

SKiiP 83 ANB 15 T1

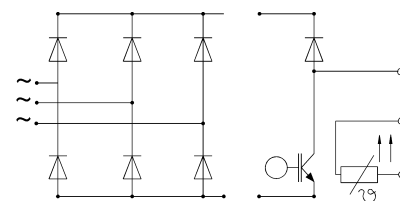
MiniSKiiP 8

SEMIKRON integrated
intelligent Power

SKiiP 83 ANB 15 T1

3-phase bridge rectifier +
IGBT braking chopper

Case M8a



UL recognized file no. E63532

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

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

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

³⁾ limited by spring contact

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

Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
Diode - Rectifier					
V_F	$I_F = 100\text{ A}$ $T_j = 125\text{ °C}$	–	1,15	–	V
V_{TO}	$T_j = 125\text{ °C}$	–	0,8	–	V
r_T	$T_j = 125\text{ °C}$	–	3,5	–	mΩ
R_{thjh}	per diode	–	–	0,7	K/W
IGBT - Chopper					
V_{CESat}	$I_C = 75\text{ A}$ $T_j = 25\text{ (125) °C}$	–	2,5(3,1)	3,0(3,7)	V
$t_{d(on)}$	$V_{CC} = 600\text{ V}$; $V_{GE} = \pm 15\text{ V}$	–	35	–	ns
t_r	$I_C = 75\text{ A}$; $T_j = 125\text{ °C}$	–	70	–	ns
$t_{d(off)}$	$R_{gon} = R_{goff} = 15\text{ Ω}$	–	450	–	ns
t_f	inductive load	–	70	–	ns
$E_{on} + E_{off}$		–	18	–	mJ
C_{ies}	$V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$, 1 MHz	–	5,0	–	nF
R_{thjh}	per IGBT	–	–	0,35	K/W
Diode ²⁾ - Chopper					
$V_F = V_{EC}$	$I_F = 25\text{ A}$ $T_j = 25\text{ (125) °C}$	–	2,0(1,8)	2,5(2,3)	V
V_{TO}	$T_j = 125\text{ °C}$	–	1,0	1,2	V
r_T	$T_j = 125\text{ °C}$	–	32	44	mΩ
I_{RRM}	$I_F = 25\text{ A}$; $V_R = -600\text{ V}$	–	25	–	A
Q_{rr}	$di_F/dt = -500\text{ A/μs}$	–	4,5	–	μC
E_{off}	$V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$	–	1,0	–	mJ
R_{thjh}	per diode	–	–	1,2	K/W
Temperature Sensor					
R_{TS}	$T = 25 / 100\text{ °C}$		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		

