

SKiiP 1613GB171-4DL

I. Power section 4 * SKiiP413GB171CT per phase

Absolute maximum ratings		Values	Units
Symbol	Conditions ¹⁾		
IGBT			
V _{CES}	Operating DC link voltage	1700	V
V _{CC}		1200	V
V _{GES}		± 20	V
I _C		T _{heat sink} = 25 (70) °C	1600 (1200)
Inverse diode			
I _F	T _{heat sink} = 25 (70) °C	1600 (1200)	A
I _{FSM}	T _j = 150 °C, t _p = 10ms; sin	17280	A
I _t ² (Diode)	Diode, T _j = 150 °C, 10ms	1493	kA ² s
T _j , (T _{stg})		-40...+150 (125)	°C
V _{isol}	AC, 1min.	4000	V
I _C -package	T _{heat sink} = 70°C, T _{term} ³⁾ = 115°C	4 * 500	A

Characteristics					
Symbol	Conditions ¹⁾	min.	typ.	max.	Units
IGBT					
V _{CEsat} ⁵⁾	I _C = 1200A, T _j = 25 (125)°C	-	2,7 (3,1)	3,2	V
V _{CEO}	V _{GE} = 15V; T _j = 25 (125) °C	-	1,5 (1,6)	1,7 (1,8)	V
r _{CE}	V _{GE} = 15V; T _j = 25 (125) °C	-	1,1 (1,4)	1,3 (1,7)	mΩ
E _{on} + E _{off} ⁴⁾	I _C =1200A V _{CC} =900V	-	1200	-	mJ
	T _j =125°C V _{CC} =1200V	-	1769	-	mJ
I _{CES}	V _{GE} =0, V _{CE} =V _{CES} , T _j =25(125) °C	-	4,8 (288)	-	mA
L _{CE}	top, bottom	-	3	-	nH
R _{CC-EE}	resistance, terminal-chip	-	0,10	-	mΩ
Inverse diode					
V _F ³⁾ = V _{EC}	I _F = 1200A; T _j = 25(125) °C	-	2,0 (1,8)	2,3	V
V _{TO}	T _j = 25 (125) °C	-	1,5 (1,2)	1,7 (1,4)	V
r _T	T _j = 25 (125) °C	-	0,5 (0,6)	0,6 (0,7)	mΩ
E _{RR} ⁴⁾	I _C =1200A V _{CC} =900V	-	144	-	mJ
	T _j =125°C V _{CC} =1200V	-	211	-	mJ
Thermal characteristics					
R _{thjs}	per IGBT	-	-	0,016	°C/W
R _{thjs}	per diode	-	-	0,031	°C/W
R _{thsa} ²⁾	L: P16 heat sink; 280 m3/ h	-	-	0,030	°C/W
Current sensor					
I _p RMS	T _a =100° C, V _{supply} = ± 15V		4 * 400		A
I _{pmax} RMS	t ≤ 2 s, T _a =100° C		4 * 500		A
Mechanical data					
M1	DC terminals, SI Units	4	-	6	Nm
M2	AC terminals, SI Units	8	-	10	Nm

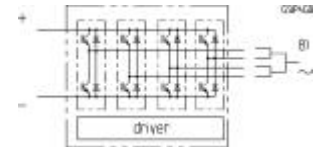
SKiiP^a 3

SK integrated intelligent Power PACK 2-pack

SKiiP 1613GB171-4DL²⁾

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
- CAL diode technology
- integrated current sensor
- integrated temperature sensor
- high power density

- 1) T_{heatsink} = 25 °C, unless otherwise specified
- 2) D integrated gate driver
U with DC-bus voltage measurement (option for GB)
L mounted on standard heat sink for forced air cooling
W mounted on standard liquid cooled heat sink
- 3) T_{term} = temperature of terminal with SKiiP 3 gate driver
- 4) Measured at chip level
- 5) external paralleling necessary

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