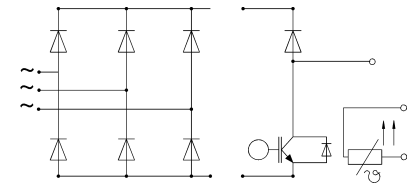


SKiiP 83 ANB 15 T4

MiniSKiiP 8 SEMIKRON integrated intelligent Power SKiiP 83 ANB 15 T4 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

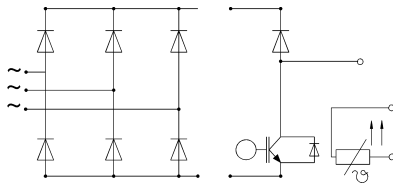
- 1) $T_{\text{heatsink}} = 25\text{ °C}$, unless otherwise specified
- 2) CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
Bridge Rectifier			
V_{RRM}		1500	V
I_D	$T_{\text{heatsink}} = 80\text{ °C}$	125	A
I_{FSM}/I_{TSM}	$t_p = 10\text{ ms}$; sin. 180 °C , $T_j = 25\text{ °C}$	1000	A
$I_{\Delta t}$	$t_p = 10\text{ ms}$; sin. 180 °C , $T_j = 25\text{ °C}$	5000	A ² s
IGBT Chopper			
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	$T_{\text{heatsink}} = 25 / 80\text{ °C}$	125 / 85	A
I_{CM}	$t_p < 1\text{ ms}$; $T_{\text{heatsink}} = 25 / 80\text{ °C}$	250 / 170	A
Freewheeling Diode ²⁾			
V_{RRM}		1200	V
I_F	$T_{\text{heatsink}} = 25 / 80\text{ °C}$	80 / 55	A
I_{FM}	$t_p < 1\text{ ms}$; $T_{\text{heatsink}} = 25 / 80\text{ °C}$	160 / 110	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	–	m Ω
R_{thjh}	per diode	–	–	0,7	K/W
IGBT - Chopper					
V_{CESat}	$I_C = 100\text{ A}$ $T_j = 25 (125)\text{ °C}$	–	2,5(3,1)	3,0(3,7)	V
$t_{d(on)}$	$V_{CC} = 600\text{ V}$; $V_{GE} = \pm 15\text{ V}$	–	50	100	ns
t_r	$I_C = 100\text{ A}$; $T_j = 125\text{ °C}$	–	55	110	ns
$t_{d(off)}$	$R_{gon} = R_{goff} = 11\text{ }\Omega$	–	400	600	ns
t_f	inductive load	–	70	100	ns
$E_{on} + E_{off}$		–	27	–	mJ
C_{ies}	$V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$, 1 MHz	–	6,6	–	nF
R_{thjh}	per IGBT	–	–	0,25	K/W

MiniSKiiP 8
SEMIKRON integrated
intelligent Power
SKiiP 83 ANB 15 T4
3-phase bridge rectifier +
IGBT braking chopper

Case M8a



SKiiP 83 ANB 15 T4

Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
Diode ²⁾ - Freewheeling					
$V_F = V_{EC}$	$I_F = 75 \text{ A}$ $T_j = 25 \text{ (125) } ^\circ\text{C}$	–	2,0(1,8)	2,5(2,3)	V
V_{TO}	$T_j = 125 ^\circ\text{C}$	–	1,0	1,2	V
r_T	$T_j = 125 ^\circ\text{C}$	–	11	15	m Ω
I_{RRM}	$I_F = 75 \text{ A}; V_R = -600 \text{ V}$ $di_F/dt = -800 \text{ A}/\mu\text{s}$ $V_{GE} = 0 \text{ V}, T_j = 125 ^\circ\text{C}$	–	45	–	A
Q_{rr}		–	11	–	μC
E_{off}		–	3,0	–	mJ
R_{thjh}		per diode	–	–	0,8
Diode ²⁾ - Antiparallel					
$V_F = V_{EC}$	$I_F = 15 \text{ A}$ $T_j = 25 \text{ (125) } ^\circ\text{C}$	–	2,0(1,8)	2,5(2,3)	V
V_{TO}	$T_j = 125 ^\circ\text{C}$	–	1,0	1,2	V
r_T	$T_j = 125 ^\circ\text{C}$	–	53	73	m Ω
I_{RRM}	$I_F = 15 \text{ A}; V_R = -600 \text{ V}$ $di_F/dt = -400 \text{ A}/\mu\text{s}$ $V_{GE} = 0 \text{ V}, T_j = 125 ^\circ\text{C}$	–	16	–	A
Q_{rr}		–	2,7	–	μC
E_{off}		–	0,6	–	mJ
R_{thjh}		per diode	–	–	1,7
Temperature Sensor					
R_{TS}	$T = 25 / 100 ^\circ\text{C}$		1000 / 1670		Ω
Mechanical Data					
M_1	case to heatsink, SI Units	2,5	–	3,5	Nm
Case	mechanical outline see pages B 16 –13 and B 16 – 14		M8a		

