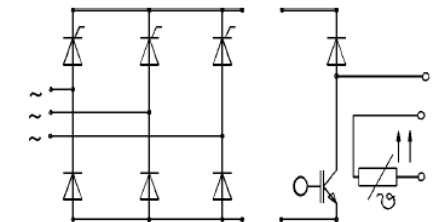
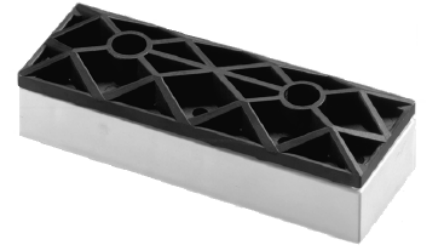


## SKiiP 83 AHB 15 T1

**MiniSKiiP 8**  
**SEMİKRON integrated**  
**intelligent Power**  
**SKiiP 83 AHB 15 T1**  
**half controlled**  
**3-phase bridge rectifier +**  
**IGBT braking chopper**  
 Preliminary Data

Case M8a



### Features

- High level power integration
- Two-screws-mounting to the customer heatsink, compact design
- Low thermal impedance due to durable ceramic insulation
- Pressure contact technology with simple connection to DCB through pressure contact (no soldering) and with increased power cycling capability
- High power density, low losses
- Integrated temperature sensor

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

<sup>2)</sup> CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

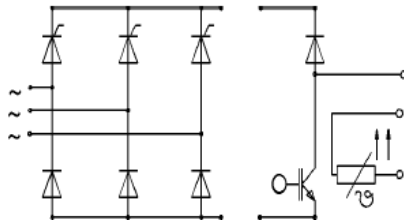
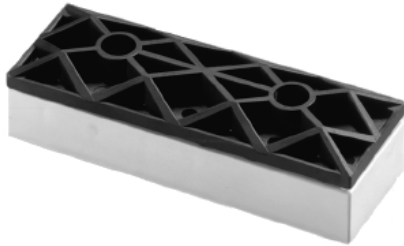
<sup>3)</sup> Limited by terminals to 100 A

Absolute Maximum Ratings		Values	Units
Symbol	Conditions <sup>1)</sup>		
Bridge Rectifier			
$V_{RRM}$		1500	V
$I_D$	$T_{\text{heatsink}} = 80\text{ °C}$	125 <sup>3)</sup>	A
$I_{FSM}/I_{TSM}$	$t_p = 10\text{ ms}; \sin. 180\text{ °C}, T_j = 25\text{ °C}$	1000	A
$I_{\text{pt}}$	$t_p = 10\text{ ms}; \sin. 180\text{ °C}, T_j = 25\text{ °C}$	5000	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
$I_F$	$T_{\text{heatsink}} = 25 / 80\text{ °C}$	50 / 30	A
$I_{FM}$	$t_p < 1\text{ ms}; T_{\text{heatsink}} = 25 / 80\text{ °C}$	100 / 60	A
$T_j$	Diode & IGBT	-55 ... +150	°C
$T_j$	Thyristor	-55 ... +125	°C
$T_{\text{stg}}$		-55 ... +125	°C
$V_{\text{isol}}$	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
$R_{\text{thjh}}$	per diode	-	-	0,7	K/W
Thyristor - Rectifier					
$V_T$	$I_F = 120\text{ A}, T_j = 25\text{ °C}$	-	-	1,8	V
$V_T(\text{TO})$	$T_j = 125\text{ °C}$	-	-	1,1	V
$r_T$	$T_j = 125\text{ °C}$	-	-	5	mΩ
$R_{\text{thjh}}$	per thyristor	-	-	0,9	K/W
$I_{GD}$	$T_j = 125\text{ °C}$	5	-	-	mA
$V_{GT}$	$T_j = 25\text{ °C}$	-	-	3	V
$I_{GT}$		-	-	150	mA
$I_H$	$T_j = 25\text{ °C}$	-	250	-	mA
$I_L$		-	600	-	mA
$dv/dt_{CR}$	$T_j = 125\text{ °C}$	500	-	-	V/μs
$di/dt_{CR}$		-	-	125	A/μs
IGBT - Chopper					
$V_{CEsat}$	$I_C = 75\text{ A}, T_j = 25 (125)\text{ °C}$	-	2,5(3,1)	3,0(3,7)	V
$t_{d(\text{on})}$	$V_{CC} = 600\text{ V}; V_{GE} = \pm 15\text{ V}$ $I_C = 75\text{ A}; T_j = 125\text{ °C}$	-	35	70	ns
$t_r$		-	70	140	ns
$t_{d(\text{off})}$	$R_{gon} = R_{goff} = 15\text{ Ω}$ inductive load	-	450	600	ns
$t_f$		-	70	100	ns
$E_{\text{on}} + E_{\text{off}}$	$V_{CE} = 25\text{ V}; V_{GE} = 0\text{ V}, 1\text{ MHz}$	-	18	-	mJ
$C_{ies}$		-	5,0	-	nF
$R_{\text{thjh}}$		per IGBT	-	-	0,35

