

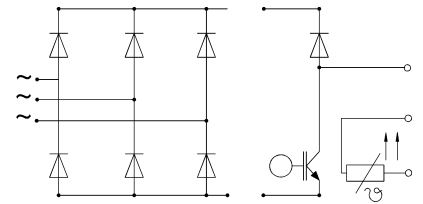
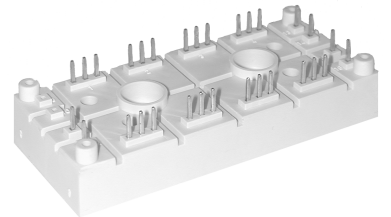
SKD 116/.. - L75

SEMIPONT™ 6

SKD 116/.. - L75

3-phase bridge rectifier + IGBT braking chopper

Preliminary Data



- Specifications of temperature sensor see part A

Features

- Compact design
- Two screws mounting
- Heat transfer and isolation through direct copper board (low R_{th})
- Low resistance in steady- state and high reliability
- High surge currents
- Up to 1600 V reverse voltage
- UL recognized, file no. E 63 532

Typical Applications

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

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

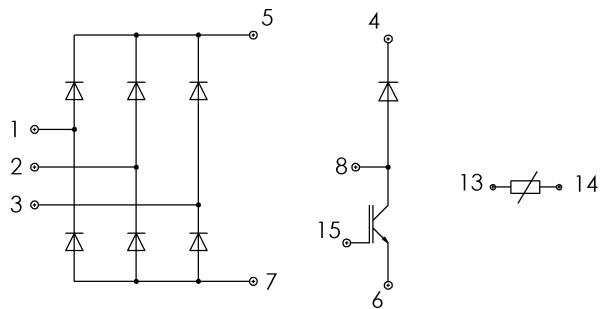
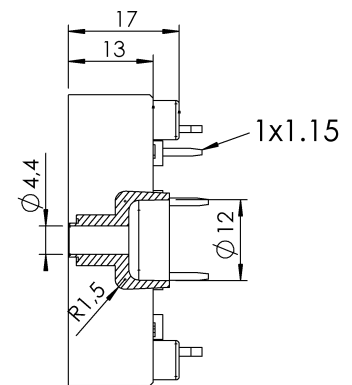
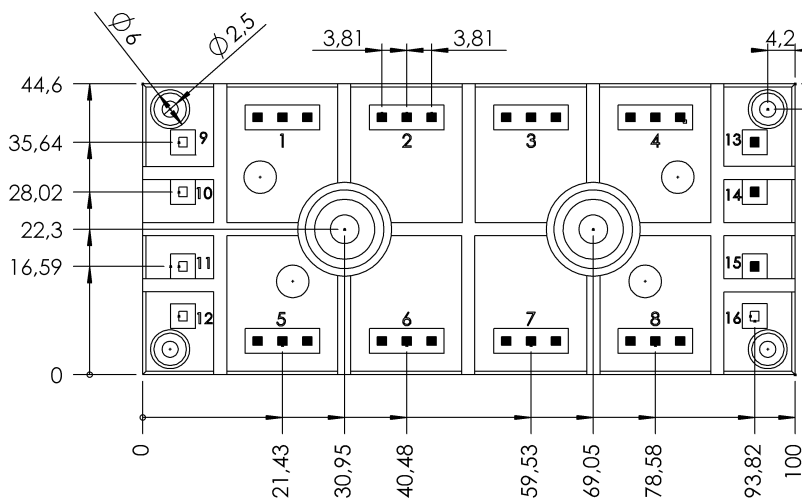
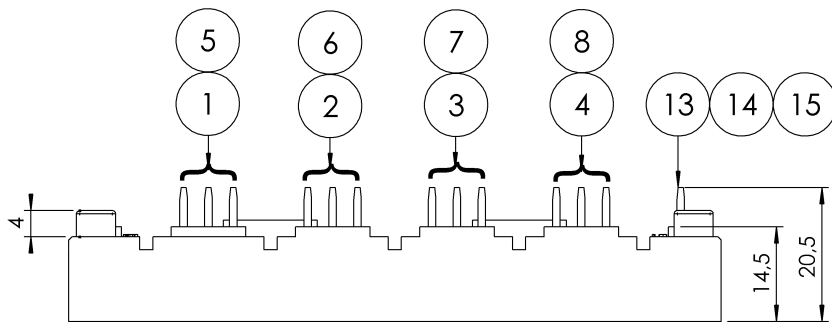
²⁾ CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

