I. Power section 4 * SKiiP613GB121CT per phase

Absolute maximum ratings			
Symbol	**Conditions** [1]	**Values**	**Units**
IGBT and inverse diode			
V_{CES}		1200	V
V_{CC}	Operating DC link voltage	900	V
V_{GES}		± 20	V
I_C	IGBT, $T_{heat\ sink}$ = 25 / 70 °C	2400 / 1800	A
I_{CM}	IGBT, t_p < 1 ms, $T_{heat\ sink}$ = 25°C	4800	A
I_F	Diode, $T_{heat\ sink}$ = 25 / 70 °C	1800 / 1350	A
I_{FM}	Diode, t_p < 1 ms	3600	A
I_{FSM}	Diode, T_j = 150 °C, 10ms; sin	17280	A
I^2t (Diode)	Diode, T_j = 150 °C, 10ms	1493	kA^2s
T_j , (T_{stg})		-40...+150 (125)	°C
V_{isol}	AC, 1min.	3000	V
$I_{C\text{-}package}$ [4]	$T_{heat\ sink}$ = 70°C, T_{term} = 115 °C	4 * 500	A

Characteristics						
Symbol	**Conditions** [1]		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{(BR)CES}$	gate driver without supply		≥V_{CES}	–	–	V
I_{CES}	V_{GE} = 0,	T_j = 25 °C	–	4,8	–	mA
	V_{CE} = V_{CES}	T_j = 125 °C	–	144	–	mA
V_{CEO} [7]	T_j = 125 °C		–	0,9	–	V
r_T [7]	T_j = 125 °C		–	0,68	–	mΩ
V_{CEsat} [7]	I_C = 1960A,	T_j = 125 °C	–	2,3	–	V
V_{CEsat} [7]	I_C = 1960A,	T_j = 25 °C	–	–	2	V
E_{on} + E_{off} [5]	I_C=1960A,	V_{CC}=600V	–	686	–	mJ
	T_j = 125 °C	V_{CC}=900V		1116		mJ
C	per SKiiP, AC side		–	6	–	nF
L_{CE}	top, bottom		–	3	–	nH
$R_{CC'\text{-}EE'}$	resistance, terminal-chip			0,10		mΩ
Inverse diode [2]						
V_F = V_{EC}	I_F= 1800A;	T_j = 125 °C	–	1,8	–	V
V_F= V_{EC}	I_F= 1800A;	T_j = 25 °C	–	–	2,5	V
E_{on} + E_{off} [5]	I_F= 1800A;	T_j = 125 °C	–	72	–	mJ
V_{TO}	T_j = 125 °C		–	1,0	–	V
r_T	T_j = 125 °C		–	0,46	–	mΩ
Thermal characteristics						
R_{thjs}	per IGBT		–	–	0,018	°C/W
R_{thjs}	per diode		–	–	0,031	°C/W
R_{thsa} [3]	L: P16 heat sink; 280 m^3/ h		–	–	0,030	°C/W
	W: WK 40; 8l/min; 50% glycol		–	–	0,008	°C/W
Current sensor						
$I_{p\ RMS}$	T_a=100° C , V_{supply} = ± 15V			4 * 400		A
$I_{pmax\ RMS}$	t ≤ 2 s			4 * 500		A
Linearity	V_{supply} ≥ ±14,25V, 0≤I≤ ± 700A, per sensor			0,1		%
I_{ppeak}	t ≤ 10 µs, per sensor			± 3000		A
Mechanical data						
M1	DC terminals, SI Units		4	–	6	Nm
M2	AC terminals, SI Units		8	–	10	Nm
M3	to heat sink [6]		–	3	–	Nm

SKiiPPACK®

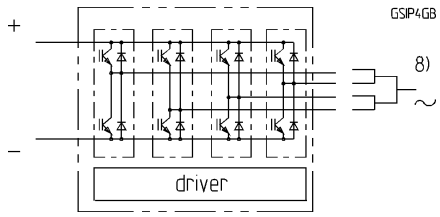
SK integrated intelligent Power PACK

3rd Generation 2-pack

SKiiP 2413GB121-4DL [3]

Target data

housing S43



Features

- SKiiP technology inside
  - pressure contact of ceramic to heat sink; low thermal impedance
  - pressure contact of main electric terminals
  - pressure contact of auxiliary electric terminals
  - increased thermal cycling capability
  - low stray inductance
  - homogenous current distribution
- integrated current sensor
- integrated temperature sensor
- high power density

1) $T_{heatsink}$ = 25 °C, unless otherwise specified
2) CAL = Controlled Axial Lifetime Technology (soft and fast)
3) D integrated gate driver
   U with DC-bus voltage measurement (option for GB)
   L mounted on standard P16 for forced air cooling
   W mounted on standard water cooler
4) T_{term} = temperature of terminal
5) with SKiiPPACK 3rd generation gate driver
6) assembly instruction must be followed
7) measured at chip level
8) external paralleling necessary