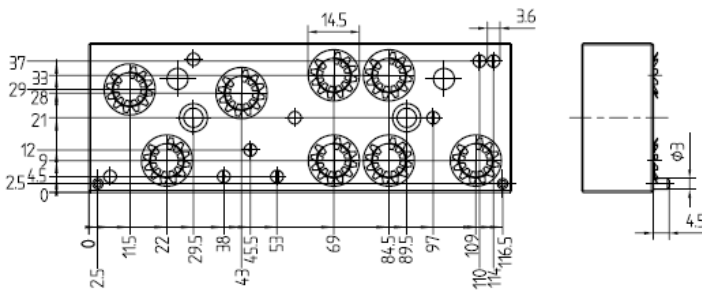
# SKiiP 83 AHB 15 (Chopper) T1

**MiniSKiiP 8**  
**SEMIKRON integrated**  
**intelligent Power**  
**SKiiP 83 AHB 15 T1**  
**half controlled**  
**3-phase bridge rectifier +**  
**IGBT braking chopper**  
 Preliminary Data  
 Case M8a

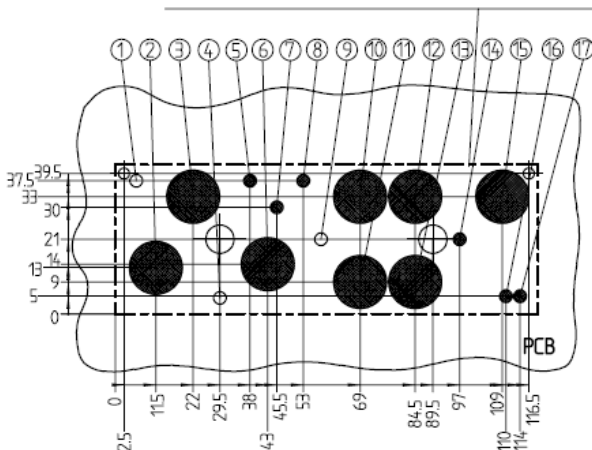


## SKiiP 83 AHB 15 T1

Characteristics		min.	typ.	max.	Units
Symbol	Conditions <sup>1)</sup>				
Diode <sup>2)</sup> - Freewheeling					
$V_F = V_{EC}$	$I_F = 35 \text{ A}$ $T_j = 25 (125) \text{ }^\circ\text{C}$	-	2,0(1,8)	2,5(2,3)	V
$V_{TO}$	$T_j = 125 \text{ }^\circ\text{C}$	-	1,0	1,2	V
$r_T$	$T_j = 125 \text{ }^\circ\text{C}$	-	29	37	m $\Omega$
$I_{RRM}$	$I_F = 25 \text{ A}$ $V_R = -600 \text{ V}$ $di_F/dt = -500 \text{ A}/\mu\text{s}$ $V_{GE} = 0 \text{ V}$ , $T_j = 125 \text{ }^\circ\text{C}$ per diode	-	25	-	A
$Q_{rr}$		-	4,5	-	$\mu\text{C}$
$E_{off}$		-	1,5	-	mJ
$R_{thjh}$		-	-	1,0	K/W
Temperature Sensor					
$R_{TS}$	$T = 25 / 100 \text{ }^\circ\text{C}$		1000 / 1670		$\Omega$
Mechanical Data					
M1	case to heatsink, SI Units	2,5	-	3,5	Nm
Case			M8a		



Bestückfreier Bereich, Unterseite (Kontaktseite) PCB  
 area, free of electronic devices; BOTTOM (surface of contact) PCB



Anschiuß	Abgriff HALBGESTEUERTE THYRISTORBRÜCKE
1	nicht belegt
2	-1
3	-2
4	nicht belegt
5	G 2 Top
6	-3
7	G 1 Top
8	G 3 Top
9	nicht belegt
10	+
11	-
12	+
13	-
14	Gate Br
15	Br
16	+T
17	-T

Schaltbild / schematic:

