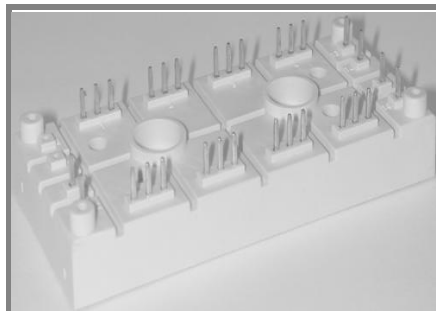


# SKDH 116/.. -L100



SEMIPONT™ 6

## 3-Phase Bridge Rectifier + IGBT braking chopper

SKDH 116/.. -L100

Preliminary Data

### Features

- Compact design
- Two screws mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- High surge currents
- Up to 1600V reverse voltage
- UL recognized, file no. E 63 532

### Typical Applications

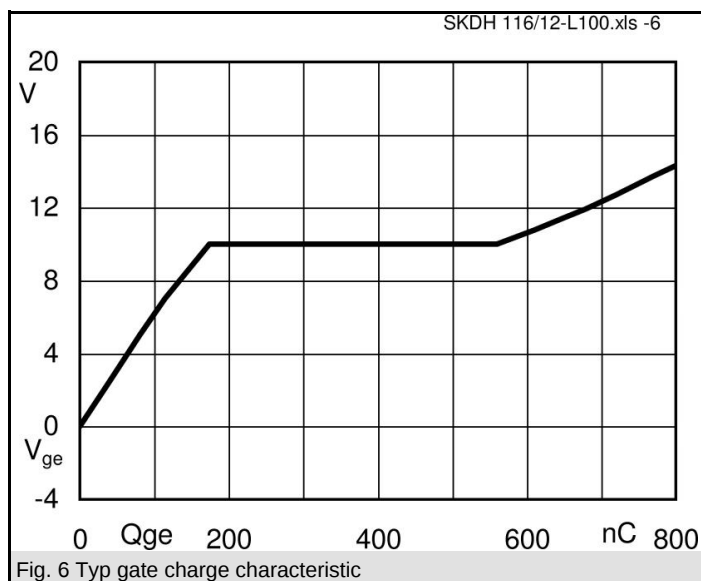
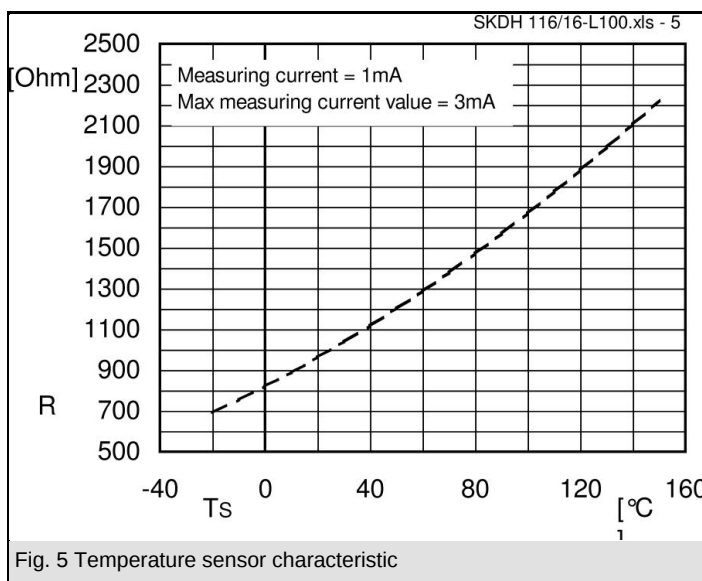
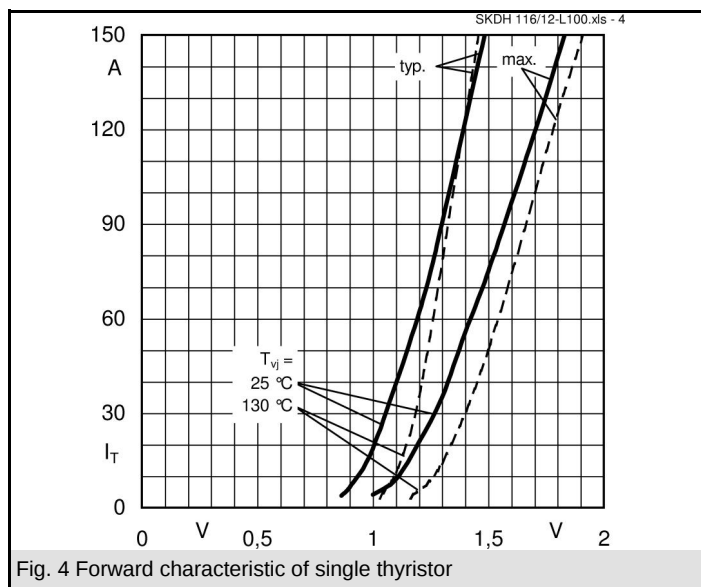
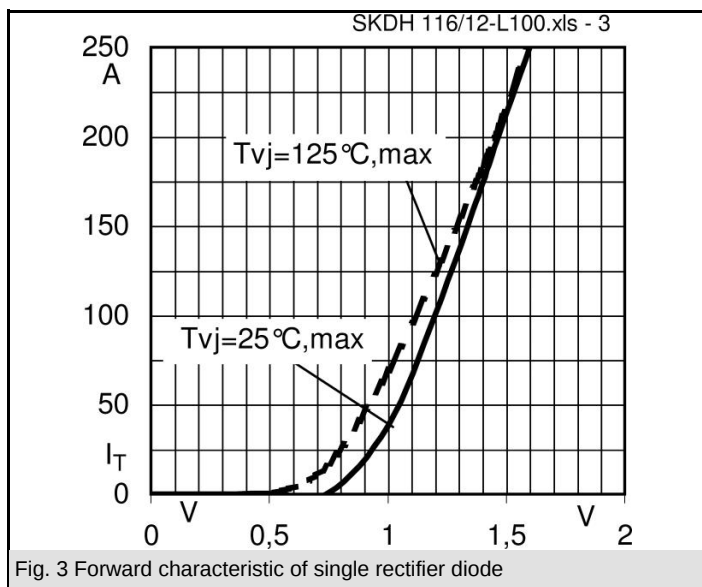
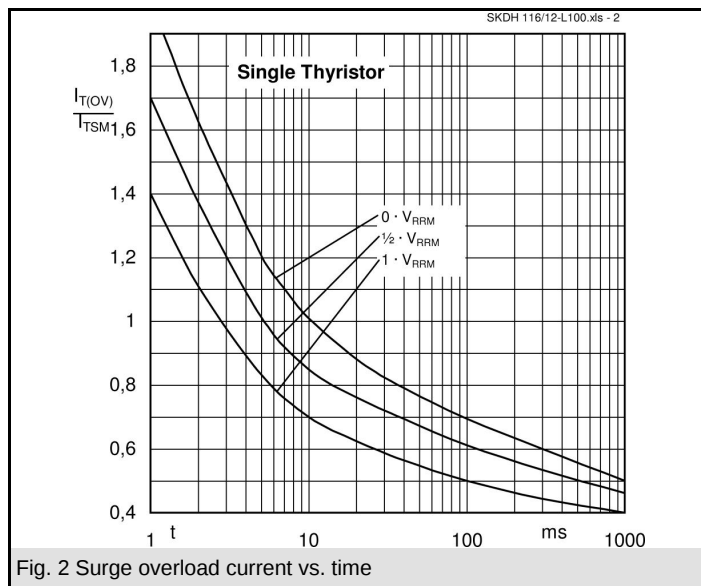
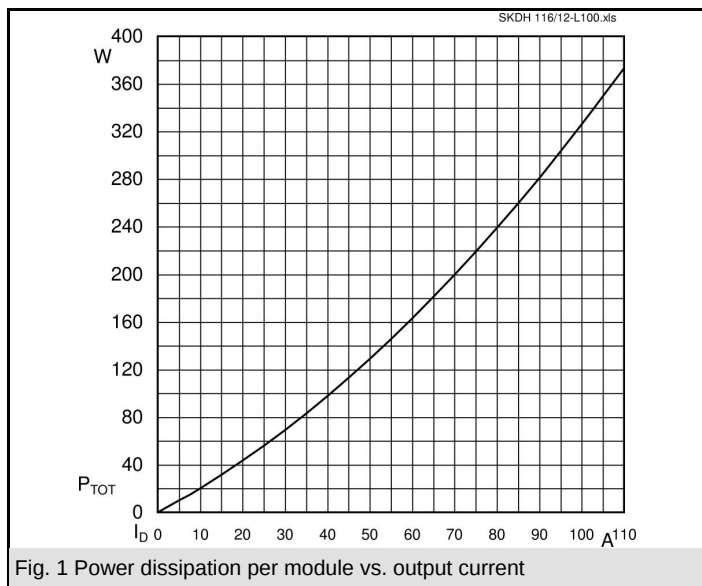
- DC drives
- Controlled filed rectifiers for DC motors
- Controlled battery charger

