

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	
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	
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	
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	
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	
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	
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	
SKIIP 262 GDL 060 452 W/WT ⁶⁾		600	200	2,1	1750	0,23/0,28	S4 DL	<p>(with brake chopper)</p>
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	
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	
SKIIP 462 GDL 060 250 W/WT		600	400	2,1	1140	0,114/0,14	S2	
SKIIP 662 GDL 060 251 W/WT		600	600	2,1	1370	0,08/0,14	S2	
SKIIP 962 GDL 060 350 W/WT-F/FT		600	900	2,1	1840	0,053/0,09	S3	

¹⁾ Mounted on heatsink: Case S2 on P16/180F fan not attached⁷⁾ R_{thsa} = 0,044 °C/W
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

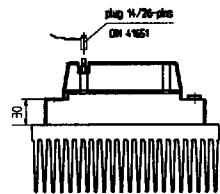
⁴⁾ 1600 V types have V_{icd} (AC; rms; 1 min) = 4 kV, others: 2,5 kV

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

⁶⁾ Preliminary data

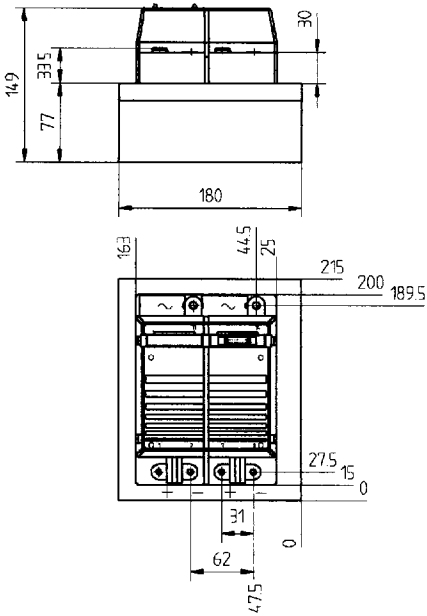
⁷⁾ Recommended fan type: D2E-133-2A
or D2E-133-2K

SKIIPACK (view from left)



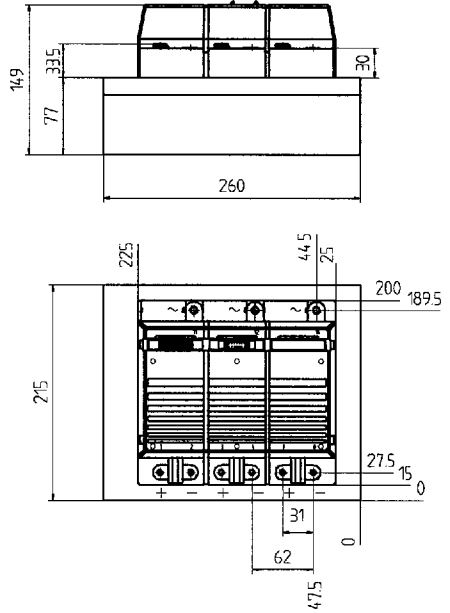
Case S2

SKIIPACK 2 - GB



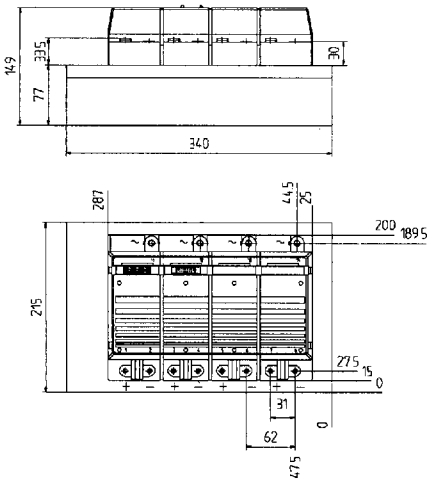
Case S3

SKIIPACK 3 - GB



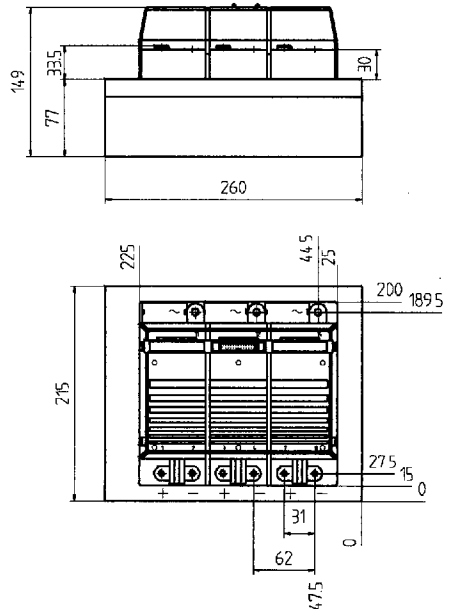
Case S4

SKIIPACK 4 - GB



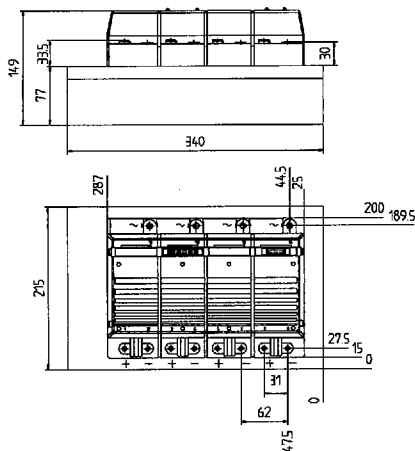
Case S3 - D

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

SKIIPACK GD
3 phase bridge configuration

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

SKIIPACK GDL
3 phase bridge configuration with brake chopper

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

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