

Section 7: SKIIPACK® 4)

Large IGBT Power Packs

SKIIPACK = SEMIKRON Integrated Intelligent Power Pack

Type	²⁾ Options; W... control connection W = wire F = fibre optic T = Temp.sense	V _{CEs}	I _C ³⁾ @ T _{lm} = 25 °C	V _{CEst} @ I _C 25 °C typ./chip V	P _{tot} ¹⁾ @ T _J = 150 °C @ T _{amb} = 35 °C W	R _{th} IGBT / Diode ⁵⁾ °C/W	Case	Circuit diagram
SKIIP 462 GB 060 250 W/WT	⁶⁾	600	400	2,1	1140	0,114/0,14	S2	SKIIPACK 2 - GB
SKIIP 662 GB 060 251 W/WT	⁶⁾	600	600	2,1	1370	0,08/0,14	S2	
SKIIP 962 GB 060 350 W/WT-F/FT	⁶⁾	600	900	2,1	1840	0,053/0,09	S3	
SKIIP 1262 GB 060 451 W/WT-F/FT	⁶⁾	600	1200	2,1	2170	0,04/0,07	S4	
SKIIP 402 GB 120 201 W/WT		1200	400	3,15	1670	0,05/0,14	S2	SKIIPACK 3 - GB
SKIIP 612 GB 120 203 W/WT		1200	600	3,15	1800	0,04/0,14	S2	
SKIIP 602 GB 120 301 W/WT-F/FT		1200	600	3,15	2180	0,033/0,093	S3	
SKIIP 912 GB 120 303 W/WT-F/FT		1200	900	3,15	2330	0,027/0,093	S3	
SKIIP 912 GB 120 031		1200	900	3,15	2330	0,027/0,093	S3	SKIIPACK 4 - GB
SKIIP 802 GB 120 401 W/WT-F/FT		1200	800	3,15	2370	0,025/0,07	S4	
SKIIP 802 GB 120 040		1200	800	3,15	2370	0,025/0,07	S4	
SKIIP 1212 GB 120 402 W/WT-F/FT		1200	1200	3,15	2500	0,02/0,07	S4	
SKIIP 1212 GB 120 041		1200	1200	3,15	2500	0,02/0,07	S4	SKIIPACK 3 - GD
SKIIP 592 GB 160 270 W/WT		1600	500	3,8	1800	0,04/0,14	S2	
SKIIP 792 GB 160 370 W/WT-F/FT		1600	700	3,8	2330	0,027/0,09	S3	
SKIIP 792 GB 160 034		1600	700	3,8	2330	0,027/0,09	S3	
SKIIP 1092 GB 160 470 W/WT-F/FT		1600	1000	3,8	2670	0,02/0,07	S4	SKIIPACK 4 - GD
SKIIP 1092 GB 160 044		1600	1000	3,8	2670	0,02/0,07	S4	
SKIIP 262 GD 060 351 W/WT	⁶⁾	600	200	2,1	1550	0,23/0,28	S3 D	
SKIIP 362 GD 060 352 W/WT	⁶⁾	600	300	2,1	1840	0,16/0,28	S3 D	
SKIIP 102 GD 120 304 W/WT		1200	150	3,15	1930	0,14/0,42	S3 D	SKIIPACK 4 - GDL
SKIIP 202 GD 120 300 W/WT		1200	200	3,15	2180	0,1/0,28	S3 D	
SKIIP 312 GD 120 302 W/WT		1200	300	3,15	2330	0,08/0,28	S3 D	
SKIIP 192 GD 160 371 W/WT		1600	150	3,8	2090	0,11/0,28	S3 D	
SKIIP 292 GD 160 372 W/WT		1600	250	3,8	2330	0,08/0,28	S3 D	SKIIPACK (view from left)
SKIIP 262 GDL 060 452 W/WT	⁶⁾	600	200	2,1	1750	0,23/0,28	S4 DL	
SKIIP 362 GDL 060 453 W/WT	⁶⁾	600	300	2,1	2060	0,16/0,28	S4 DL	
SKIIP 102 GDL 120 403 W/WT		1200	150	3,15	2150	0,14/0,42	S4 DL	
SKIIP 202 GDL 120 400 W/WT		1200	200	3,15	2430	0,1/0,28	S4 DL	SKIIPACK (view from left)
SKIIP 312 GDL 120 404 W/WT		1200	300	3,15	2560	0,08/0,28	S4 DL	
SKIIP 192 GDL 160 471 W/WT		1600	150	3,8	2330	0,11/0,28	S4 DL	
SKIIP 292 GDL 160 472 W/WT		1600	250	3,8	2590	0,08/0,28	S4 DL	

