

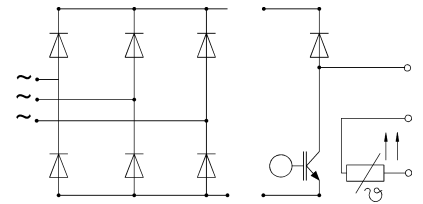
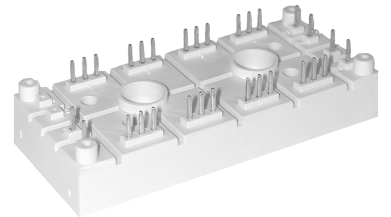
SKD 146/.. - L75

SEMIPONT™ 6

SKD 146/.. - 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) ($T_h = 80\text{ °C}$) 140 A
V	V	
1300 1700	1200 1600	SKD 146/12-L75 SKD 146/16-L75

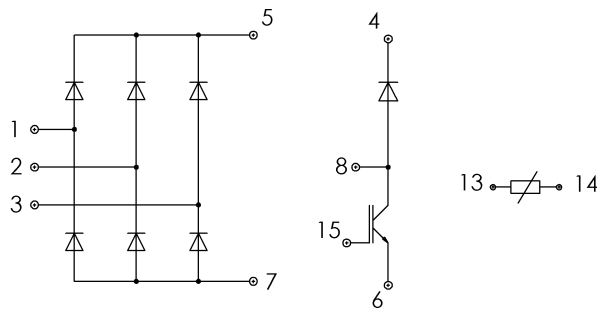
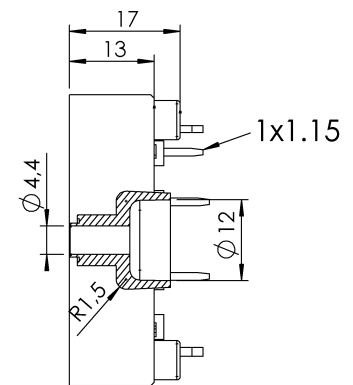
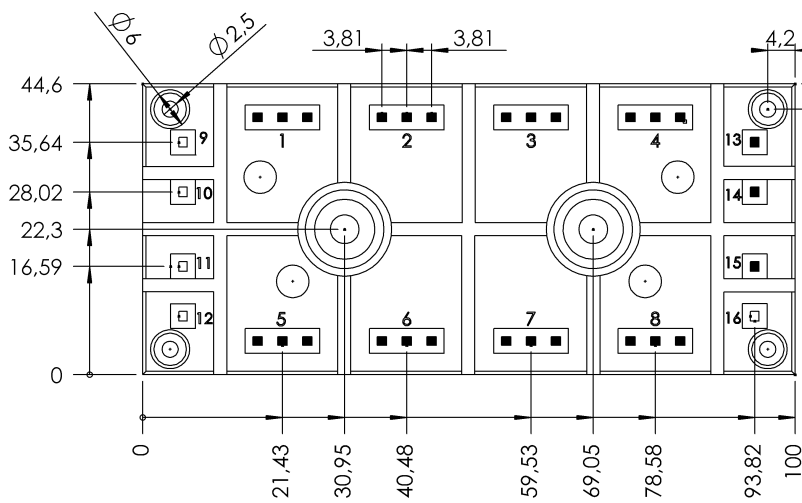
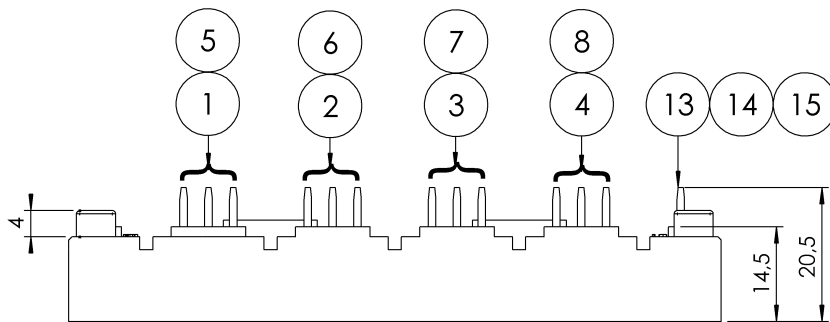
Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
Bridge Rectifier			
I_D	$T_{heatsink} = 85\text{ °C}$; inductive load	140	A
I_{FSM}/I_{TSM}	$t_p = 10\text{ ms}$; sin. 180 °C , T_{jmax}	1250	A
I^2t	$t_p = 10\text{ ms}$, sin. 180 °C , T_{jmax}	7800	A ² s
IGBT Chopper			
V_{CES}		1200	V
V_{GES}		± 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	$I_F = 150\text{ A}$ $T_j = 125\text{ °C}$	-	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
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
$t_{d(off)}$	$R_{gon} = R_{goff} = 12\text{ Ω}$	-	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	mΩ
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		

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Case G 60



Dimensions in mm

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