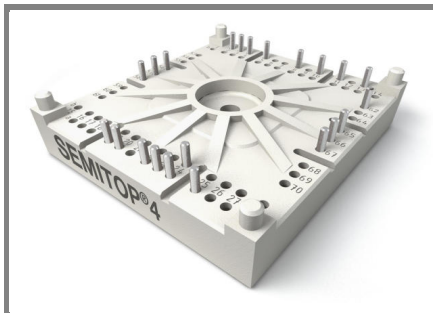


# SK170DHL126



**SEMITOP<sup>®</sup> 4**

## Half controlled bridge rectifier + IGBT braking chopper SK170DHL126

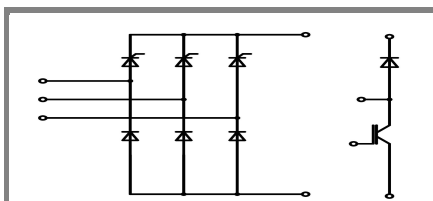
Target Data

### Features

- One screw mounting hole
- Fully compatible with SEMITOP<sup>®</sup>1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT brake chopper technology
- CAL technology free-wheeling diode chopper

### Typical Applications\*

- $V_{CE,sat}$ ,  $V_F$  = chip level value
- $I_{CM} = 2xI_{C,nom}$ ,  $t_p \leq 1ms$
- $I_{FM} = 2xI_{F,nom}$ ,  $t_p \leq 1ms$
- $I_C = I_{C,nom}$ ,  $I_F = I_{F,nom}$



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$V_{RSM}$ V	$V_{RRM}, V_{DRM}$ V	$I_D = 170$ A (maximum value for continuous operation) ( $T_s = 70$ °C)
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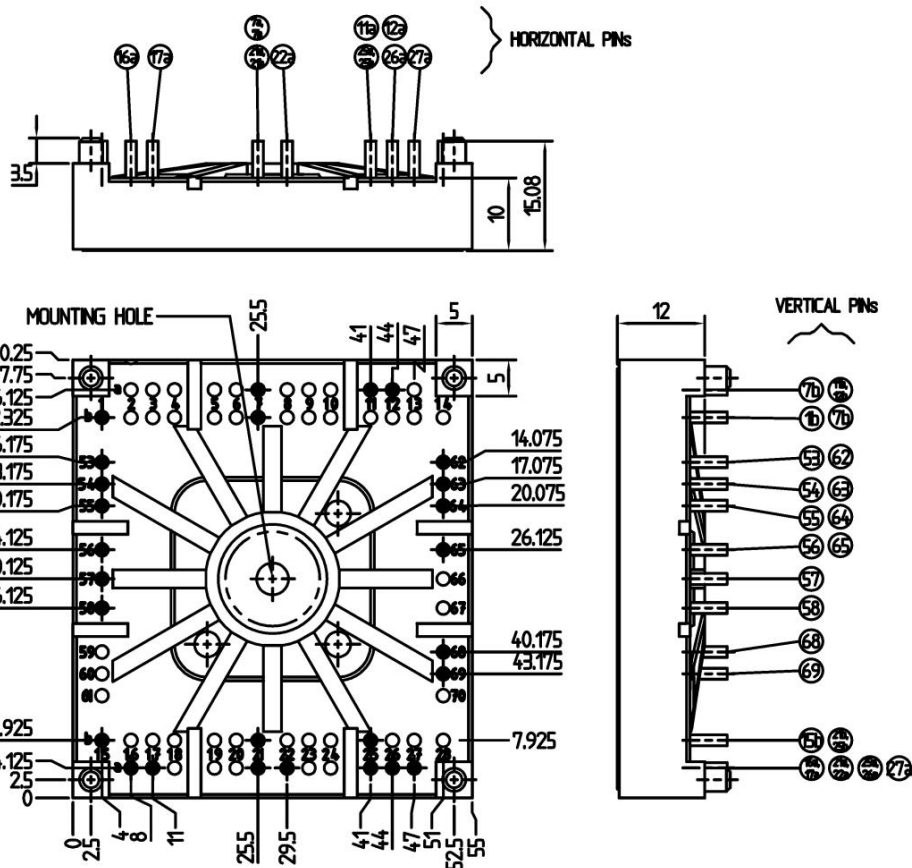
Absolute Maximum Ratings		$T_s = 25$ °C, unless otherwise specified	
Symbol	Conditions	Values	Units
<b>Bridge - Rectifier</b>			
$I_D$	$T_s = 70$ °C; inductive load	170	A
$I_{FSM}/I_{TSM}$	$t_p = 10$ ms; half sine wave, ; $T_{jmax}$	1000	A
$i^2t$	$t_p = 10$ ms; half sine wave, ; $T_{jmax}$	5000	A <sup>2</sup> s
<b>IGBT - Chopper</b>			
$V_{CES}/V_{GES}$	$T_s = 25$ (70) °C	1200 / 20	V
$I_C$	$T_s = 25$ (70) °C	90 (70)	A
$I_{CM}$	$t_p = 1$ ms; $T_s =$ °C	70	A
<b>Freewheeling - CAL Diode</b>			
$V_{RRM}$	$T_s = 25$ (70) °C	1200	V
$I_F$	$T_s = 25$ (70) °C	95 (70)	A
$I_{FM}$	$t_p = 1$ ms; $T_s =$ °C	170	A
$T_{vj}$	Diode & IGBT (Thyristor)	-40 ... +150 (-40 ... +130)	°C
$T_{stg}$		-40 ... +125 (-40 ... +130)	°C
$T_{solder}$	terminals, 10 s	260	°C
$V_{isol}$	a.c. 50 Hz, RMS 1 min. / 1 s	2500 / 3000	V

Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
<b>Diode - Rectifier</b>					
$V_{TO} / r_t$	$T_j = 125$ °C		0,8 / 7		V / mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
<b>Thyristor - Rectifier</b>					
$V_{F(TO)} / r_t$	$T_j = 130$ °C		1,1 / 5,7		V / mΩ
$R_{th(j-s)}$	per Thyristor		0,51		K/W
$I_{GD}$	$T_j = 115$ °C; d.c.	6			mA
$V_{GT} / I_{GT}$	$T_j = 25$ °C			1,98 / 100	V / mA
$I_H / I_L$	$T_j = 25$ °C			220 / 440	mA
$(dv/dt)_{cr}$	$T_j = 130$ °C			1000	V/μs
$(di/dt)_{cr}$	$T_j = 130$ °C			50	A/μs
<b>IGBT - Chopper</b>					
$V_{CE(sat)}$	$I_C = 70$ A, $T_j = 125$ °C; $V_{GE} = 15$ V		1,7	2,05	V
$R_{th(j-s)}$	per IGBT		0,5		K/W
$t_{d(on)} / t_r$	valid for all values: $V_{CC} = 600$ V; $V_{GE} = 15$ V;				ns
$t_{d(off)} / t_f$	$I_C = 75$ A; $T_j = 125$ °C;				ns
$E_{on} + E_{off}$	$T_j = 125$ °C; $R_G = 9$ Ω; inductive load		16,7		mJ
<b>CAL - Diode - Freewheeling</b>					
$V_{T(TO)} / r_t$	$T_j = 150$ °C		0,95 / 10		V / mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
$I_{RRM}$	valid for all values:				A
$Q_{rr}$	$I_F = 75$ A; $V_R = - 600$ V; $di_F/dt = - A/\mu s$				μC
$E_{off}$	$V_{GE} = V$ ; $T_j = 125$ °C				mJ
<b>Temperature Sensor</b>					
$R_{TS}$	$T =$ °C;				Ω
<b>Mechanical data</b>					
$M_S$	mounting Torque	2,5		2,75	Nm

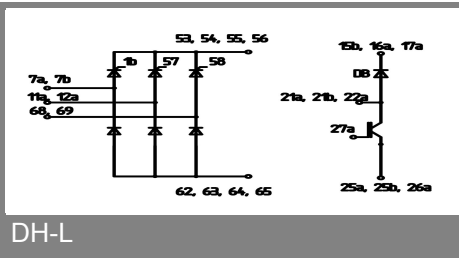
# SK170DHL126

UL recognized  
File n#176; E 63 532

Dimensions in mm



Case T 85 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



DH-L

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

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.