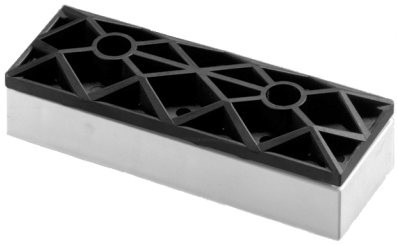
SKiiP 83 ANB 15 T1

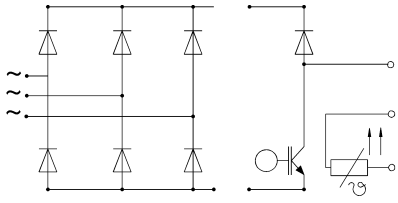
Absolute Maximum Ratings			
Symbol	**Conditions** [1]	**Values**	**Units**
Bridge Rectifier			
V_{RRM}		1500	V
I_D	$T_{heatsink}$ = 80 °C	100 [3]	A
I_{FSM}	t_p = 10 ms; sin. 180°, T_j = 25 °C	1600	A
I^2t	t_p = 10 ms; sin. 180°, T_j = 25 °C	12000	A^2s
IGBT Chopper			
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	$T_{heatsink}$ = 25 / 80 °C	95 / 65	A
I_{CM}	t_p < 1 ms; $T_{heatsink}$ = 25 / 80 °C	190 / 130	A
Freewheeling Diode [2]			
V_{RRM}		1200	V
I_F	$T_{heatsink}$ = 25 / 80 °C	38 / 26	A
I_{FM}	t_p < 1 ms; $T_{heatsink}$ = 25 / 80 °C	76 / 52	A
T_j	Diode & IGBT	– 40 ... + 150	°C
T_{stg}		– 40 ... + 125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics					
Symbol	**Conditions** [1]	**min.**	**typ.**	**max.**	**Units**
Diode - Rectifier					
V_F	I_F = 100 A T_j = 125 °C	–	1,15	–	V
V_{TO}	T_j = 125 °C	–	0,8	–	V
r_T	T_j = 125 °C	–	3,5	–	mΩ
R_{thjh}	per diode	–	–	0,7	K/W
IGBT - Chopper					
V_{CEsat}	I_C = 75 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	–	35	–	ns
t_r	I_C = 75 A; T_j = 125 °C	–	70	–	ns
$t_{d(off)}$	R_{gon} = R_{goff} = 15 Ω	–	450	–	ns
t_f	inductive load	–	70	–	ns
E_{on} + E_{off}		–	18	–	mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V, 1 MHz	–	5,0	–	nF
R_{thjh}	per IGBT	–	–	0,35	K/W
Diode [2] - Chopper					
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	–	25	–	A
Q_{rr}	di_F/dt = – 500 A/µs	–	4,5	–	µC
E_{off}	V_{GE} = 0 V, T_j = 125 °C	–	1,0	–	mJ
R_{thjh}	per diode	–	–	1,2	K/W
Temperature Sensor					
R_{TS}	T = 25 / 100 °C		1000 / 1670		Ω
Mechanical Data					
M_1	mounting torque	2,5	–	3,5	Nm
Case	mechanical outline see pages B 16 –13 and B 16 – 14		M8a		

MiniSKiiP 8
SEMIKRON integrated intelligent Power
SKiiP 83 ANB 15 T1
3-phase bridge rectifier + IGBT braking chopper

Case M8a





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- specification of temperature sensor see part A of data book ´99
- common characteristics see page B 16 – 4 of data book ´99

[1] $T_{heatsink}$ = 25 °C, unless otherwise specified
[2] CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
[3] limited by spring contact

