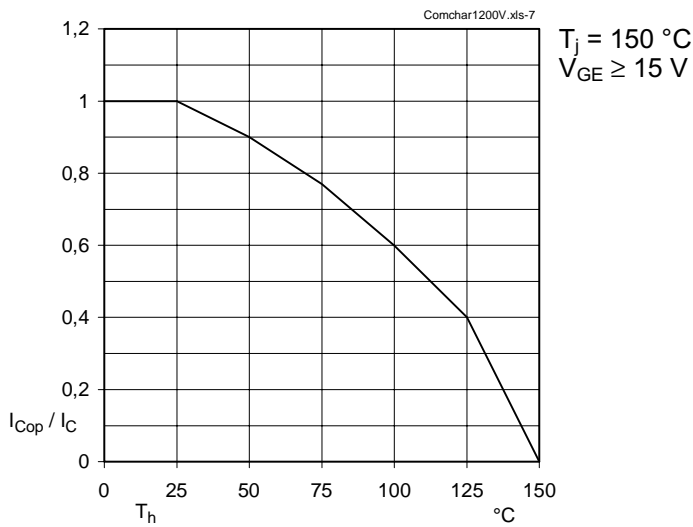


Fig. 7 Rated current of the IGBT $I_{COP} / I_C = f(T_h)$

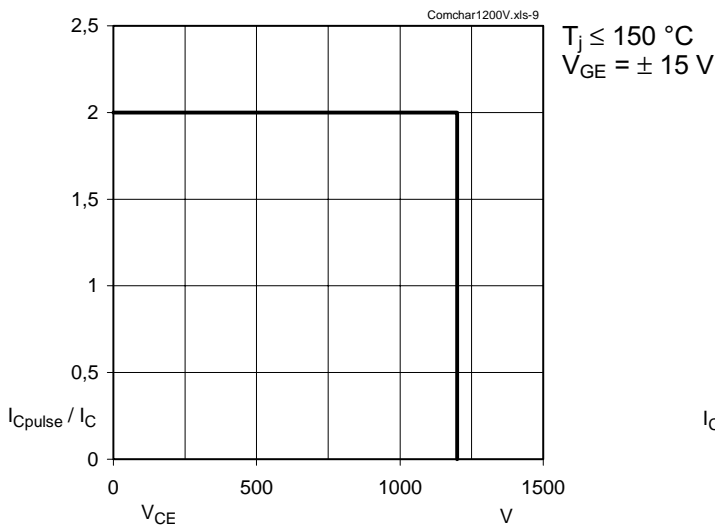


Fig. 9 Turn-off safe operating area (RBSOA) of the IGBT

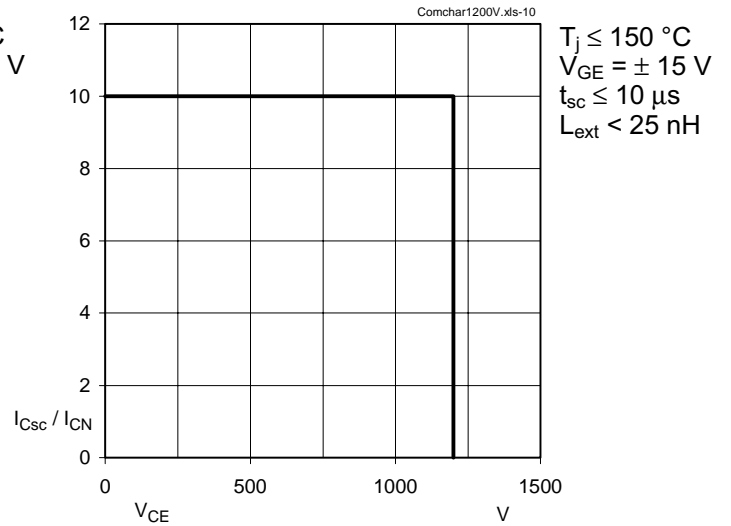


Fig. 10 Safe operating area at short circuit of the IGBT

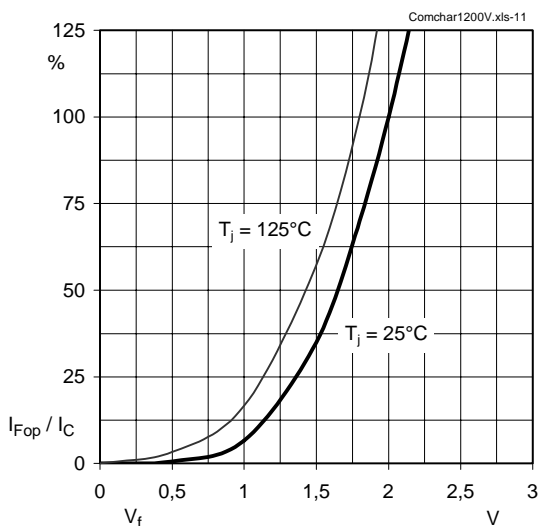


Fig. 11 Typ. freewheeling diode forward characteristic

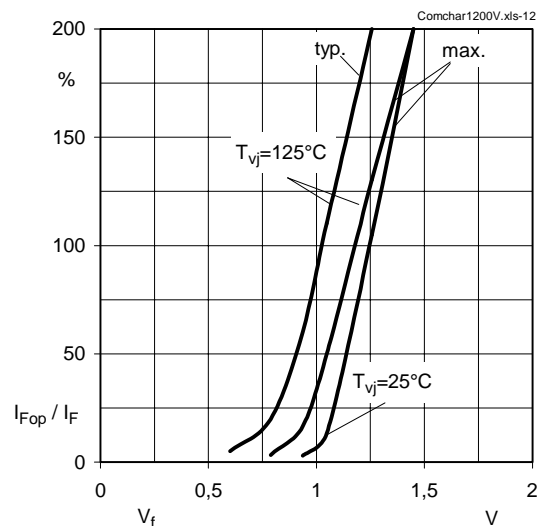
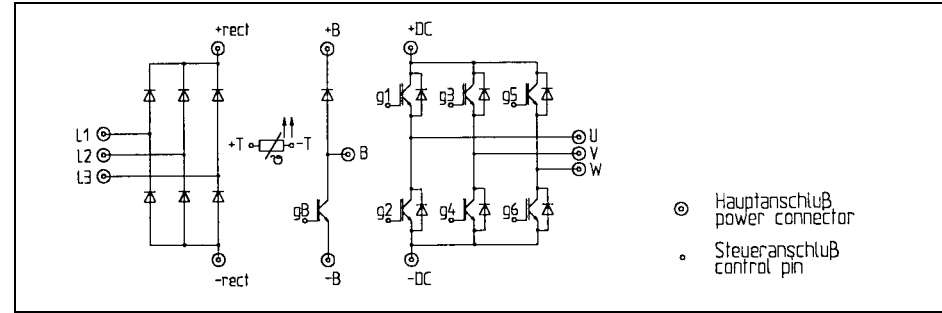


Fig. 12 Forward characteristic of the input bridge diode

MiniSKiiP 2

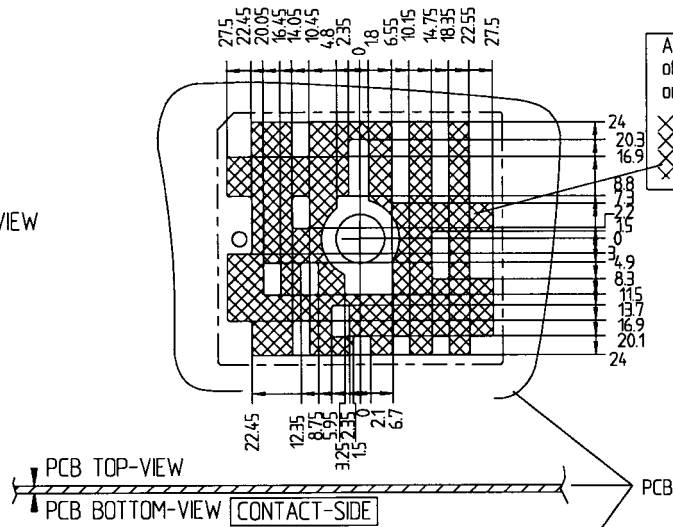
SKiiP 20 NAB 12 T17
