

SEMITOP[®] 4

Half controlled bridge rectifier + IGBT braking chopper SK200DHL066

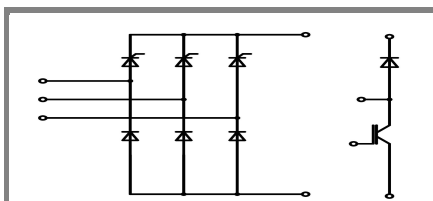
Target Data

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
- $I_{CM} = 2 \times I_{Cnom}$, $t_p \leq 1ms$
- $I_{FM} = 2 \times I_{Fnom}$, $t_p \leq 1ms$
- $I_C = I_{Cnom}$, $I_F = I_{Fnom}$

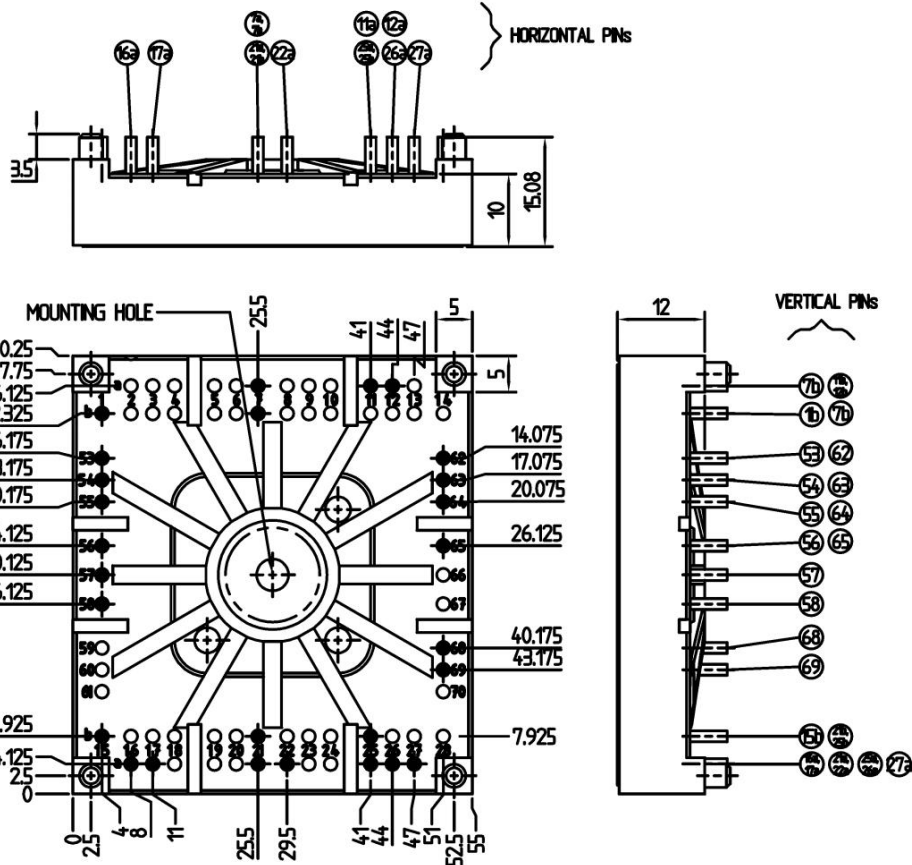


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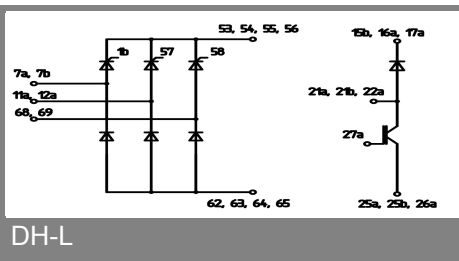
V_{RSM} V	V_{RRM} , V_{DRM} V	$I_D = 210$ A (maximum value for continuous operation) ($T_s = 70$ °C)
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Absolute Maximum Ratings		$T_s = 25$ °C, unless otherwise specified	
Symbol	Conditions	Values	Units
Bridge - Rectifier			
I_D	$T_s = 70$ °C; inductive load	210	A
I_{FSM}/I_{TSM}	$t_p = 10$ ms; half sine wave, ; T_{jmax}	1250	A
i^2t	$t_p = 10$ ms; half sine wave, ; T_{jmax}	7810	A ² s
IGBT - Chopper			
V_{CES}/V_{GES}	$T_s = 25$ (70) °C	600 / 20	V
I_C	$T_s = 25$ (70) °C	174 (131)	A
I_{CM}	$t_p = 1$ ms; $T_s =$ °C	400	A
Freewheeling - CAL Diode			
V_{RRM}	$T_s = 25$ (70) °C	600	V
I_F	$T_s = 25$ (70) °C	100 (80)	A
I_{FM}	$t_p = 1$ ms; $T_s =$ °C	200	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
Diode - Rectifier					
V_{TO} / r_t	$T_j = 125$ °C		0,8 / 4		V / mΩ
$R_{th(j-s)}$	per diode		0,52		K/W
Thyristor - Rectifier					
$V_{F(TO)} / r_t$	$T_j = 130$ °C		1,1 / 4,5		V / mΩ
$R_{th(j-s)}$	per Thyristor		0,44		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 / 550	mA
$(dv/dt)_{cr}$	$T_j = 130$ °C			1000	V/μs
$(di/dt)_{cr}$	$T_j = 130$ °C			100	A/μs
IGBT - Chopper					
$V_{CE(sat)}$	$I_C = 200$ A, $T_j = 125$ °C; $V_{GE} = 15$ V		1,7	2,15	V
$R_{th(j-s)}$	per IGBT		0,45		K/W
$t_{d(on)} / t_r$	valid for all values: $V_{CC} = 300$ V; $V_{GE} = 15$ V; $I_C = 200$ A; $T_j = 125$ °C;				ns
$t_{d(off)} / t_f$					ns
$E_{on} + E_{off}$	$T_j = 125$ °C; $R_G = 4$ Ω; inductive load		13,8		mJ
CAL - Diode - Freewheeling					
$V_{T(TO)} / r_t$	$T_j = 150$ °C		0,85 / 3,5		V / mΩ
$R_{th(j-s)}$	per diode		0,8		K/W
I_{RRM}	valid for all values:				A
Q_{rr}	$I_F = 200$ A; $V_R = -600$ V; $di_F/dt = -A/\mu s$				μC
E_{off}	$V_{GE} = V$; $T_j = 125$ °C				mJ
Temperature Sensor					
R_{TS}	$T =$ °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.