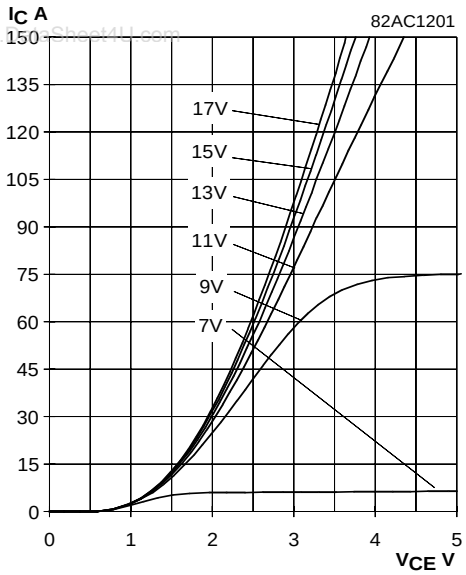


Fig. 1 Typ. output characteristic, t_p = 80 µs; 25 °C

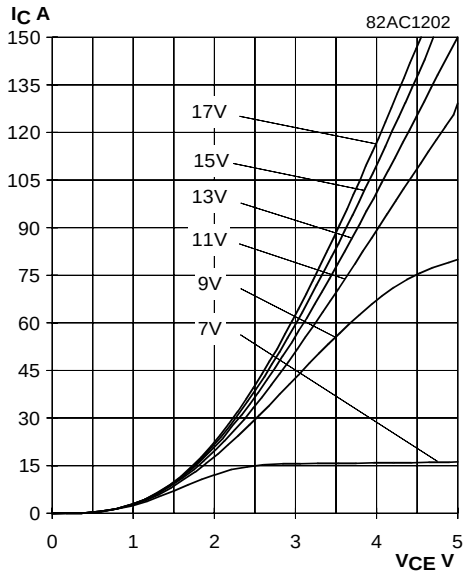
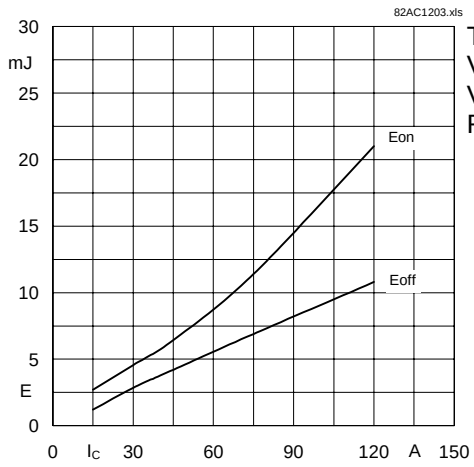
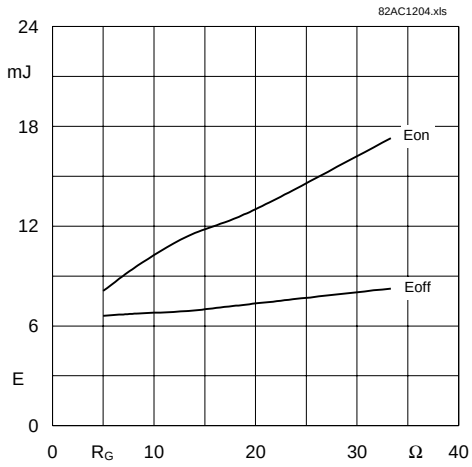


Fig. 2 Typ. output characteristic, t_p = 80 µs; 125 °C



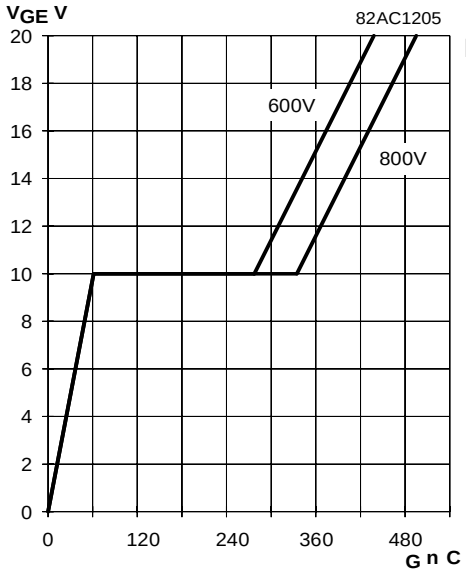
T_j = 125 °C
V_{CC} = 600 V
V_{GE} = ± 15 V
R_G = 15 Ω

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



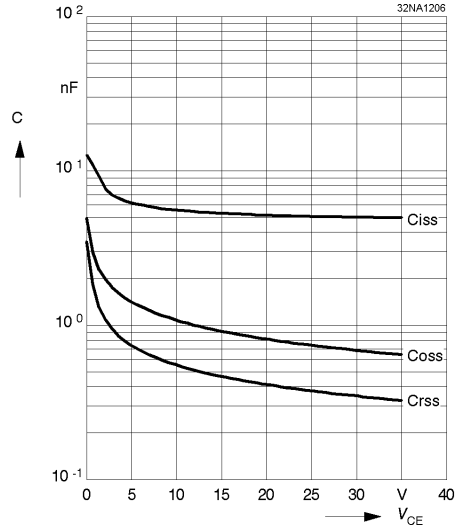
T_j = 125 °C
V_{CC} = 600 V
V_{GE} = ± 15 V
I_C = 75 A

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



I_{Cpuls} = 75 A

Fig. 5 Typ. gate charge characteristic



V_{GE} = 0 V
f = 1 MHz

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