SKiiP 22 NAB 12 T18



- ⊙ Hauptanschluß
power connector
- Steueranschluß
control pin

PCB

PCB TOP-VIEW

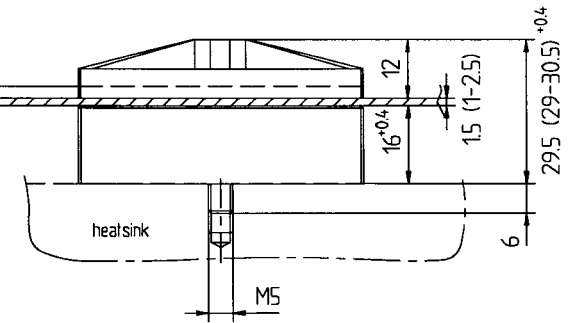


Accessible for mounting of SMD (max height 2.5) on PCB (by customer).
mounting area
2.5

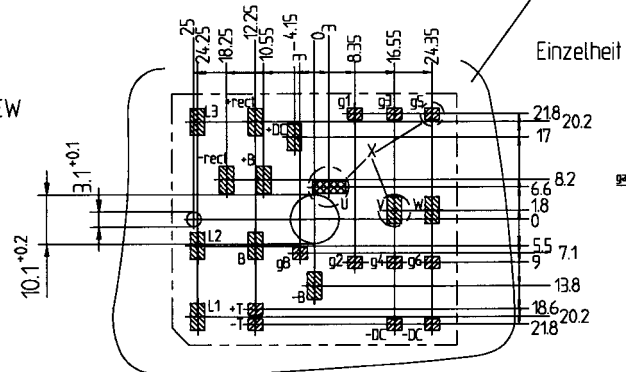
Mini-SKiiP 2

PCB TOP-VIEW

PCB BOTTOM-VIEW
CONTACT-SIDE

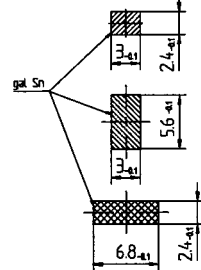


PCB BOTTOM-VIEW
CONTACT-SIDE

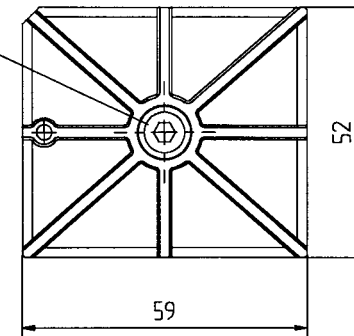


Einzelheit "X" Maßstab 2 : 1

CONTACT-AREA



Bitte beachten Sie die Montagevorschrift
For mounting please follow the assembly instruction



Tolerance: ISO 2768-f

