

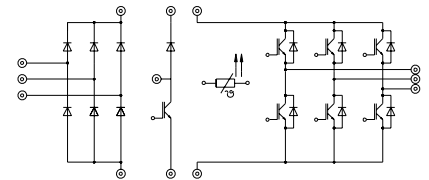
SKiiP 31 NAB 12 T11

Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
Inverter (Chopper see SKiiP 22 NAB 12 T18)			
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	$T_{\text{heatsink}} = 25 / 80 \text{ }^{\circ}\text{C}$	45 / 30	A
I_{CM}	$t_p < 1 \text{ ms}; T_{\text{heatsink}} = 25 / 80 \text{ }^{\circ}\text{C}$	90 / 60	A
$I_F = -I_C$	$T_{\text{heatsink}} = 25 / 80 \text{ }^{\circ}\text{C}$	38 / 26	A
$I_{FM} = -I_{CM}$	$t_p < 1 \text{ ms}; T_{\text{heatsink}} = 25 / 80 \text{ }^{\circ}\text{C}$	76 / 52	A
Bridge Rectifier			
V_{RRM}		1500	V
I_D	$T_{\text{heatsink}} = 80 \text{ }^{\circ}\text{C}$	35	A
I_{FSM}	$t_p = 10 \text{ ms}; \sin. 180^{\circ}; T_j = 25 \text{ }^{\circ}\text{C}$	700	A
I^2t	$t_p = 10 \text{ ms}; \sin. 180^{\circ}; T_j = 25 \text{ }^{\circ}\text{C}$	2400	A ² s
T_j		- 40 ... + 150	$^{\circ}\text{C}$
T_{stg}		- 40 ... + 125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.	2500	V

Characteristics					
Symbol	Conditions ¹⁾	min.	typ.	max.	Units
IGBT - Inverter					
V _{CEsat}	I _C = 30 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 I _C = 30 A; T _j = 125 °C R _{gon} = R _{goff} = 39 Ω inductive load	—	55	110	ns
t _r		—	55	110	ns
t _{d(off)}		—	400	600	ns
t _f		—	45	90	ns
E _{on} + E _{off}		—	7,8	—	mJ
C _{ies}	V _{CE} = 25 V; V _{GE} = 0 V, 1 MHz	—	2,0	—	nF
R _{thjh}	per IGBT	—	—	0,7	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 I _C = 15 A; T _j = 125 °C R _{gon} = R _{goff} = 82 Ω inductive load	—	55	110	ns
t _r		—	45	90	ns
t _{d(off)}		—	400	600	ns
t _f		—	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 = 25 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	—	32	44	mΩ
I _{RRM}	} I _F = 25 A, V _R = – 600 V di _F /dt = – 500 A/μs V _{GE} = 0 V, T _j = 125 °C	—	25	—	A
Q _{rr}		—	4,5	—	μC
E _{off}		—	1,0	—	mJ
R _{thjh}	per diode	—	—	1,2	K/W
Diode - Rectifier					
V _F	I _F = 35 A T _j = 25 °C	—	1,2	—	V
R _{thjh}	per diode	—	—	1,6	K/W
Temperature Sensor					
R _{TS}	T = 25 / 100 °C	1000 / 1670			Ω
Mechanical Data					
M ₁	Mounting torque	2	—	2,5	Nm
Case			M3		

MiniSKiiP 3
SEMIKRON integrated
intelligent Power
SKiiP 31 NAB 12 T11
3-phase bridge rectifier +
braking chopper
3-phase bridge inverter

Case M3



UL recognized file no. E63532

Options

- also available with powerful chopper. For characteristics please refer to Inverter IGBT

¹⁾ $T_{\text{heatsink}} = 25 \text{ }^{\circ}\text{C}$, unless otherwise specified

²⁾ CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

* 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.

