

Section 7: SKIIPACK® 4)

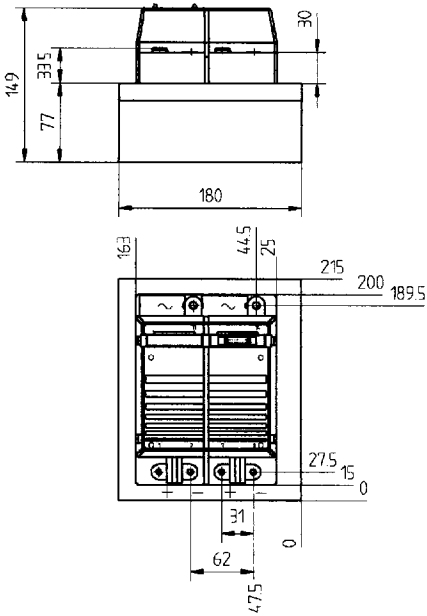
Large IGBT Power Packs

SKIIPACK = SEMIKRON Integrated Intelligent Power Pack

| Type | ²⁾ Options; W... control connection W = wire F = fibre optic T = Temp.sense | V _{CEs} V | I _C ³⁾ @ T _{lm} =25°C A | V _{CEsat} @ 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/F T ⁶⁾ | | 600 | 900 | 2,1 | 1840 | 0,053/0,09 | S3 | | |
| SKIIP 1262 GB 060 451 W/WT-F/F T 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/F T | | 1200 | 600 | 3,15 | 2180 | 0,033/0,093 | S3 | | |
| SKIIP 912 GB 120 303 W/WT-F/F T | | 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/F T | | 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/F T | | 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/F T | | 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/F T | | 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 | | |
| ¹⁾ Mounted on heatsink: Case S2 on P16/180F fan not attached ⁷⁾ 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 _{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 | | | | | | | | | |

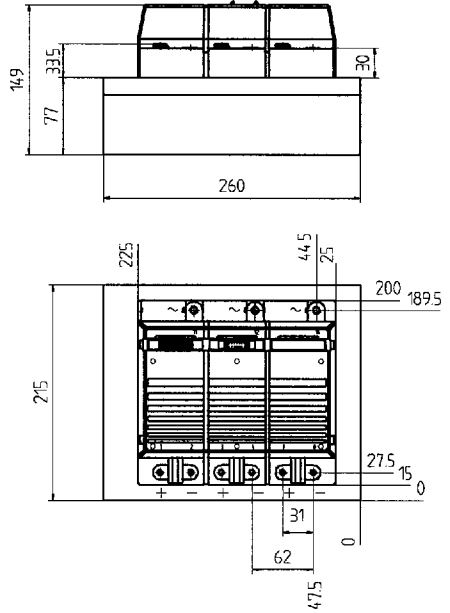
Case S2

SKiiPACK 2 - GB



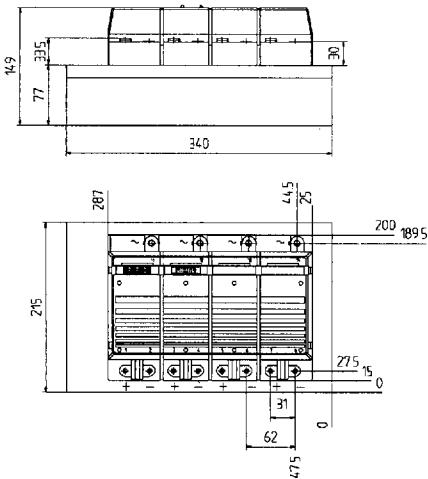
Case S3

SKiiPACK 3 - GB



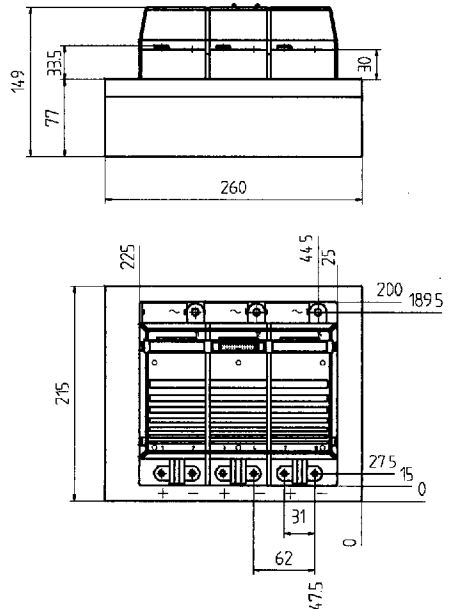
Case S4

SKiiPACK 4 - GB



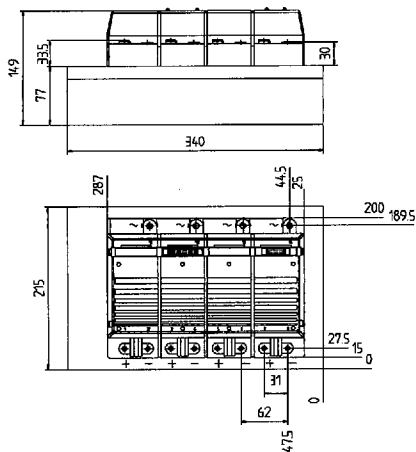
Case S3 - D

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 | |
| 15 | 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 |