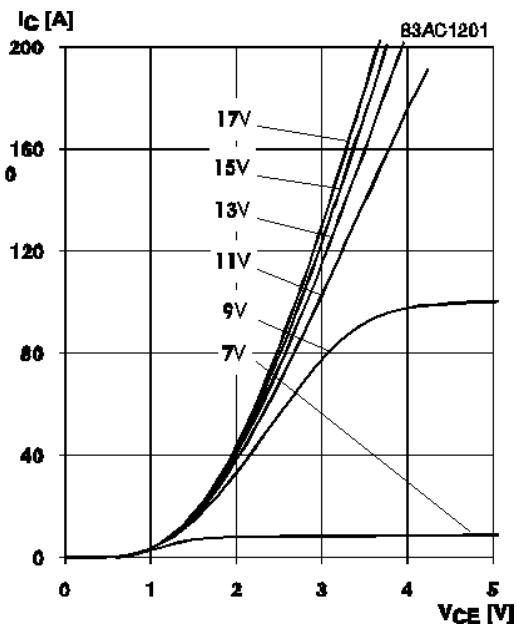


Fig. 1 Typ. output characteristic, $t_p = 80 \mu s$; $25 \text{ }^\circ\text{C}$

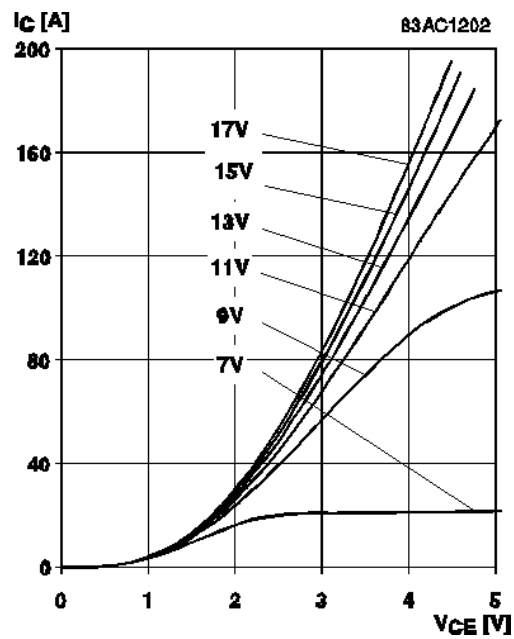


Fig. 2 Typ. output characteristic, $t_p = 80 \mu s$; $125 \text{ }^\circ\text{C}$