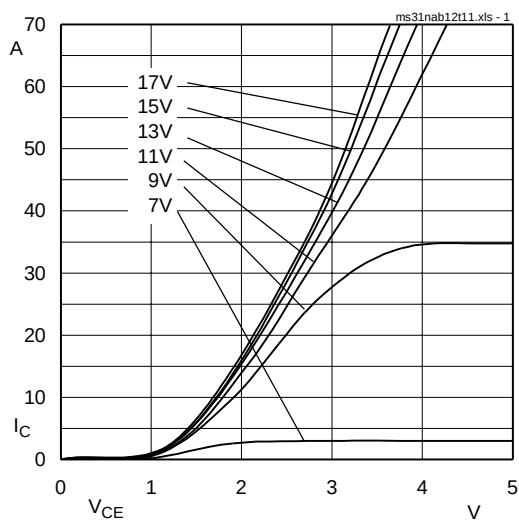
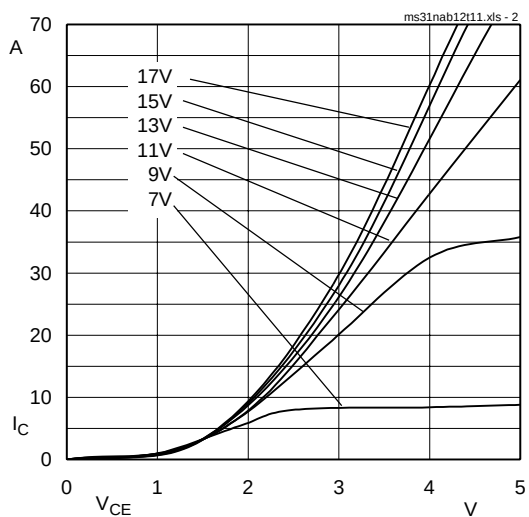
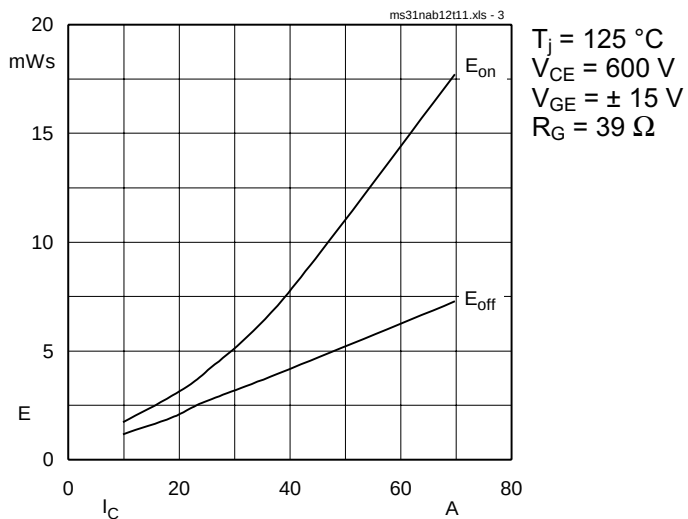
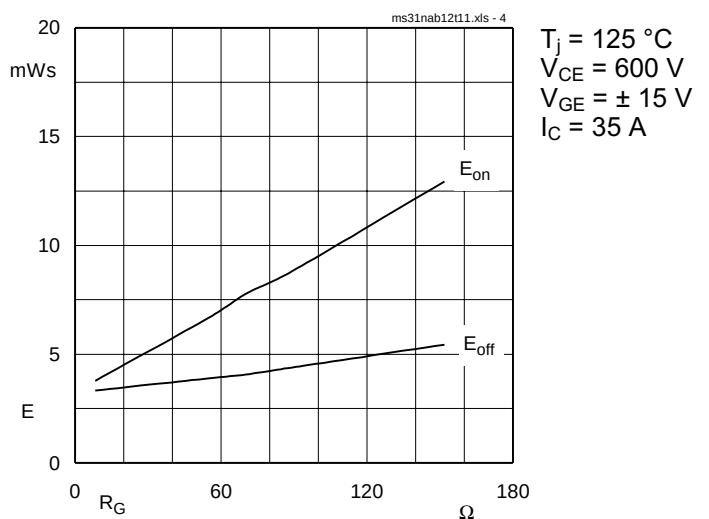
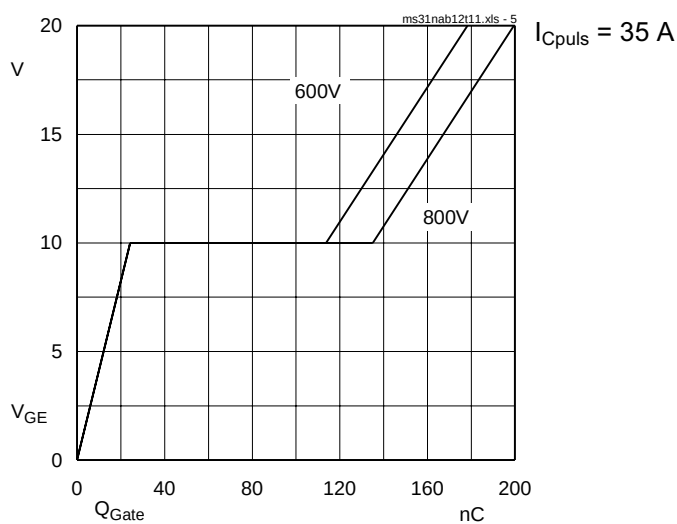
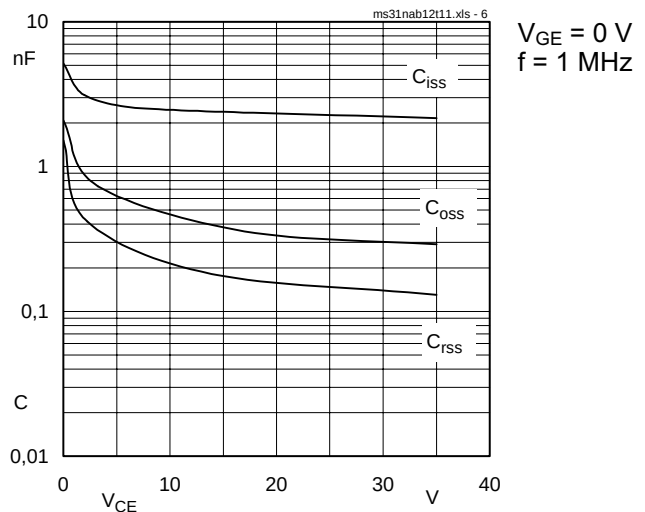
Fig. 1 Typ. output characteristic, $t_p = 80 \mu s$; $25^\circ C$ Fig. 2 Typ. output characteristic, $t_p = 80 \mu s$; $125^\circ C$ Fig. 3 Turn-on /-off energy = $f(I_C)$ Fig. 4 Turn-on /-off energy = $f(R_G)$ 

