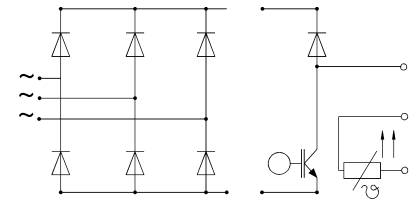


## SKiiP 83 ANB 15 T1

## 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

- <sup>1)</sup>  $T_{\text{heatsink}} = 25\text{ °C}$ , unless otherwise specified
- <sup>2)</sup> CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
- <sup>3)</sup> limited by spring contact

Absolute Maximum Ratings		Values	Units
Symbol	Conditions <sup>1)</sup>		
Bridge Rectifier			
$V_{RRM}$		1500	V
$I_D$	$T_{\text{heatsink}} = 80\text{ °C}$	100 <sup>3)</sup>	A
$I_{FSM}$	$t_p = 10\text{ ms}$ ; sin. $180^\circ$ , $T_j = 25\text{ °C}$	1600	A
$I_{Pt}$	$t_p = 10\text{ ms}$ ; sin. $180^\circ$ , $T_j = 25\text{ °C}$	12000	A <sup>2</sup> s
IGBT Chopper			
$V_{CES}$		1200	V
$V_{GES}$		$\pm 20$	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 <sup>2)</sup>			
$V_{RRM}$		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 ... + 150	°C
$T_{stg}$		- 40 ... + 125	°C
$V_{isol}$	AC, 1 min.	2500	V

Characteristics		min.	typ.	max.	Units
Symbol	Conditions <sup>1)</sup>				
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 <sup>2)</sup> - 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		

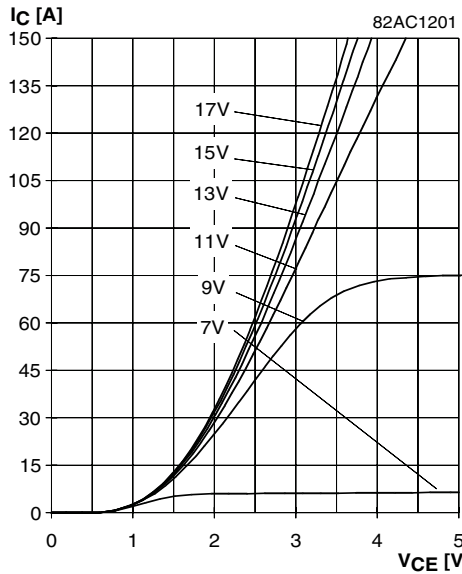


Fig. 1 Typ. output characteristic,  $t_p = 80 \mu s$ ;  $25 \text{ }^\circ\text{C}$

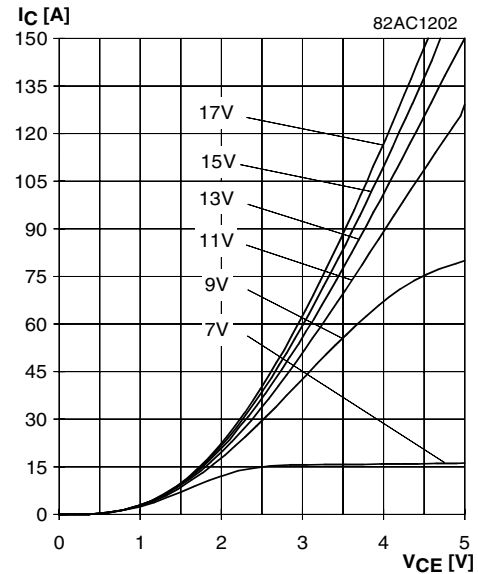


Fig. 2 Typ. output characteristic,  $t_p = 80 \mu s$ ;  $125 \text{ }^\circ\text{C}$