| | | |
|--------------|------------------------|--|
| V_{RSM} | V_{RRM} V_{DRM} | I_{RMS} (maximum values for continuous operation) ($T_h = 80\text{ °C}$) 110 A |
| V | V | |
| 1300 1700 | 1200 1600 | SKD 116/12-L75 SKD 116/16-L75 |

| Absolute Maximum Ratings | | Values | Units |
|---|--|----------------|------------------|
| Symbol | Conditions ¹⁾ | | |
| Bridge Rectifier | | | |
| I_D | $T_{heatsink} = 85\text{ °C}$; inductive load | 110 | A |
| I_{FSM}/I_{TSM} | $t_p = 10\text{ ms}$; sin. 180 °C , T_{jmax} | 1050 | A |
| I^2t | $t_p = 10\text{ ms}$, sin. 180 °C , T_{jmax} | 5500 | A ² s |
| IGBT Chopper | | | |
| V_{CES} | | 1200 | V |
| V_{GES} | | ± 20 | V |
| I_C | $T_{heatsink} = 25 / 70\text{ °C}$ | 100 / 75 | A |
| I_{CM} | $t_p = 1\text{ ms}$; $T_{heatsink} = 25 / 70\text{ °C}$ | 200 / 150 | A |
| Freewheeling Diode ²⁾ | | | |
| V_{RRM} | | 1200 | V |
| I_F | $T_{heatsink} = 25 / 70\text{ °C}$ | 90 / 70 | A |
| I_{FM} | $t_p = 1\text{ ms}$; $T_{heatsink} = 25 / 70\text{ °C}$ | 180 / 140 | A |
| T_j | Diode & IGBT | - 40 ... + 150 | °C |
| T_j | Thyristor | - 40 ... + 125 | °C |
| T_{stg} | | - 40 ... + 125 | °C |
| V_{isol} | AC, 1 min. | 2500 | V |

| Characteristics | | min. | typ. | max. | Units |
|---|---|------|-------------|------|---------------|
| Symbol | Conditions ¹⁾ | | | | |
| Diode - Rectifier | | | | | |
| V_F | $I_F = 75\text{ A}$ $T_j = 25\text{ °C}$ | - | 1,2 | - | V |
| V_{TO} | $T_j = 125\text{ °C}$ | - | 0,8 | - | V |
| r_T | $T_j = 125\text{ °C}$ | - | 7 | - | m Ω |
| R_{thjh} | per diode | - | 0,85 | - | K/W |
| IGBT - Chopper | | | | | |
| V_{CEsat} | $I_C = 75\text{ A}$ $T_j = 25\text{ °C}$, $V_{GE} = 15\text{ V}$ | - | 2,35 | 2,85 | V |
| $t_{d(on)}$ | $V_{CC} = 600\text{ V}$; $V_{GE} = \pm 15\text{ V}$ | - | 70 | - | ns |
| t_r | $I_C = 75\text{ A}$; $T_j = 125\text{ °C}$ | - | 50 | - | ns |
| $t_{d(off)}$ | $R_{gon} = R_{goff} = 12\text{ }\Omega$ | - | 450 | - | ns |
| t_f | inductive load | - | 45 | - | ns |
| $E_{on} + E_{off}$ | | - | 16 | - | mJ |
| C_{ies} | $V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$ | - | 5,8 | - | nF |
| R_{thjh} | per IGBT | - | - | 0,37 | K/W |
| Diode ²⁾ - Freewheeling | | | | | |
| V_F | $I_F = 75\text{ A}$ $T_j = 25\text{ °C}$ | - | 2,0 | 2,5 | V |
| V_{TO} | $T_j = 125\text{ °C}$ | - | 1,1 | 1,2 | V |
| r_T | $T_j = 125\text{ °C}$ | - | - | 15 | m Ω |
| I_{RRM} | $I_F = 75\text{ A}$; $V_R = - 600\text{ V}$ | - | 75 | - | A |
| Q_{rr} | $di_f/dt = - 800\text{ A}/\mu\text{s}$ | - | 11 | - | μC |
| E_{off} | $V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$ | - | TBD | - | mJ |
| R_{thjh} | per diode | - | - | 0,74 | K/W |
| Temperature Sensor | | | | | |
| R_{TS} | $T = 25 / 100\text{ °C}$ | | 1000 / 1670 | | Ω |
| Mechanical Data | | | | | |
| M_1 | case to heatsink, SI Units | 2,5 | - | 3,5 | Nm |
| Case | | | G 60 | | |

SEMIPONT™ 6
SKD 116/.. - L75
 Case G 60



Dimensions in mm

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