

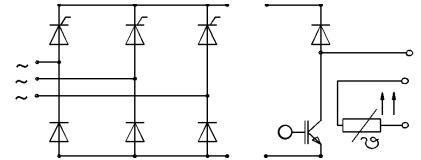
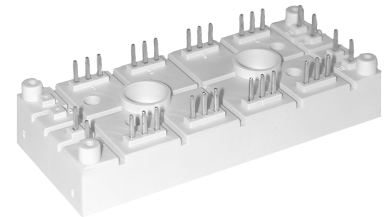
## SKDH 146/.. - L100

SEMIPONT™ 6

SKDH 146/.. - L100

half controlled  
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

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

<sup>2)</sup> CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

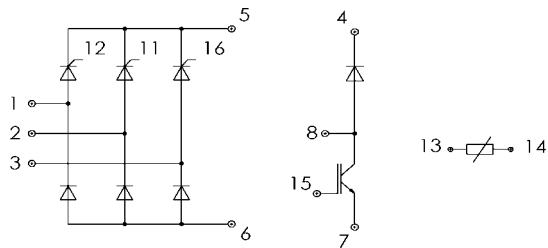
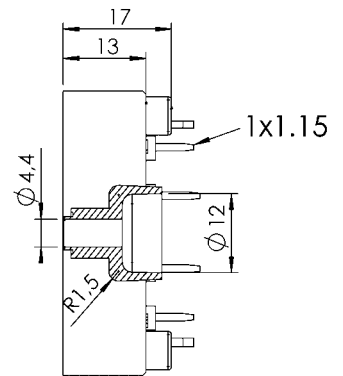
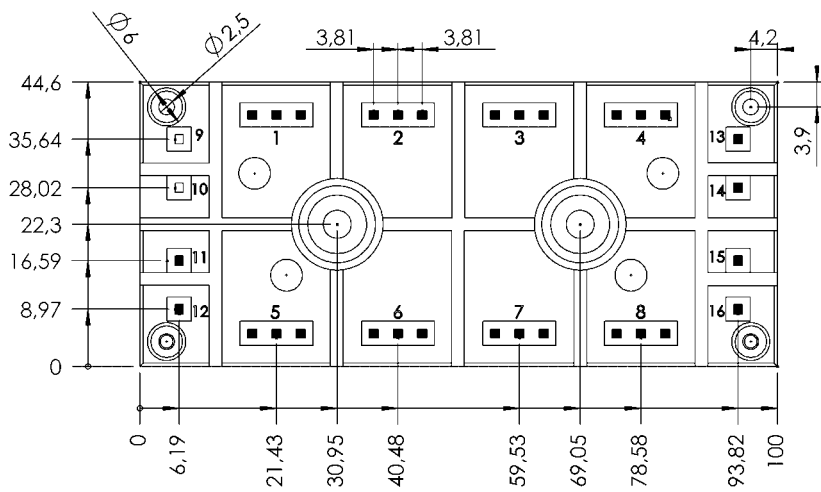
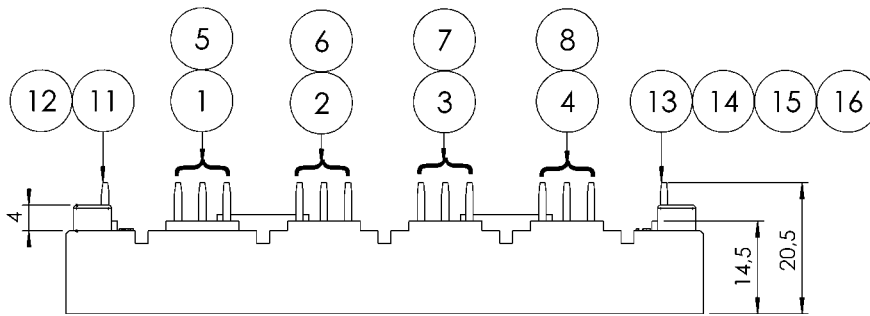
$V_{RSM}$	$V_{RRM}$ $V_{DRM}$	$I_{RMS}$ (maximum values for continuous operation) ( $T_h = 80\text{ °C}$ ) 140 A
V	V	
1300 1700	1200 1600	SKDH 146/12-L100 SKDH 146/16-L100

