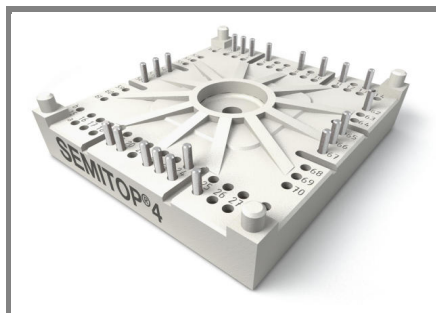




SEMITOP® 4

Half controlled bridge rectifier + IGBT braking chopper SK170DHL126

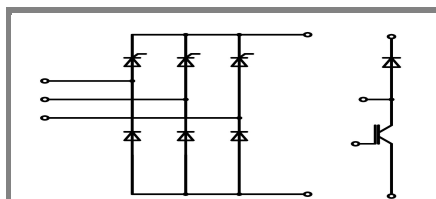
Target Data

Features

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

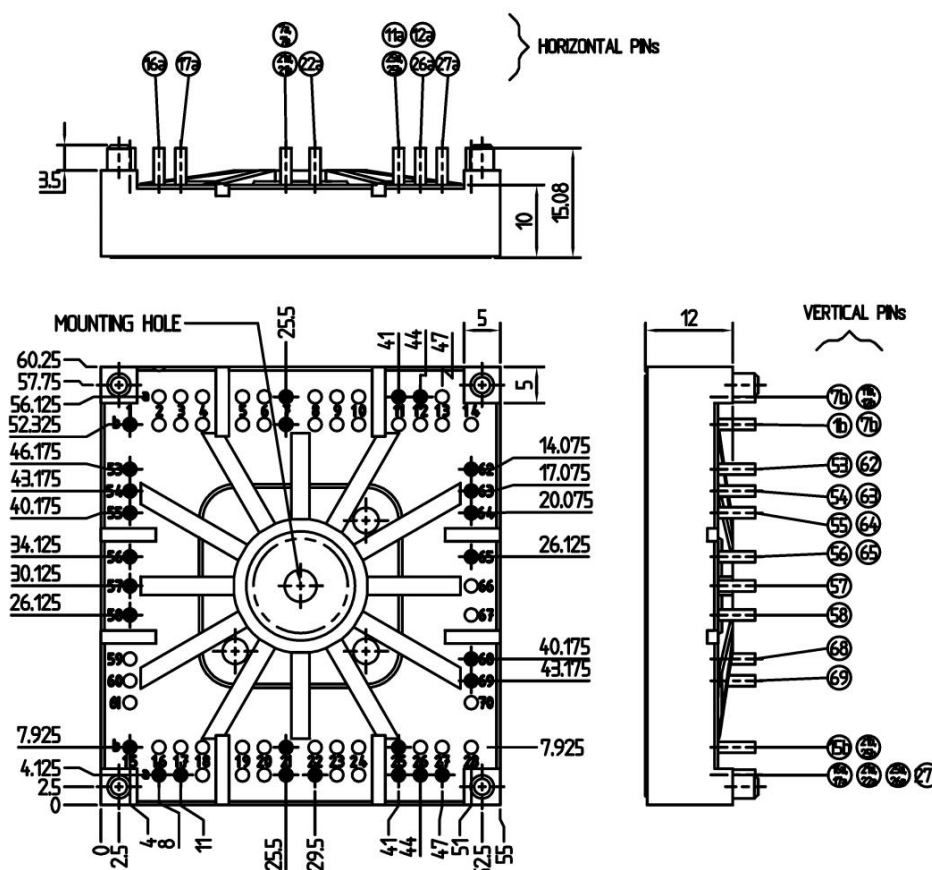
Typical Applications*

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

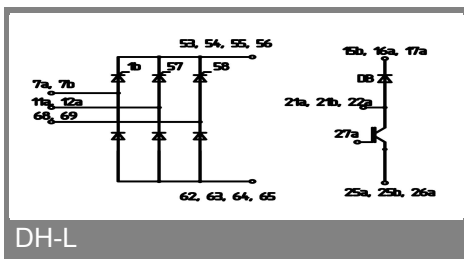


DH-L

V_{RSM} V	V_{RRM}, V_{DRM} V	$I_D = 170$ A (maximum value for continuous operation) ($T_s = 70\text{ }^{\circ}\text{C}$)			
Absolute Maximum Ratings					
$T_s=25^{\circ}\text{C}$, unless othwerwise specified					
Symbol	Conditions	Values			Units
Bridge - Rectifier					
I_D	$T_s = 70\text{ }^{\circ}\text{C}$; inductive load	170			A
I_{FSM}/I_{TSM}	$t_p = 10\text{ ms}$; half sine wave, ; T_{jmax}	1000			A
i^2t	$t_p = 10\text{ ms}$; half sine wave, ; T_{jmax}	5000			A ² s
IGBT - Chopper					
V_{CES}/V_{GES}		1200 / 20			V
I_C	$T_s = 25\text{ (70) }^{\circ}\text{C}$	90 (70)			A
I_{CM}	$t_p = 1\text{ ms}$; $T_s =\text{ }^{\circ}\text{C}$	70			A
Freewheeling - CAL Diode					
V_{RRM}		1200			V
I_F	$T_s = 25\text{ (70) }^{\circ}\text{C}$	95 (70)			A
I_{FM}	$t_p = 1\text{ ms}$; $T_s =\text{ }^{\circ}\text{C}$	170			A
T_{vj}	Diode & IGBT (Thyristor)	-40 ... +150 (-40 ... +130)			$^{\circ}\text{C}$
T_{stg}		-40 ... +125 (-40 ... +130)			$^{\circ}\text{C}$
T_{solder}	terminals, 10 s	260			$^{\circ}\text{C}$
V_{isol}	a.c. 50 Hz, RMS 1 min. / 1 s	2500 / 3000			V
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Diode - Rectifier					