¹⁾ Mounted on heatsink: Case S2 on P16/180 F $R_{thsa} = 0,044$ °C/W
fan not attached ⁷⁾ Case S3 on P16/260 F $R_{thsa} = 0,036$ °C/W
Case S4 on P16/340 F $R_{thsa} = 0,033$ °C/W

²⁾ Available options of integrated drivers

³⁾ All data apply to one switch

⁴⁾ 1600 V types have V_{iso} (AC; rms; 1 min) = 4 kV, others: 2,5 kV

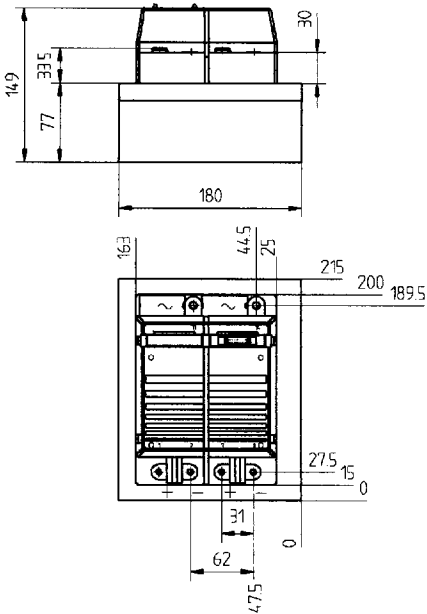
⁵⁾ All diodes are CAL diodes. CAL = Controlled Axial Lifetime technology