Fig. 5 Typ. gate charge characteristic

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

MiniSKiiP 1200 V

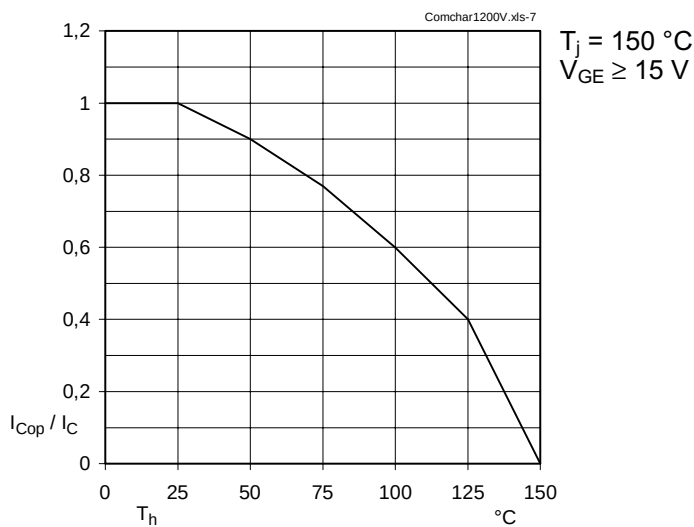


Fig. 7 Rated current of the IGBT $I_{C_{op}} / I_C = f(T_h)$

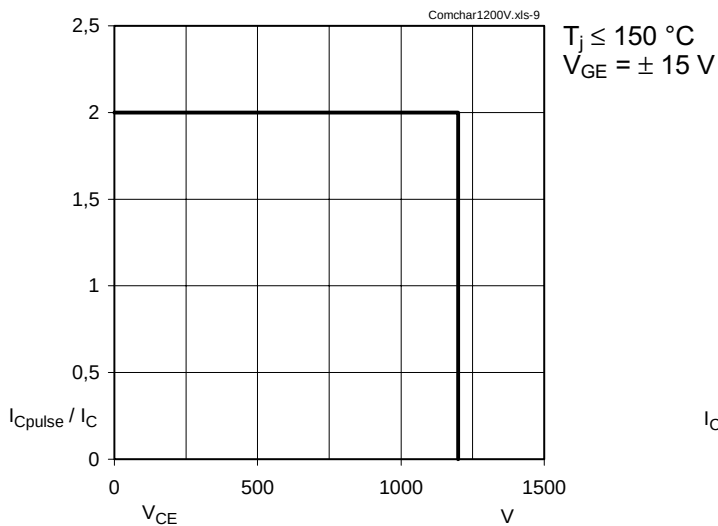


Fig. 9 Turn-off safe operating area (RBSOA) of the IGBT

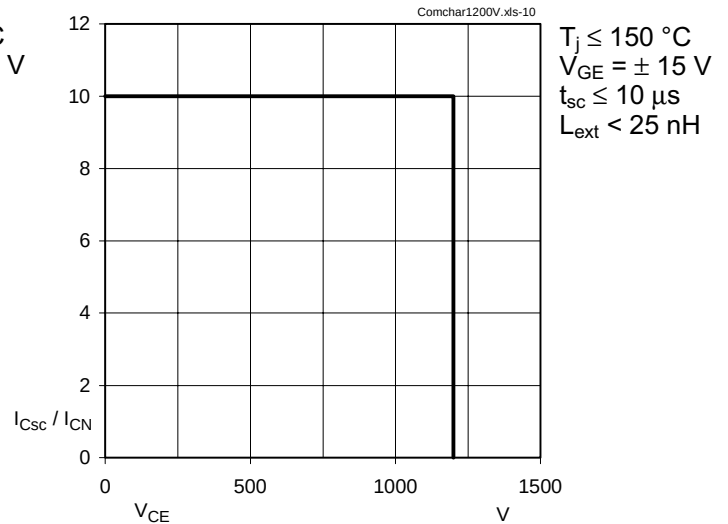


Fig. 10 Safe operating area at short circuit of the IGBT

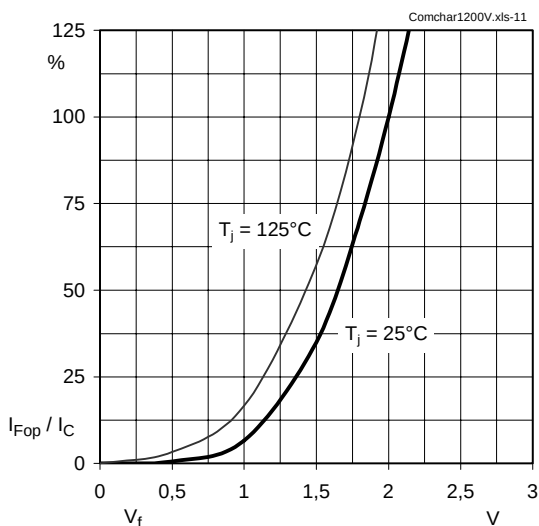


Fig. 11 Typ. freewheeling diode forward characteristic

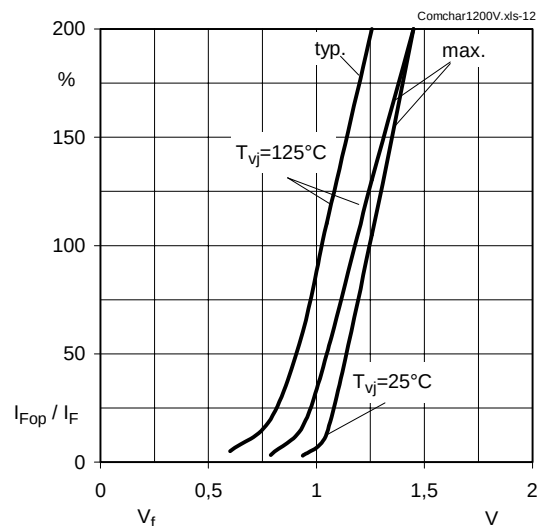


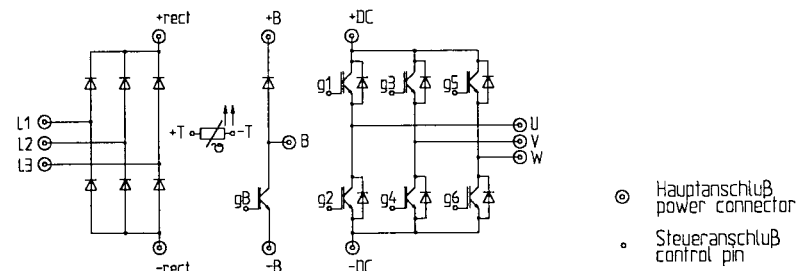
Fig. 12 Forward characteristic of the input bridge diode

MiniSKiiP 3

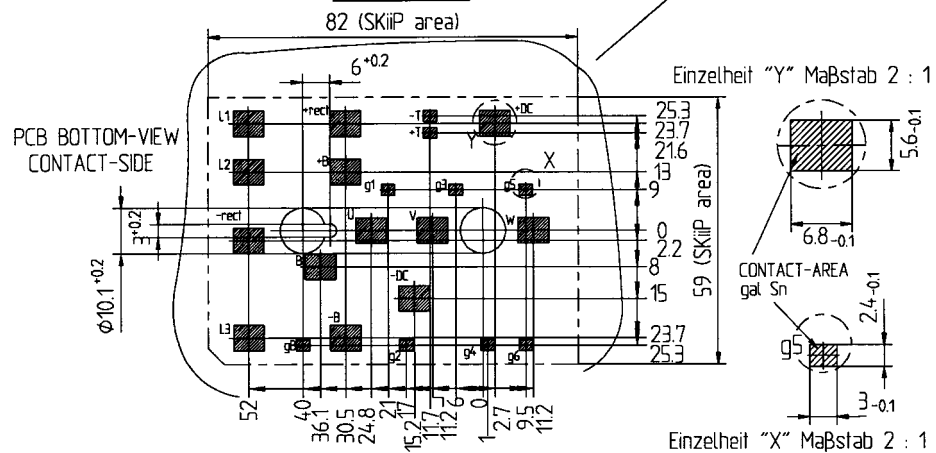
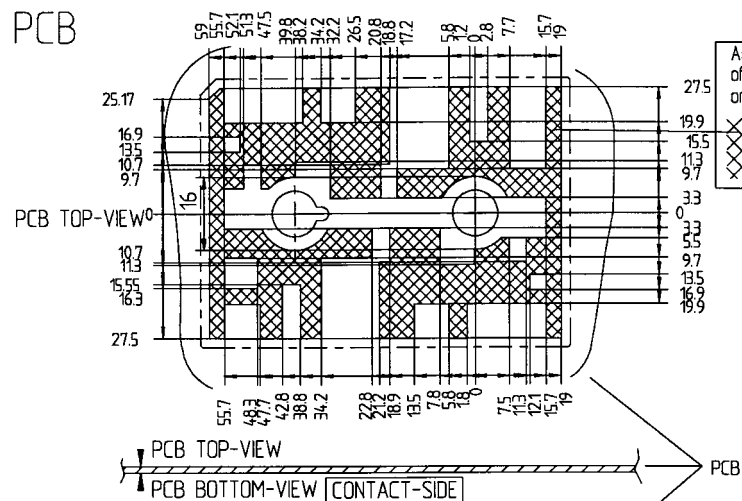
SKiiP 30 NAB 12 T10

SKiiP 31 NAB 12 T11

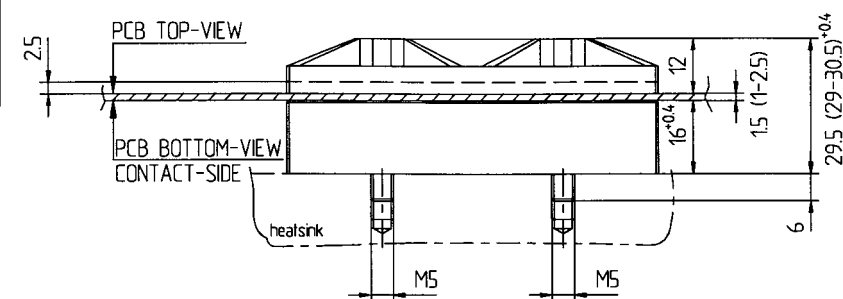
SKiiP 32 NAB 12 T1



PCB

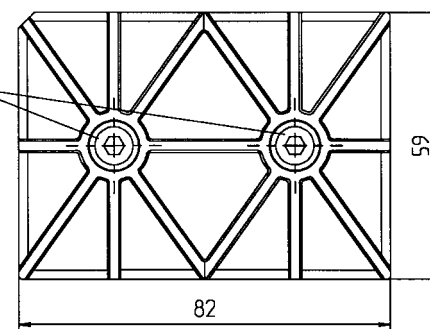


Mini-SKiiP 3



Bitte beachten Sie die Montagevorschrift

For mounting please follow the assembly instruction



Tolerance: ISO 2768-f