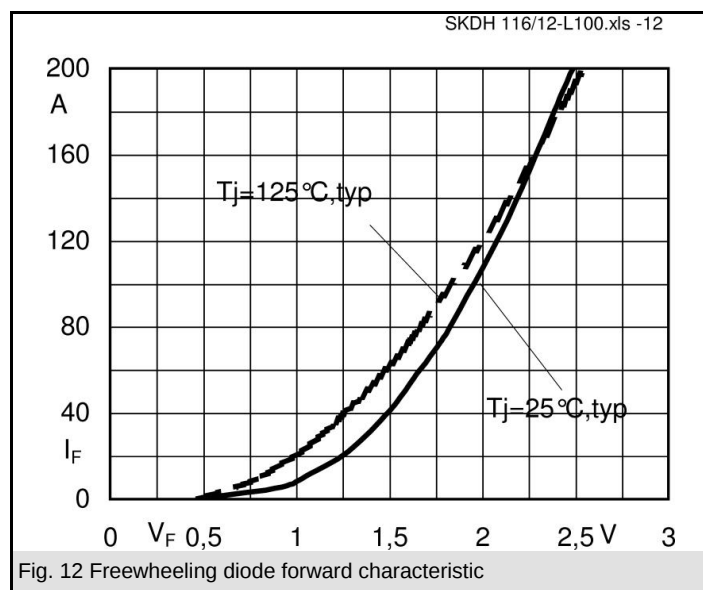
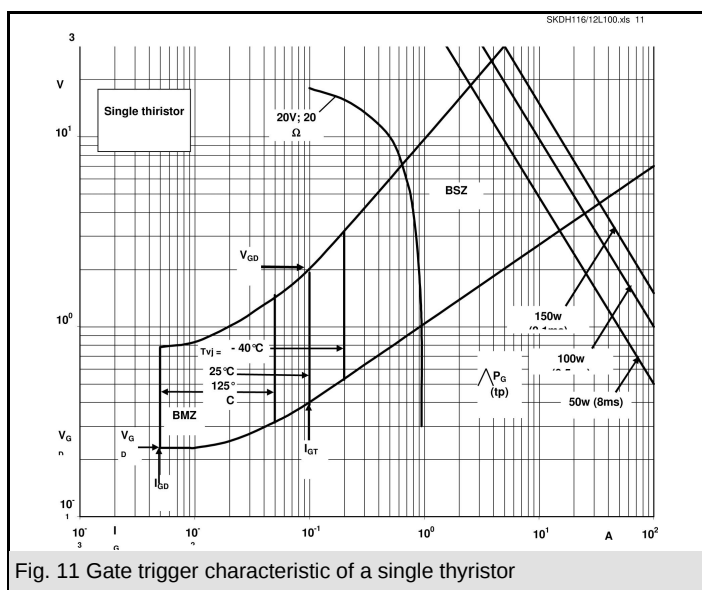
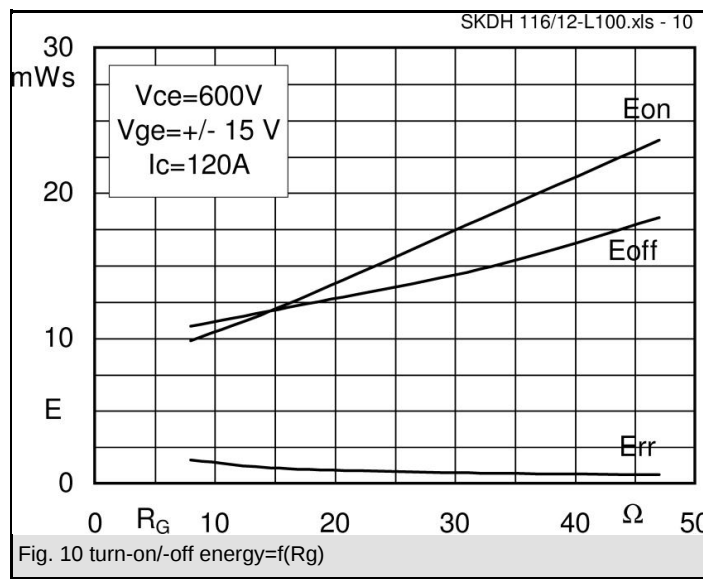
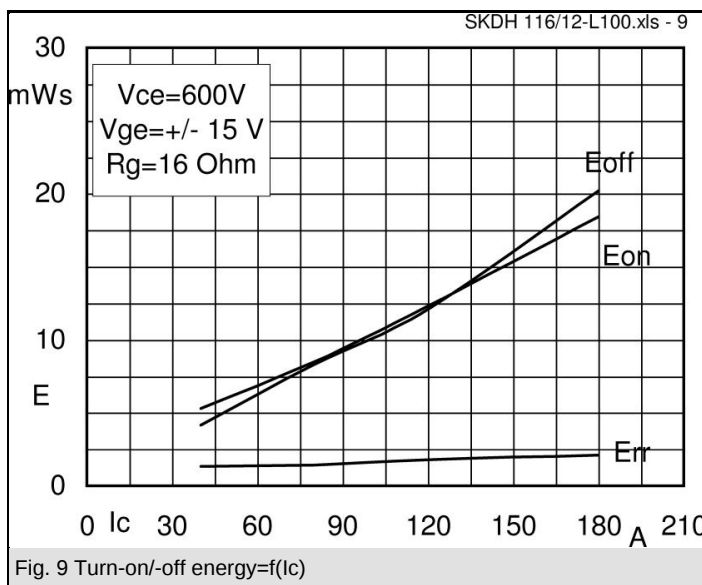
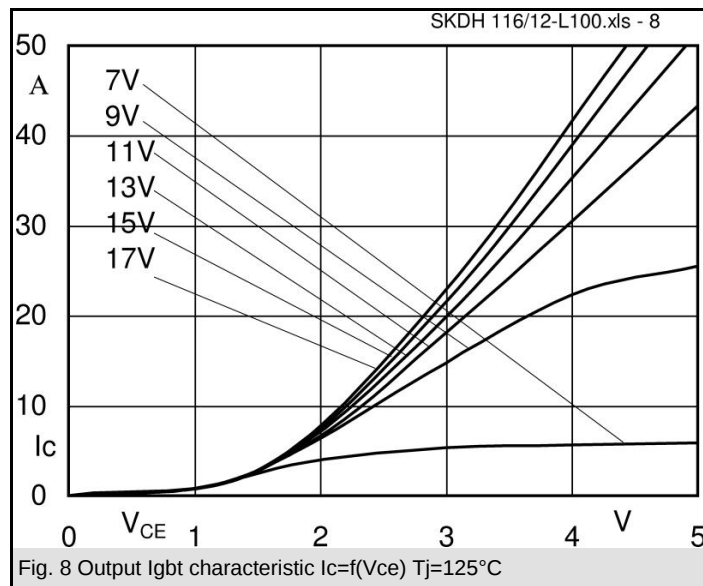
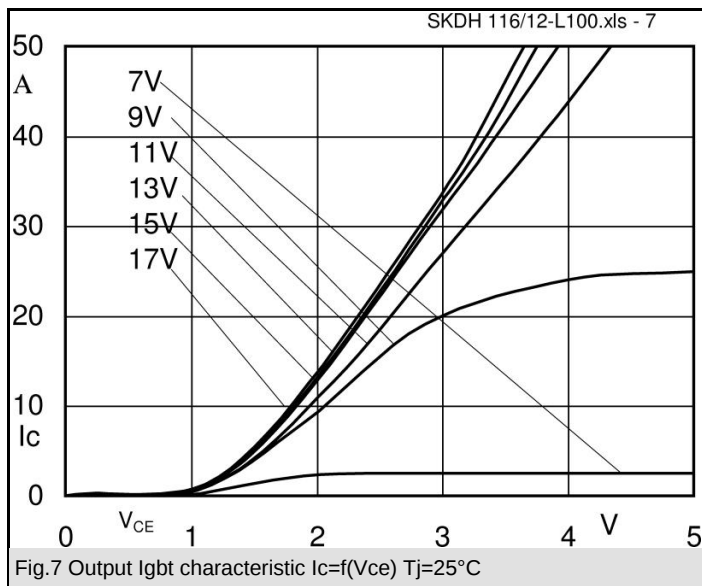
| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_D = 110$ A (maximum value for continuous operation)<br>( $T_s = 80$ °C) |
|----------------|-------------------------|----------------------------------------------------------------------------|
| 1300           | 1200                    | SKDH 116/12-L100                                                           |
| 1700           | 1600                    | SKDH 116/16-L100                                                           |

| Absolute Maximum Ratings        |                                        | $T_s = 25$ °C, unless otherwise specified |       |
|---------------------------------|----------------------------------------|-------------------------------------------|-------|
| Symbol                          | Conditions                             | Values                                    | Units |
| <b>Bridge - Rectifier</b>       |                                        |                                           |       |
| $I_D$                           | $T_s = 80$ °C; inductive load          | 110                                       | A     |
| $I_{FSM}/I_{TSM}$               | $t_p = 10$ ms; $\sin 180$ ; $T_{jmax}$ | 950                                       | A     |
| $i^2t$                          | $t_p = 10$ ms; $\sin 180$ ; $T_{jmax}$ | 4500                                      | A²s   |
| <b>IGBT - Chopper</b>           |                                        |                                           |       |
| $V_{CES}/V_{GES}$               | $T_s = 25$ (70) °C                     | 1200 / 20                                 | V     |
| $I_C$                           | $T_s = 25$ (70) °C                     | 125 (100)                                 | A     |
| $I_{CM}$                        | $t_p = 1$ ms; $T_s = 25$ (70) °C       | 250 (200)                                 | A     |
| <b>Freewheeling - CAL Diode</b> |                                        |                                           |       |
| $V_{RRM}$                       | $T_s = 25$ (70) °C                     | 1200                                      | V     |
| $I_F$                           | $T_s = 25$ (70) °C                     | 130 (90)                                  | A     |
| $I_{FM}$                        | $t_p = 1$ ms; $T_s = 25$ (70) °C       | 240 (180)                                 | A     |
| $T_{vj}$                        | Diode & IGBT (Thyristor)               | - 40 ... + 150 (-40...+ 125)              | °C    |
| $T_{stg}$                       |                                        | - 40 ... + 125                            | °C    |
| $T_{solder}$                    | terminals, 10 s                        | 260                                       | °C    |
| $V_{isol}$                      | a.c. (50) Hz, RMS 1 min. / 1 s         | 3000 / 3600                               | V     |

