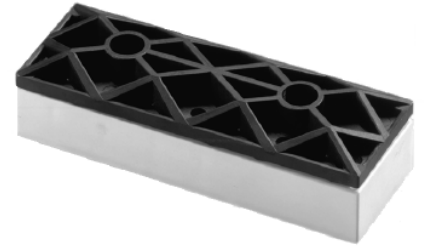


SKiiP 83 AHB 15 T1

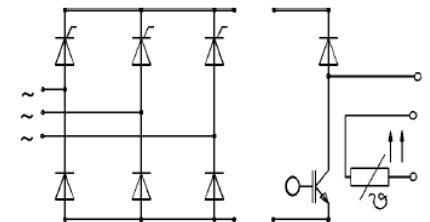
MiniSKiiP 8
SEMIKRON integrated
intelligent Power
SKiiP 83 AHB 15 T1
half controlled
3-phase bridge rectifier +
IGBT braking chopper
 Preliminary Data

Case M8a



Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
Bridge Rectifier			
V_{RRM}		1500	V
I_D	$T_{heatsink} = 80\text{ °C}$	125 ³⁾	A
I_{FSM}/I_{TSM}	$t_p = 10\text{ ms}; \sin. 180\text{ °C}, T_j = 25\text{ °C}$	1000	A
$I_{\rho t}$	$t_p = 10\text{ ms}; \sin. 180\text{ °C}, T_j = 25\text{ °C}$	5000	A ² s
IGBT Chopper			
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	$T_{heatsink} = 25 / 80\text{ °C}$	95 / 65	A
I_{CM}	$t_p < 1\text{ ms}; T_{heatsink} = 25 / 80\text{ °C}$	190 / 130	A
Freewheeling Diode ²⁾			
V_{RRM}		1200	V
I_F	$T_{heatsink} = 25 / 80\text{ °C}$	50 / 30	A
I_{FM}	$t_p < 1\text{ ms}; T_{heatsink} = 25 / 80\text{ °C}$	100 / 60	A
T_j	Diode & IGBT	-55 ... +150	°C
T_j	Thyristor	-55 ... +125	°C
T_{stg}		-55 ... +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
Thyristor - Rectifier					
V_T	$I_F = 120\text{ A } T_j = 25\text{ °C}$	-	-	1,8	V
$V_T (TO)$	$T_j = 125\text{ °C}$	-	-	1,1	V
r_T	$T_j = 125\text{ °C}$	-	-	5	mΩ
R_{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
$t_{d(on)}$	$V_{CC} = 600\text{ V}; V_{GE} = \pm 15\text{ V}$ $I_C = 75\text{ A}; T_j = 125\text{ °C}$	-	35	70	ns
t_r		-	70	140	ns
$t_{d(off)}$	$R_{gon} = R_{goff} = 15\text{ } \Omega$ inductive load	-	450	600	ns
t_f		-	70	100	ns
$E_{on} + E_{off}$	$V_{CE} = 25\text{ V}; V_{GE} = 0\text{ V}, 1\text{ MHz}$	-	18	-	mJ
C_{ies}		-	5,0	-	nF
R_{thjh}		per IGBT	-	-	0,35



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

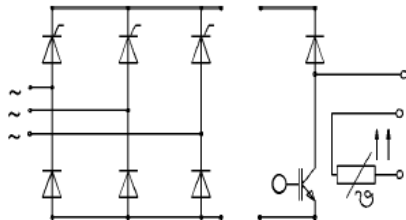
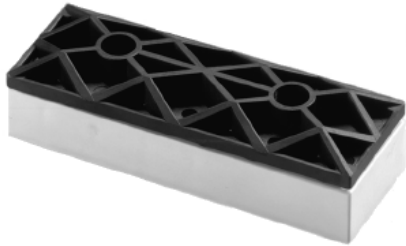
¹⁾ $T_{heatsink} = 25\text{ °C}$, unless otherwise specified

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

³⁾ Limited by terminals to 100 A

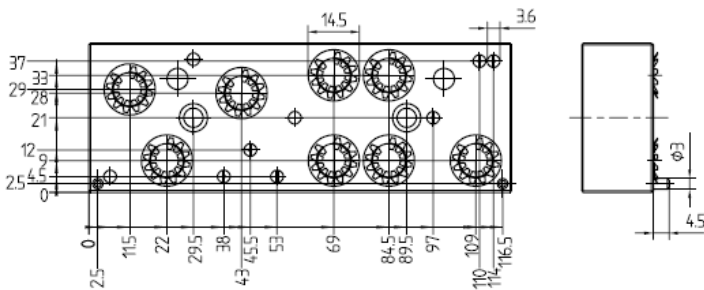
SKiiP 83 AHB 15 (Chopper) T1

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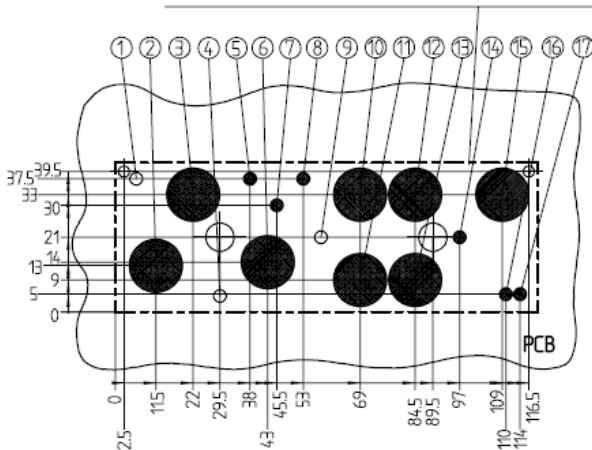


SKiiP 83 AHB 15 T1

Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
Diode ²⁾ - 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 Ω
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	-	μC
E_{off}		-	1,5	-	mJ
R_{thjh}		-	-	1,0	K/W
Temperature Sensor					
R_{TS}	$T = 25 / 100 \text{ }^\circ\text{C}$		1000 / 1670		Ω
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:

