

SKiiP 2013GB122-4DL

I. Power section 4 * SKiiP513GB122CT per phase

Absolute maximum ratings		Values	Units
Symbol	Conditions		
IGBT			
V_{CES}	Operating DC link voltage	1200	V
$V_{CC}^{1)}$		900	V
V_{GES}		± 20	V
I_C	$T_{heat\ sink} = 25\ (70)\ ^\circ C$	2000 (1500)	A
Inverse diode			
I_F	$T_{heat\ sink} = 25\ (70)\ ^\circ C$	2000 (1500)	A
I_{FSM}	$T_j = 150\ ^\circ C, t_p = 10ms; \sin$	17280	A
$I^2t\ (Diode)$	Diode, $T_j = 150\ ^\circ C, 10ms$	1493	kA^2s
$T_j, (T_{stg})$		-40...+150 (125)	$^\circ C$
V_{isol}	AC, 1min.	3000	V
$I_{C-package}$	$T_{heat\ sink} = 70^\circ C, T_{term}^{3)} = 115^\circ C$	4 * 500	A

Characteristics

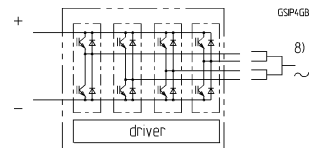
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{CESat}^{5)}$	$I_C = 1200A, T_j = 25\ (125)^\circ C$	-	2,0 (2,2)	2,3	V
V_{CEO}	$V_{GE} = 15V; T_j = 25\ (125)^\circ C$	-	1,2 (1,1)	1,3 (1,2)	V
r_{CE}	$V_{GE} = 15V; T_j = 25\ (125)^\circ C$	-	0,8 (1,1)	1,0 (1,3)	$m\Omega$
$E_{on} + E_{off}^{4)}$	$I_C = 1200A, V_{CC} = 600V$ $T_j = 125^\circ C, V_{CC} = 900V$	-	360	-	mJ
I_{CES}	$V_{GE} = 0, V_{CE} = V_{CES}, T_j = 25\ (125)^\circ C$	-	640	-	mJ
L_{CE}	top, bottom	-	3	-	nH
$R_{CC-EE}^{6)}$	terminal-chip, $T_j = 25\ ^\circ C$	-	0,10	-	$m\Omega$
Inverse diode					
$V_F^{5)} = V_{EC}$	$I_F = 1200A; T_j = 25\ (125)^\circ C$	-	1,9 (1,5)	2,2	V
V_{TO}	$T_j = 25\ (125)^\circ C$	-	1,2 (0,9)	1,4 (1,0)	V
r_T	$T_j = 25\ (125)^\circ C$	-	0,7 (0,7)	0,7 (0,8)	$m\Omega$
$E_{RR}^{4)}$	$I_C = 1200A, V_{CC} = 600V$ $T_j = 125^\circ C, V_{CC} = 900V$	-	96	-	mJ
Thermal characteristics					
R_{thjs}	per IGBT	-	-	0,016	$^\circ C/W$
R_{thjs}	per diode	-	-	0,031	$^\circ C/W$
$R_{thsa}^{2)}$	L: P16w heat sink; 280 m3/ h	-	-	0,026	$^\circ C/W$
Current sensor					
$I_{p\ RMS}$	$T_a = 100^\circ C, V_{supply} = \pm 15V$		4 * 400		A
$I_{pmax\ RMS}$	$t \leq 2\ s, T_a = 100^\circ C$		4 * 500		A
Mechanical data					
M1	DC terminals, SI Units	4	-	6	Nm
M2	AC terminals, SI Units	8	-	10	Nm

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SK integrated intelligent Power PACK 2-pack SKiiP 2013GB122-4DL²⁾

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
- low loss IGBTs
- CAL diode technology
- integrated current sensor
- integrated temperature sensor
- high power density

- 1) assembly of suitable MKP capacitor per terminal is mandatory (SEMIKRON type 41046230 is recommended)
- 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
- 4) with SKiiP 3 gate driver
- 5) measured at chip level

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