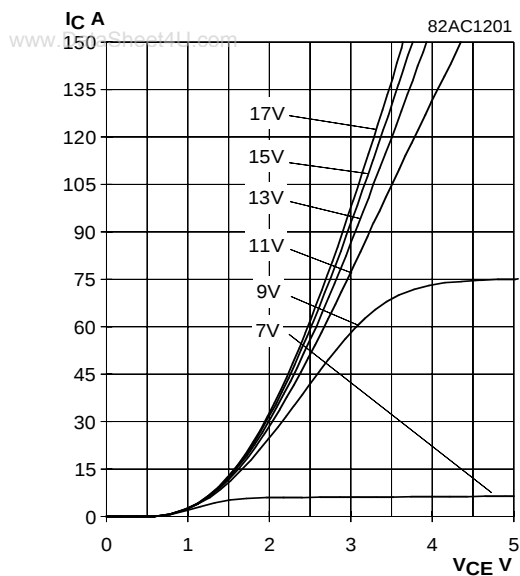


Fig. 1 Typ. output characteristic, $t_p = 80 \mu s$; $25^\circ C$

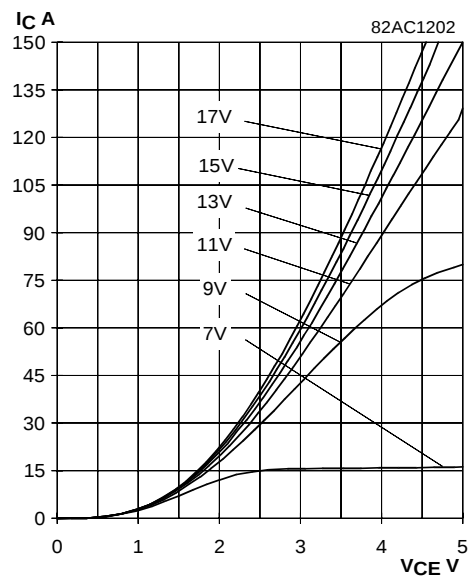


Fig. 2 Typ. output characteristic, $t_p = 80 \mu s$; $125^\circ C$

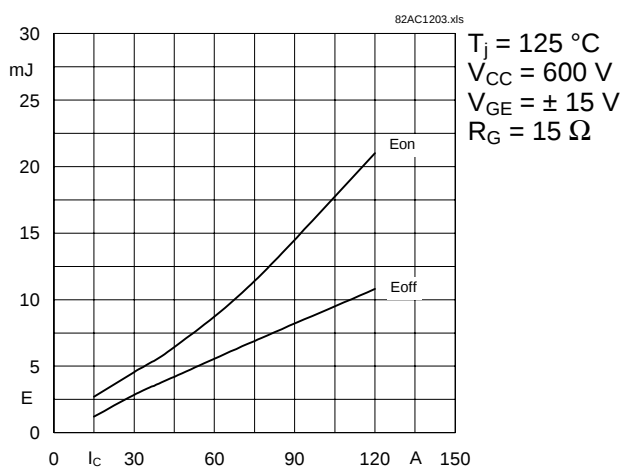


Fig. 3 Turn-on /-off energy = $f(I_C)$

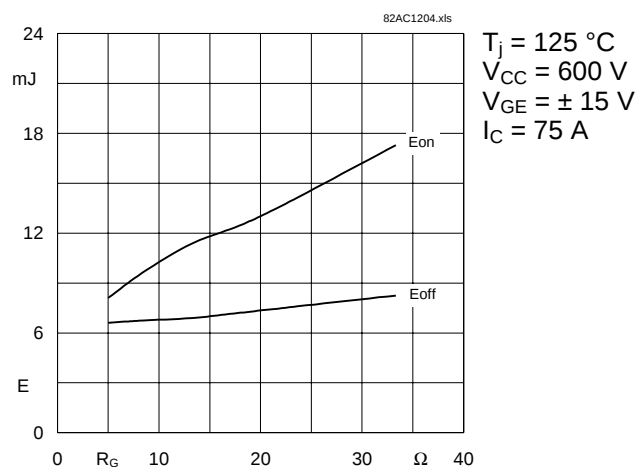


Fig. 4 Turn-on /-off energy = $f(R_G)$

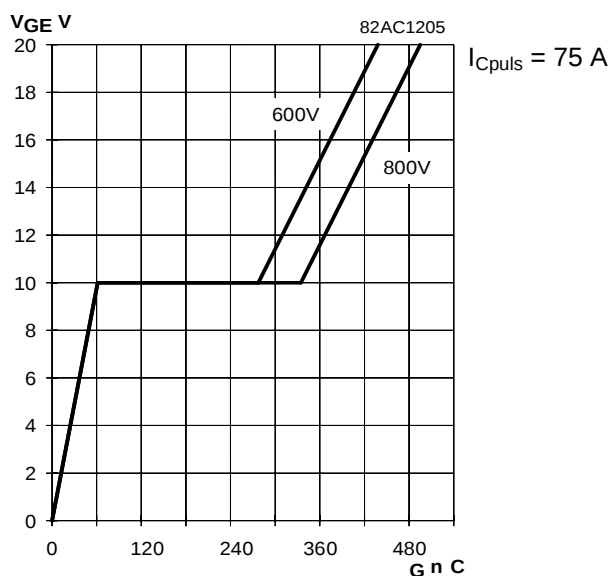


Fig. 5 Typ. gate charge characteristic

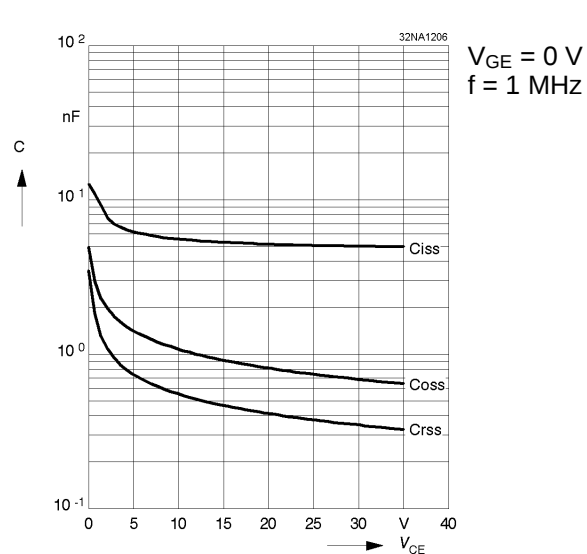


Fig. 6 Typ. capacitances vs. V_{CE}