Absolute Maximum Ratings		Values	Units
Symbol	Conditions <sup>1)</sup>		
Bridge Rectifier			
$I_D$	$T_{heatsink} = 85\text{ °C}$ ; inductive load	140	A
$I_{FSM}/I_{TSM}$	$t_p = 10\text{ ms}$ ; sin. $180\text{ °C}$ , $T_{jmax}$	1250	A
$I^2t$	$t_p = 10\text{ ms}$ , sin. $180\text{ °C}$ , $T_{jmax}$	7800	A <sup>2</sup> s
IGBT Chopper			
$V_{CES}$		1200	V
$V_{GES}$		$\pm 20$	V
$I_C$	$T_{heatsink} = 25 / 70\text{ °C}$	125 / 100	A
$I_{CM}$	$t_p = 1\text{ ms}$ ; $T_{heatsink} = 25 / 70\text{ °C}$	250 / 200	A
Freewheeling Diode <sup>2)</sup>			
$V_{RRM}$		1200	V
$I_F$	$T_{heatsink} = 25 / 70\text{ °C}$	130 / 90	A
$I_{FM}$	$t_p = 1\text{ ms}$ ; $T_{heatsink} = 25 / 70\text{ °C}$	240 / 180	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 <sup>1)</sup>				
Diode - Rectifier					
$V_F$	$I_F = 150\text{ A}$ $T_j = 125\text{ °C}$	-	1,3	-	V
$V_{TO}$	$T_j = 125\text{ °C}$	-	0,8	-	V
$r_T$	$T_j = 125\text{ °C}$	-	4	-	mΩ
$R_{thjh}$	per diode	-	-	0,6	K/W
Thyristor - Rectifier					
$V_T$	$I_T = 150\text{ A}$ $T_j = 25\text{ °C}$	-	1,55	-	V
$V_{T(TO)}$	$T_j = 125\text{ °C}$	-	-	0,9	V
$r_T$	$T_j = 125\text{ °C}$	-	-	4,5	mΩ
$R_{thjh}$	per thyristor	-	-	0,6	°C/W
$I_{GD}$	$T_j = 125\text{ °C}$ ; dc	6	-	-	mA
$V_{GT}$	} $T_j = 25\text{ °C}$	-	-	3	V
$I_{GT}$		-	-	150	mA
$I_H$	} $T_j = 25\text{ °C}$	-	250	-	mA
$I_L$		-	600	-	mA
$dv/dt_{CR}$	} $T_j = 125\text{ °C}$	500	-	-	V/μs
$di/dt_{CR}$		-	-	125	A/μs
IGBT - Chopper					
$V_{CEsat}$	$I_C = 100\text{ A}$ $T_j = 25\text{ °C}$ , $V_{GE} = 15\text{ V}$	-	2,35	2,85	V
$t_{d(on)}$	} $V_{CC} = 600\text{ V}$ ; $V_{GE} = \pm 15\text{ V}$	-	70	-	ns
$t_r$		$I_C = 100\text{ A}$ ; $T_j = 125\text{ °C}$	-	50	-
$t_{d(off)}$	} $R_{gon} = R_{goff} = 7\text{ Ω}$	-	450	-	ns
$t_f$		inductive load	-	45	-
$E_{on} + E_{off}$	} $V_{CE} = 25\text{ V}$ ; $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$	-	25	-	mJ
$C_{ies}$		-	7,7	-	nF
$R_{thjh}$		per IGBT	-	-	0,28

<b>Characteristics</b>		<b>min.</b>	<b>typ.</b>	<b>max.</b>	<b>Units</b>
<b>Symbol</b>	<b>Conditions <sup>1)</sup></b>				
<b>Diode <sup>2)</sup> - Freewheeling</b>					
$V_F$	$I_F = 100 \text{ A}$ $T_j = 25 \text{ °C}$	–	2,0	2,5	V
$V_{TO}$	$T_j = 125 \text{ °C}$	–	1,1	1,2	V
$r_T$	$T_j = 125 \text{ °C}$	–		11	mΩ
$I_{RRM}$	$I_F = 100 \text{ A}; V_R = -600 \text{ V}$ $di_F/dt = -1000 \text{ A}/\mu\text{s}$ $V_{GE} = 0 \text{ V}, T_j = 125 \text{ °C}$	–	65	–	A
$Q_{rr}$		–	15	–	μC
$E_{off}$		–	TBD	–	mJ
$R_{thjh}$		per diode	–	–	0,56
<b>Temperature Sensor</b>					
$R_{TS}$	$T = 25 / 100 \text{ °C}$	1000 / 1670			Ω
<b>Mechanical Data</b>					
$M_1$	case to heatsink, SI Units	2,5	–	3,5	Nm
Case			G 59		

**SEMIPONT™ 6**  
**SKDH 146/.. - L100**  
 Case G 59



Dimensions in mm

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