| Characteristics                      |                                                                                                      | T <sub>s</sub> = 25 °C, unless otherwise specified |              |          |        |
|--------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------|----------|--------|
| Symbol                               | Conditions                                                                                           | min.                                               | typ.         | max.     | Units  |
| Diode - Rectifier                    |                                                                                                      |                                                    |              |          |        |
| V <sub>TO</sub> / r <sub>t</sub>     | T <sub>j</sub> = 125 °C                                                                              |                                                    | 0,8 / 7      |          | V / mΩ |
| R <sub>th(j-s)</sub>                 | per diode                                                                                            |                                                    |              | 1        | K/W    |
| Thyristor - Rectifier                |                                                                                                      |                                                    |              |          |        |
| V <sub>F(TO)</sub> / r <sub>t</sub>  | T <sub>j</sub> = 125 °C                                                                              |                                                    | 1,1 / 6      |          | V / mΩ |
| R <sub>th(j-s)</sub>                 | per Thyristor                                                                                        |                                                    |              | 0,85     | K/W    |
| I <sub>GD</sub>                      | T <sub>j</sub> = 125 °C; d.c.                                                                        |                                                    | 5            |          | mA     |
| V <sub>GT</sub> / I <sub>GT</sub>    | T <sub>j</sub> = 25 °C                                                                               |                                                    |              | 3 / 150  | V / mA |
| I <sub>H</sub> /I <sub>L</sub>       | T <sub>j</sub> = 25 °C                                                                               |                                                    | 250 / 600    |          | mA     |
| (dv/dt) <sub>cr</sub>                | T <sub>j</sub> = 125 °C                                                                              |                                                    |              | 1000     | V/μs   |
| (di/dt) <sub>cr</sub>                | T <sub>j</sub> = 125 °C                                                                              |                                                    |              | 100      | A/μs   |
| IGBT - Chopper                       |                                                                                                      |                                                    |              |          |        |
| V <sub>CE(sat)</sub>                 | I <sub>C</sub> = 100 A, T <sub>j</sub> = 25 °C;<br>V <sub>GE</sub> = 15 V                            |                                                    | 2,35         |          | V      |
| R <sub>th(j-s)</sub>                 | per IGBT                                                                                             |                                                    |              | 0,3      | K/W    |
| t <sub>d(on)</sub> / t <sub>r</sub>  | valid for all values:                                                                                |                                                    | 114 / 94,5   |          | ns     |
| t <sub>d(off)</sub> / t <sub>f</sub> | V <sub>CC</sub> = 600 V; V <sub>GE</sub> = 15 V;<br>I <sub>C</sub> = 120 A; T <sub>j</sub> = 125 °C; |                                                    | 845,4 / 94,5 |          | ns     |
| E <sub>on</sub> +E <sub>off</sub>    | T <sub>j</sub> = 125 °C; R <sub>G</sub> = 16 Ω;<br>inductive load                                    |                                                    | 24,4         |          | mJ     |
| CAL - Diode - Freewheeling           |                                                                                                      |                                                    |              |          |        |
| V <sub>T(TO)</sub> / r <sub>t</sub>  | T <sub>j</sub> = 125 °C                                                                              |                                                    | 1 / 8        | 1,2 / 11 | V / mΩ |
| R <sub>th(j-s)</sub>                 | per diode                                                                                            |                                                    |              | 0,6      | K/W    |
| I <sub>RRM</sub>                     | valid for all values:                                                                                |                                                    | 65           |          | A      |
| Q <sub>rr</sub>                      | I <sub>F</sub> = 100 A; V <sub>R</sub> = - -600 V;<br>di <sub>F</sub> /dt = - -1000 A/μs             |                                                    | 15           |          | μC     |
| E <sub>off</sub>                     | V <sub>GE</sub> = 0 V; T <sub>j</sub> = 125 °C                                                       |                                                    |              |          | mJ     |
| Temperature Sensor                   |                                                                                                      |                                                    |              |          |        |
| R <sub>TS</sub>                      | T = 25 (100) °C;                                                                                     |                                                    | 1000 (1670)  |          | Ω      |
| Mechanical data                      |                                                                                                      |                                                    |              |          |        |
| M <sub>S</sub>                       | mounting Torque                                                                                      |                                                    | 2,55         | 3,45     | Nm     |