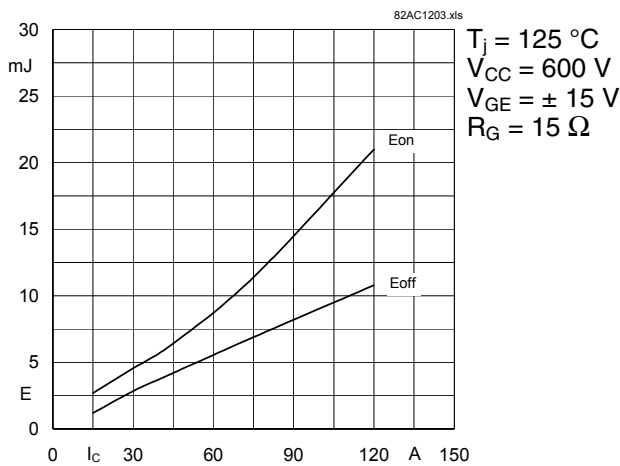


Fig. 3 Turn-on /-off energy =  $f(I_c)$

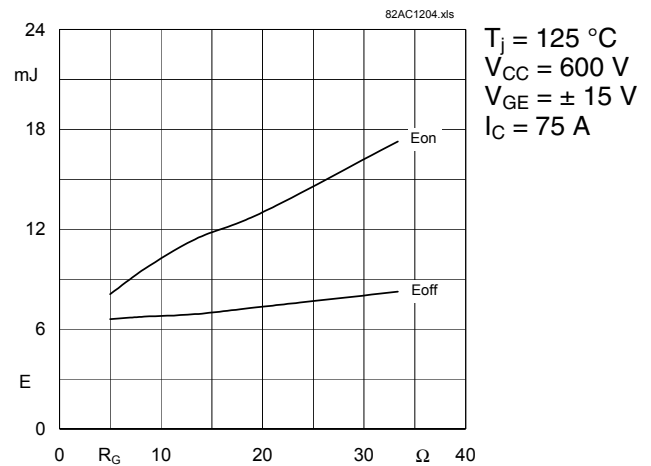


Fig. 4 Turn-on /-off energy =  $f(R_G)$

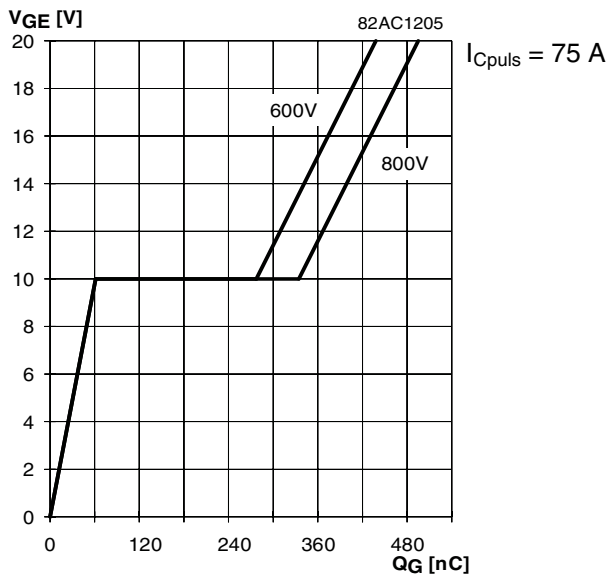


Fig. 5 Typ. gate charge characteristic

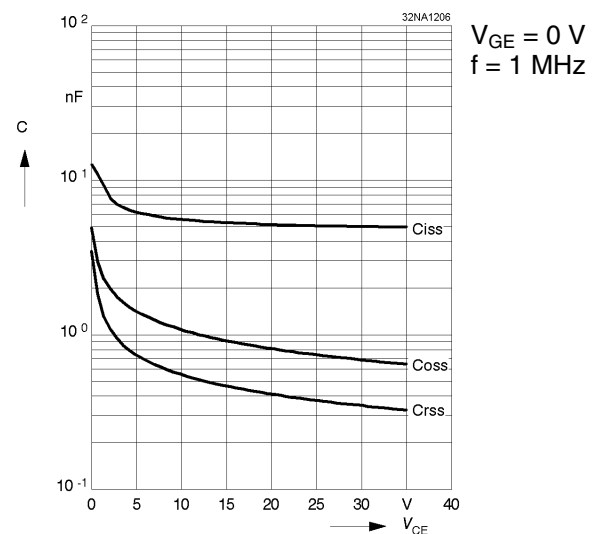


Fig. 6 Typ. capacitances vs.  $V_{CE}$