

I. Power section 1 * SKiiP703GB121CT 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	700 / 525	A
I _{CM}	IGBT, t _p < 1 ms, T _{heat sink} = 25°C	1400	A
I _F	Diode, T _{heat sink} = 25 / 70 °C	525 / 393,75	A
I _{FM}	Diode, t _p < 1 ms	900	A
I _{FSM}	Diode, T _J = 150 °C, 10ms; sin	4320	A
I ² t (Diode)	Diode, T _J = 150 °C, 10ms	93	kA ² s
T _J , (T _{stg})		-40...+150 (125)	°C
V _{isol}	AC, 1min.	3000	V
I _{C-package} ⁴⁾	T _{heat sink} = 70°C, T _{term} = 115 °C	1 * 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	—	1,2	—	mA
	V _{CE} = V _{CES}	T _j = 125 °C	—	36	—	mA
V _{CEO} ⁷⁾	T _j = 125 °C		—	0,9	—	V
r _T ⁷⁾	T _j = 125 °C		—	2,71	—	mΩ
V _{CESat} ⁷⁾	I _C = 490A,	T _j = 125 °C	—	2,3	—	V
V _{CESat} ⁷⁾	I _C = 490A,	T _j = 25 °C	—	—	2	V
E _{on} + E _{off} ⁵⁾	I _C =490A,	V _{CC} =600V	—	172	—	mJ
	T _j = 125 °C	V _{CC} =900V	—	279	—	mJ
C	per SKiiP, AC side		—	1	—	nF
L _{CE}	top, bottom		—	10	—	nH
R _{CC'-EE'}	resistance, terminal-chip			0,40		mΩ
Inverse diode ²⁾						
V _F = V _{EC}	I _F = 450A;	T _j = 125 °C	—	1,8	—	V
V _F = V _{EC}	I _F = 450A;	T _j = 25 °C	—	—	2,5	V
E _{on} + E _{off} ⁵⁾	I _F = 450A;	T _j = 125 °C	—	18	—	mJ
V _{TO}	T _j = 125 °C		—	1,0	—	V
r _T	T _j = 125 °C		—	1,83	—	mΩ
Thermal characteristics						
R _{thjs}	per IGBT		—	—	0,047	°C/W
R _{thjs}	per diode		—	—	0,092	°C/W
R _{thsa} ³⁾	L: P16 heat sink; 280 m ³ / h		—	—	0,033	°C/W
	W: WK 40; 8l/min; 50% glycol		—	—	0,010	°C/W
Current sensor						
I _{p RMS}	T _a =100° C , V _{supply} = ± 15V			1 * 400		A
I _{pmax RMS}	t ≤ 2 s			1 * 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

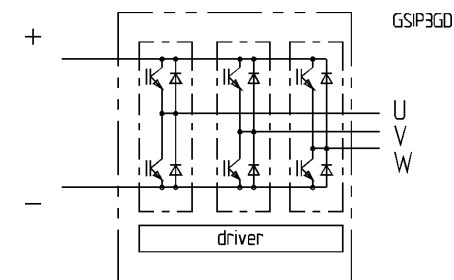
3rd Generation

6-pack

SKiiP 703GD121-3DUW ³⁾

Target data

housing S33



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⁾ $T_{heatsink} = 25\ ^\circ C$, 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

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