DH

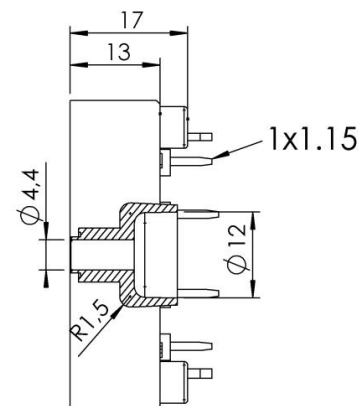
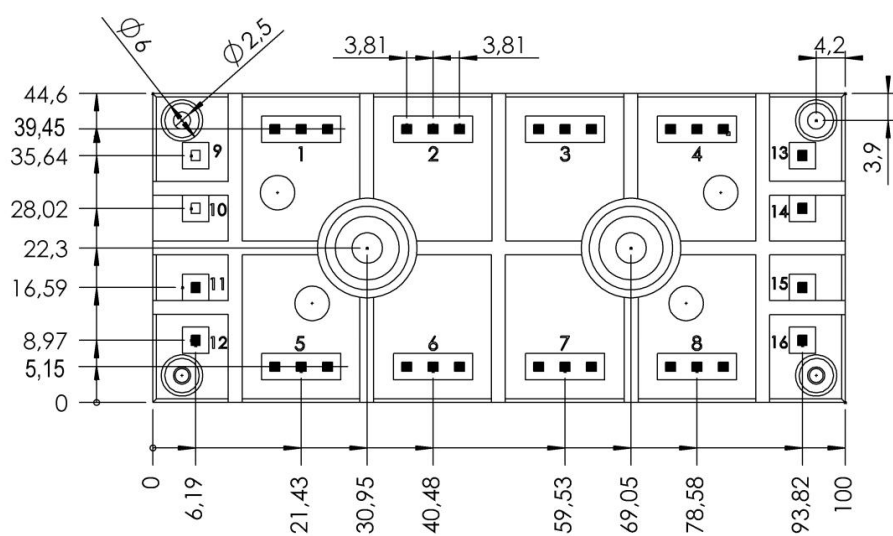
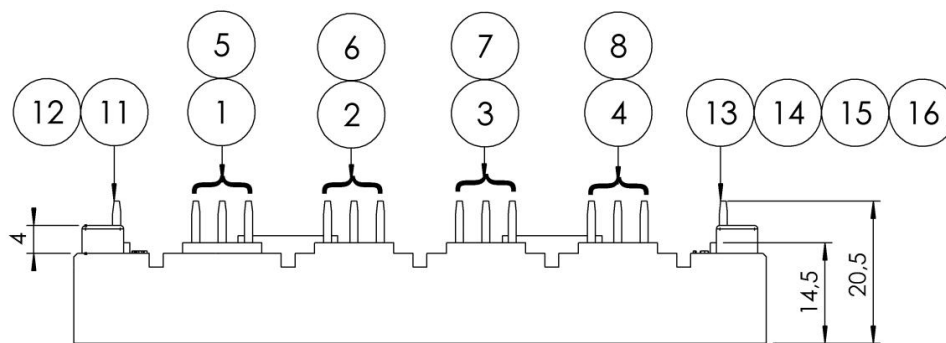




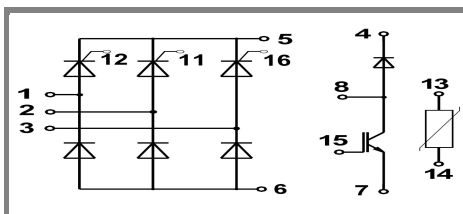
# SKDH 116/.. -L100

UL recognized  
File n#176; E63 532

Dimensions in mm



Case G 59



Case G 59

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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