V_{TO} / r_t	$T_j = 125\text{ }^{\circ}\text{C}$		0,8 / 7		V / mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
Thyristor - Rectifier					
$V_{F(TO)} / r_t$	$T_j = 130\text{ }^{\circ}\text{C}$		1,1 / 5,7		V / mΩ
$R_{th(j-s)}$	per Thyristor		0,51		K/W
I_{GD}	$T_j = 115\text{ }^{\circ}\text{C}$; d.c.	6			mA
V_{GT} / I_{GT}	$T_j = 25\text{ }^{\circ}\text{C}$			1,98 / 100	V / mA
I_H/I_L	$T_j = 25\text{ }^{\circ}\text{C}$			220 / 440	mA
$(dv/dt)_{cr}$	$T_j = 130\text{ }^{\circ}\text{C}$			1000	V/μs
$(di/dt)_{cr}$	$T_j = 130\text{ }^{\circ}\text{C}$			50	A/μs
IGBT - Chopper					
$V_{CE(sat)}$	$I_C = 70\text{ A}$, $T_j = 125\text{ }^{\circ}\text{C}$; $V_{GE} = 15\text{ V}$		1,7	2,05	V
$R_{th(j-s)}$	per IGBT		0,5		K/W
$t_{d(on)} / t_r$	valid for all values:				ns
$t_{d(off)} / t_f$	$V_{CC} = 600\text{ V}$; $V_{GE} = 15\text{ V}$; $I_C = 75\text{ A}$; $T_j = 125\text{ }^{\circ}\text{C}$;				ns
$E_{on}+E_{off}$	$T_j = 125\text{ }^{\circ}\text{C}$; $R_G = 9\text{ }\Omega$; inductive load		16,7		mJ
CAL - Diode - Freewheeling					
$V_{T(TO)} / r_t$	$T_j = 150\text{ }^{\circ}\text{C}$		0,95 / 10		V / mΩ
$R_{th(j-s)}$	per diode		0,7		K/W
I_{RRM}	valid for all values:				A
Q_{rr}	$I_F = 75\text{ A}$; $V_R = -600\text{ V}$; $di_F/dt = -A/\mu s$				μC
E_{off}	$V_{GE} = V$; $T_j = 125\text{ }^{\circ}\text{C}$				mJ
Temperature Sensor					
R_{TS}	$T =\text{ }^{\circ}\text{C}$;				Ω
Mechanical data					
M_S	mounting Torque	2,5		2,75	Nm



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.