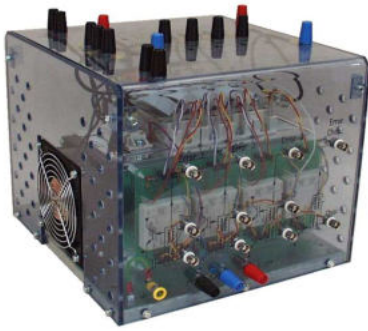


SEMITEACH IGBT



IGBT Module stack

SEMITEACH - IGBT

3-phase rectifier + IGBT inverter + brake chopper

datasheet

Ordering No. 08753450

Description SEMITEACH IGBT

SKM50GB12T4, SKHI22A, SKD51/14

Features

- Multi-function IGBT converter
- IP2x protection for safety hazards
- Transparent enclosure to allow visualisation of internal part
- External connector for easy wiring
- Built in isolated IGBT driver and IGBT protection
- Forced-air cooled heatsink

Typical Applications

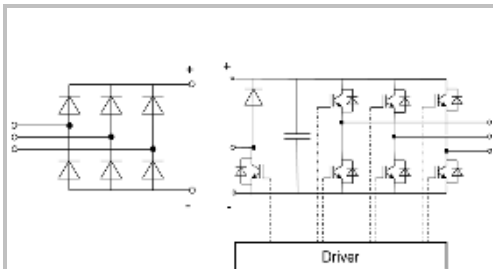
- Education : various converter configuration possible :
 - 3-phase inverter+brake chopper
 - Buck or boost converter
 - single phase inverter
 - single or 3-phase rectifier

Footnotes

1) The user shall ensure air ventilation for proper cooling

Remarks

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee, expressed or implied is made regarding delivery, performance or suitability.



B6U + B6CI + E1CIKF

Absolute maximum ratings			
Symbol	Conditions	Values	Unit
$I_{OUT\ MAX}$	Maximum permanent output current	30	A_{RMS}
$I_{IN\ MAX}$	Maximum permanent input current	30	A_{DC}
$V_{OUT\ MAX}$	Maximum output voltage	400	V_{AC}
$V_{BUS\ MAX}$	Maximum DC bus voltage	750	V_{DC}
f_{OUT}	Maximum inverter output frequency	500	Hz
f_{SW}	Maximum switching frequency	50	kHz

Electrical characteristics / Typical application				$T_{AIR\ COOLING\ 1)} = 30^{\circ}C$ unless otherwise specified	
Symbol	Conditions	min	typ	max	Unit
Ratings					
$I_{OUT\ RATED}$	Rated output current	No overload, $t_{amb} = 30^{\circ}C$ Chip junction $T^{\circ} < 150^{\circ}C$, (Max junction temperature = $175^{\circ}C$) With SEMIKRON axial fan assembly		30	A_{RMS}
V_{OUT}	Rated output voltage			400	V_{AC}
PF	Power factor			1	-
P_{OUT}	Rated output power			20	kW
f_{SW}	Inverter switching frequency			5	kHz
f_{OUT}	Output frequency			50	Hz
V_{BUS}	Rated DC voltage			750	V_{DC}
$P_{LOSS\ INV}$	Total power losses			700	W
η	Inverter efficiency			-	%

Protection & measurement					
Symbol	Conditions	min	typ	max	Unit
Thermal trip	Temperature trip level (Normally Open type: NO)	71			°C
Temperature sensing T _{analogue OUT}	Scaling over 30°C...110°C temperature range				mV.°C ⁻¹
	Linear temperature range	30	110		°C
	Accuracy of analogue signal over 65°C...110°C range	-1,5	1,5		°C
	Max. output current	5			mA
	Max. voltage range	0	10		V _{DC}

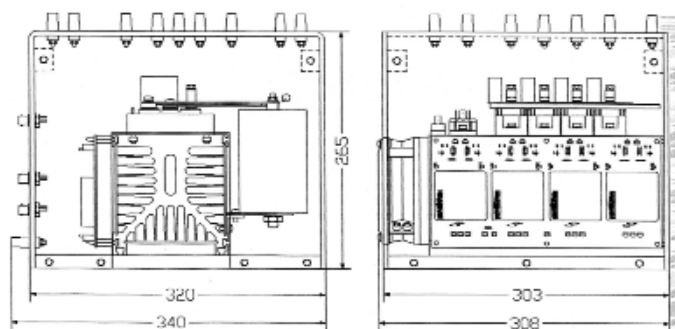
Axial fan data				
Heatsink fans	V_{SUPPLY}	Heatsink fan DC voltage supply		230 V_{AC}
	P_{FAN}	Rated power at V_{SUPPLY} per fan, PWM 100%		15 W

Filtering characteristics				
V_{BUS}	Rated DC voltage applied to the caps bank with switching	540	700	V_{DC}
$V_{DC\ CAP}$	Max DC voltage applied to the caps bank without switching	800		V_{DC}
$\tau_{d5\%}$	Discharge time of the capacitors (5%)	-		s
C_{DC}	Capacitor bank capacity	0,88	1,32	mF
LTE	Calculated LTE of the caps with forced air cooling	-		kH

Stack Insulation		
V_{ISOL}	Frame / Power stage AC/DC (insulation test voltage AC, 60s)	1 500 V

Driver Characteristics					
Symbol	Conditions	min	typ	max	Unit
Driver board data					
V_S	Supply voltage	14,4	15	15,6	V_{DC}
$I_{VP, IDLE}$	Supply primary current (no load)	20			
$I_{VP, LOAD}$	Max. supply primary current			290	
V_{IT+}	input threshold voltage HIGH			12,5	
V_{IT-}	input threshold voltage LOW	4,5			V_{DC}
R_{IN}	Input resistance	10			

Weight	3-phase IGBT inverter	13,3	kg
	3-phase IGBT inverter including fan assembly	14,9	



General dimensions