SEMIKRON

SKiiP 642 GB 120 - 208 CTV

Absolute Maximum Ratings			
Symbol	**Conditions** [1]	**Values**	**Units**
V_{isol} [4]	AC, 1min	3000	V
T_{op} ,T_{stg}	Operating / stor. temperature	-25...+85	°C
IGBT and Inverse Diode			
V_{CES}		1200	V
V_{CC} [5]	Operating DC link voltage	900	V
I_C	IGBT	600	A
T_j [3]	IGBT + Diode	-40...+150	°C
I_F	Diode	600	A
I_{FM}	Diode, t_p < 1 ms	1200	A
I_{FSM}	Diode, T_j = 150 °C, 10ms; sin	4320	A
I^2t (Diode)	Diode, T_j = 150 °C, 10ms	93	kAs^2
Driver			
V_{S1}	Stabilized Power Supply	18	V
V_{S2}	Non-stabilized Power Supply	30	V
f_{smax}	Switching frequency	20	kHz
dV/dt	Primary to secondary side	75	kV/µs

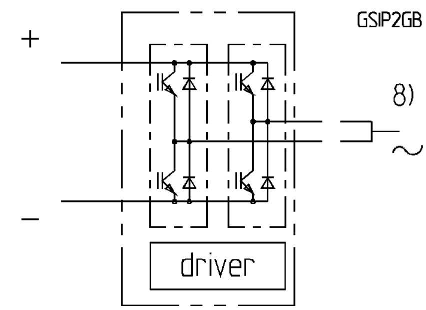
Characteristics					
Symbol	**Conditions** [1]	**min.**	**typ.**	**max.**	**Units**
IGBT[11]					
$V_{(BR)CES}$	Driver without supply	$\geq V_{CES}$	–	–	V
I_{CES}	V_{GE} = 0, T_j = 25 °C	–	–	0,8	mA
	V_{CE} = V_{CES} T_j = 125 °C	–	30	–	mA
V_{TO}	T_j = 125 °C	–	–	1,38	V
r_T	T_j = 125 °C	–	–	3,7	mΩ
V_{Cesat}	I_C = 500A, T_j = 125 °C	–	–	3,2	V
V_{Cesat}	I_C = 500A, T_j = 25 °C	–	–	3,05	V
E_{on} + E_{off}	V_{CC}=600/900V,I_C=600A T_j = 125 °C	–	–	180/293	mJ
C_{CHC}	per SkiiP, AC side	–	2,8	–	nF
L_{CE}	Top, Bottom	–	7,5	–	nH
Inverse Diode [2]					
V_F = V_{EC}	I_F= 500A; T_j = 125 °C	–	–	2,43	V
V_F= V_{EC}	I_F= 500A; T_j = 25 °C	–	–	2,55	V
E_{on} + E_{off}	I_F= 600A; T_j = 125 °C	–	–	24	mJ
V_{TO}	T_j = 125 °C	–	0,91	–	V
r_T	T_j = 125 °C	–	1,9	–	mΩ
Thermal Characteristics					
R_{thjs} [10]	per IGBT	–	–	0,045	°C/W
R_{thjs} [10]	per Diode	–	–	0,125	°C/W
R_{thsa} [6,10]	P16 heatsink; see case S2	–	–	0,044	°C/W
Driver					
I_{S1}	Supply current 15V-supply	210+430*f_s /f_{smax}+1,3*I_{AC}/A			mA
I_{S2}	Supply current 24V-supply	160+290*f_s /f_{smax}+1,0*I_{AC}/A			mA
$t_{interlock-driver}$	Interlock-time		3,3		µs
SKiiPPACK protection					
I_{TRIPSC}	Short circuit protection		750 ± 2%		A
I_{TRIPLG}	Ground fault protection		-		A
T_{TRIP}	Over-temp. protection		115 ± 5%		°C
U_{DCTRIP} [9]	U_{DC}-protection		920 ± 2%		V
Mechanical Data					
M1	DC terminals, SI Units	4	–	6	Nm
M2	AC terminals, SI Units	8	–	10	Nm

SKiiPPACK®

SK integrated intelligent Power PACK halfbridge SKiiP 642 GB 120 - 208 CTV [7,9)]

Preliminary Data

Case S2



Features

- Short circuit protection, due to evaluation of current sensor signals
- Isolated power supply
- Low thermal impedance
- Optimal thermal management with integrated heatsink
- Pressure contact technology with increased power cycling capability, compact design
- Low stray inductance
- High power, small losses
- Over-temperature protection

1) $T_{heatsink}$ = 25 °C, unless otherwise specified
2) CAL = Controlled Axial Lifetime Technology (soft and fast)
3) without driver
4) Driver input to DC link/ AC output to heatsink
5) with Semikron-DC link (low inductance)
6) other heatsinks on request
7) C - Integrated current sensors
T - Temperature protection
V - 15 V or 24 V power supply
8) AC connection busbars must be connected by the user; copper busbars available on request
9) options available for driver:
U - DC link voltage sense
F – Fiber optic connector
10) "s" referenced to temperature sensor
11) NPT-technology with homo-genous current-distribution

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