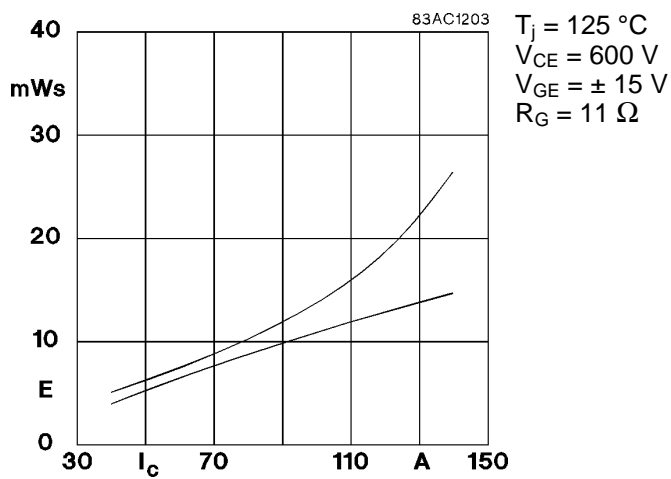


Fig. 3 Turn-on /-off energy = $f(I_C)$

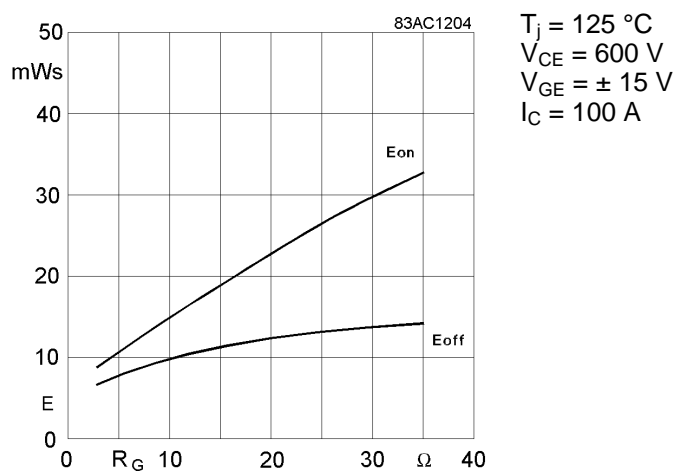


Fig. 4 Turn-on /-off energy = $f(R_G)$

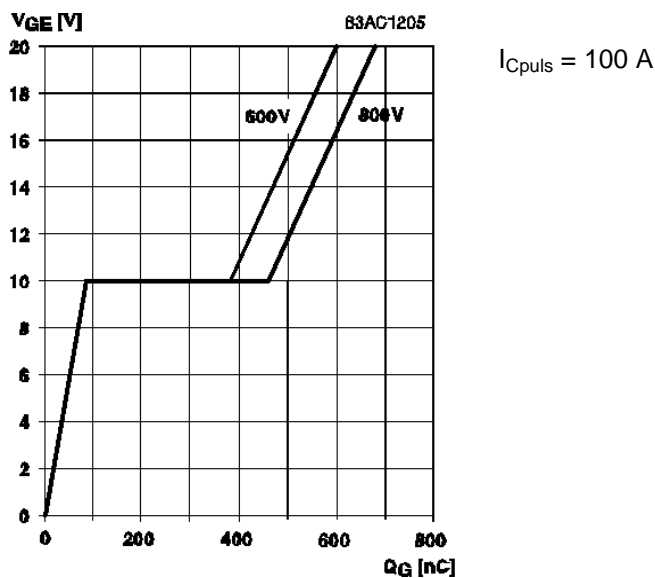


Fig. 5 Typ. gate charge characteristic

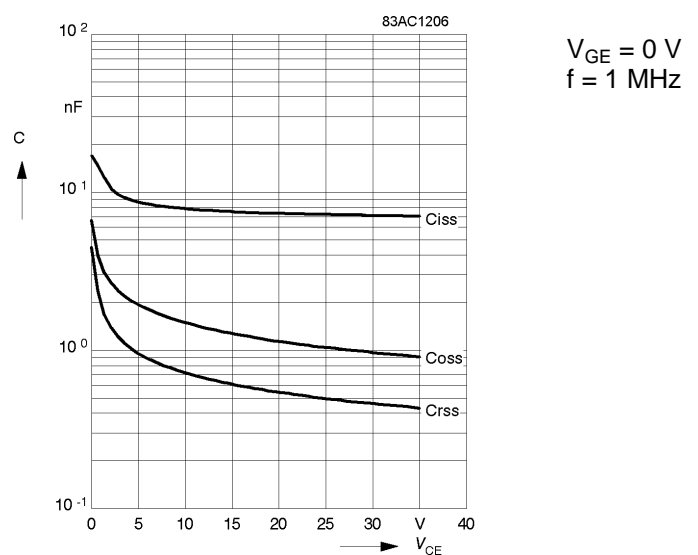


Fig. 6 Typ. capacitances vs. V_{CE}