⁶⁾ Preliminary data

⁷⁾ Recommended fan type: D2E-133-2A
or D2E-133-2K

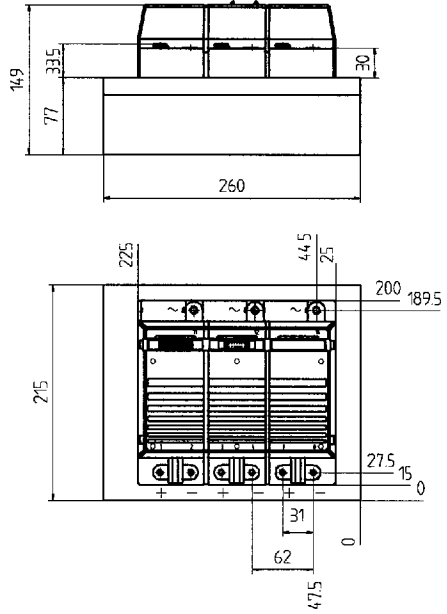
Case S2

SKiiPPACK 2 - GB



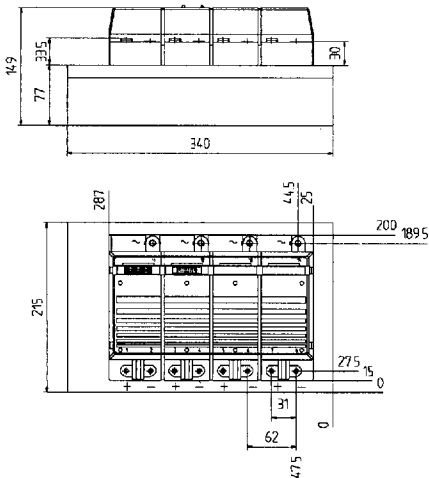
Case S3

SKiiPPACK 3 - GB



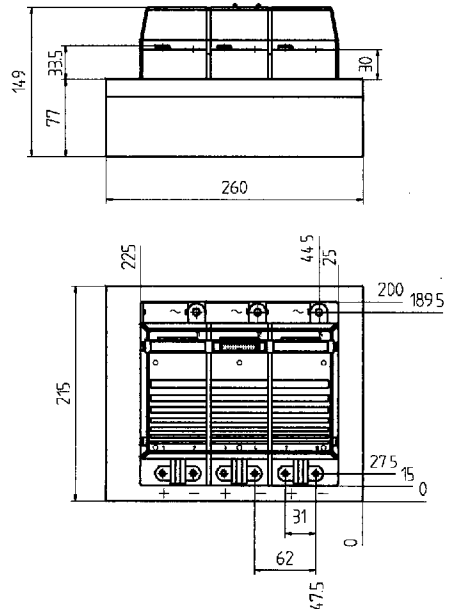
Case S4

SKiiPPACK 4 - GB



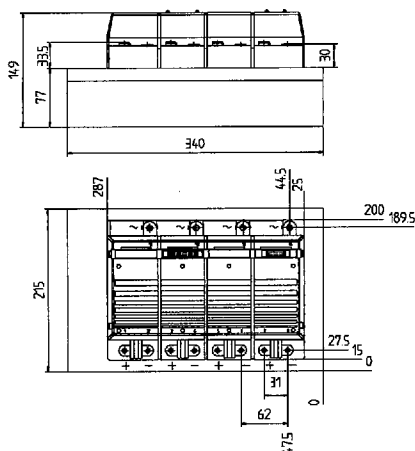
Case S3 - D

SKiiPPACK 3 - GD



Case S4 - DL

SKIIPACK 4 - GDL



SKIIPACK

Type Designation System

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
SKIIP 6 0 2 G B 120 301 WT

① SKiIP = SEMIKRON integrated intelligent Power

② $I_C/100$ i.e. 6 = 600 A

③ kind of IGBT chips used

④ 2 = version 2

⑤ G = IGBT

⑥ internal el. circuit:

B = half bridge

D = 3 phase bridge (IEC - B6CI)

DL = 3 phase bridge with brake chopper (GAL)

⑦ $V_{CE}/10$ i.e. 120 = 1200 V

⑧ driver unit: 0 = without driver
 2 = SKIIPACK 2
 3 = SKIIPACK 3
 4 = SKIIPACK 4

⑨ driver unit version number

⑩ Options:

control connections: W = Wire

F = Fiber optic

T = Temperature sensor

C = Current sensor (available '96)

Pin Arrays

SKIIPACK GB

Half bridge configuration

Pin	signals	
	14-pins DIN 41651	Opto
1	reserved	
2	BOT IN	3
3	ERROR OUT	2
4	TOP IN	1
5	Overtemp. OUT	
6	+24 V _{DC} IN	
7	+24 V _{DC} IN	
8	+15 V _{DC} IN	
9	+15 V _{DC} IN	
10	GND	
11	GND	
12	Temp. analog OUT	
13	GND analog	
14	reserved	

SKIIPACK GD

3 phase bridge configuration

Pin	signals	
	26-pins DIN 41651	
1	reserved	
2	BOT HB 1 IN	
3	ERROR HB 1 OUT	
4	TOP HB 1 IN	
5	BOT HB 2 IN	
6	ERROR HB 2 OUT	
7	TOP HB 2 IN	
8	TOP HB 3 IN	
9	ERROR HB 3 OUT	
10	TOP HB 3 IN	
11	Overtemp. OUT	
12	reserved	
13	reserved	
14	+24 V _{DC} IN	
15	+24 V _{DC} IN	
16	+15 V _{DC} IN	
17	+15 V _{DC} IN	
18	GND	
19	GND	
20	Temp. analog OUT	
21	GND analog	
22	reserved	
23	reserved	
24	reserved	
25	reserved	
26	reserved	

SKIIPACK GDL

3 phase bridge configuration with brake chopper

Pin	signals
	26-pins DIN 41651
1	reserved
2	BOT HB 1 IN
3	ERROR HB 1 OUT
4	TOP HB 1 IN
5	BOT HB 2 IN
6	ERROR HB 2 OUT
7	TOP HB 2 IN
8	TOP HB 3 IN
9	ERROR HB 3 OUT
10	TOP HB 3 IN
11	Overtemp. OUT
12	reserved
13	reserved
14	+24 V _{DC} IN
15	+24 V _{DC} IN
16	+15 V _{DC} IN
17	+15 V _{DC} IN
18	GND
19	GND
20	Temp. analog OUT
21	GND analog
22	reserved
23	reserved
24	reserved
25	reserved
26	reserved

Pin	signals
	14-pins DIN 41651
1	reserved
2	CHOPPER ext. ON
3	ERROR OUT
4	RESET
5	reserved
6	+24 V _{DC} IN
7	+24 V _{DC} IN
8	+15 V _{DC} IN
9	+15 V _{DC} IN
10	GND
11	GND
12	reserved
13	reserved
14	reserved