## Absolute Maximum Ratings

| Symbol | Conditions [1] | Values | Units |
|---|---|---|---|
| $V_{CES}$ | | 1200 | V |
| $V_{GES}$ | | ± 20 | V |
| $I_C$ | $T_{heatsink}$ = 25 / 80°C | 120 / 90 | A |
| $I_{CM}$ | $t_p$ < 1 ms; $T_{heatsink}$ = 25/80°C | 240 / 180 | A |
| $T_j$ | | – 55 . . .+ 150 | °C |
| $T_{stg}$ | | – 55 . . .+ 125 | °C |
| $V_{isol}$ | AC, 1 min. | 2600 | V |
| Inverse Diode | | | |
| $I_F$=–$I_C$ | $T_{heatsink}$ = 25 / 80°C | 100 / 75 | A |
| $I_{FM}$=–$I_{CM}$ | $t_p$ < 1 ms; $T_{heatsink}$ = 25/80°C | 240 / 180 | A |
| $I_{FSM}$ | $t_p$ = 10 ms; sin., $T_j$ = 25 °C | 720 | A |
| $I^2t$ | $t_p$ = 10 ms; sin., $T_j$ = 25 °C | 2600 | $A^2s$ |

## Characteristics

| Symbol | Conditions [1] | min. | typ. | max. | Units |
|---|---|---|---|---|---|
| IGBT - Inverter | | | | | |
| $V_{CEsat}$ | $I_C$ = 90 A { $T_j$ = 25 (125) °C } | – | 2,5(3,1) | 3,0(3,7) | V |
| $V_{CEsat}$ | $I_C$ = 120 A { $T_j$ = 25 (125) °C } | – | 2,9(3,7) | – | V |
| $t_{d(on)}$ | { $V_{CC}$ = 600 V; $V_{GE}$ = 15 V | – | 44 | 100 | ns |
| $t_r$ | $I_C$ = 90A;$T_j$ = 125 °C | – | 70 | 140 | ns |
| $t_{d(off)}$ | $R_{gon}$ = $R_{goff}$ =15 Ω | – | 450 | 600 | ns |
| $t_f$ | inductive load | – | 70 | 100 | ns |
| $E_{on}$ + $E_{off}$ | } | – | 18 | – | mJ |
| Cies | $V_{CE}$ = 25 V; $V_{GE}$ = 0 V, 1MHz | – | 6,6 | – | nF |
| $R_{thjh}$ | per IGBT | – | – | 0,25 | K/W |
| Diode [2] - Inverter | | | | | |
| $V_F$ = $V_{EC}$ | $I_F$ = 70 A { $T_j$ = 25 (125) °C } | – | 2,0(1,8) | 2,5(2,3) | V |
| | $I_F$ = 90 A { $T_j$ = 25 (125) °C } | – | 2,2(2,0) | – | V |
| $V_{TO}$ | $T_j$ = 125 °C | – | 1,0 | 1,2 | V |
| $r_T$ | $T_j$ = 125 °C | – | 11 | 15 | mΩ |
| $I_{RRM}$ | { $I_F$ = 75 A, $V_R$ = - 600 V | – | 40 | – | A |
| $Q_{rr}$ | $di_F/dt$ = - 800 A/µs | – | 9,5 | – | µC |
| $E_{off}$ | $V_{GE}$ = 0 V, $T_j$ = 125 °C | – | 3 | – | mJ |
| $R_{thjh}$ | per diode | – | – | 0,8 | K/W |
| Current sensor for three phase output ac current | | | | | |
| $I_{p\ RMS}$ | Continuous current , | | | | |
| | T = 100 °C, $V_{suppl}$ = ± 15V | – | 50 | – | A |
| $I_{pmax\ RMS}$ | t ≤ 2 s | – | – | 80 | A |
| $I_{p\ peak}$ | t ≤ 10 µs | – | 1000 | – | A |
| $R_{out}$ | terminating resistance | – | 50 | – | Ω |
| $I_{s\ RMS}$ | rated sensor current | | | | |
| | at $I_p$ = 50 $A_{RMS}$ | | 25 | | mA |
| $I_p$ : $I_s$ | transfer ratio | | 1 : 2000 | | |
| Offset $_{error}$ | $I_p$ = 0 A, T = -40 ... 100 °C | – | ± 0,2 | – | mA |
| Linearity | | – | 0,1 | – | % |
| delay time | $I_p$ = 10 % - 80 % | – | < 1 | – | µs |
| | 90 % - 20 % | – | < 1 | – | µs |
| Bandwith | | | 0 - 100 | (-3dB) | kHz |
| Temperature Sensor | | | | | |
| $R_{TS}$ | T = 25/100 °C | | 1000 / 1670 | | Ω |
| Mechanical Data | | | | | |
| M1 | case to heatsink, SI Units | 3 | – | 4 | Nm |
| Case | | | M8 | | |

**MiniSKiiP 8**
**SK integrated intelligent Power**

**SKiiP 83 AC 12**
**SKiiP 83 AC 12 I** [3]

**IGBT**
**3-phase bridge inverter**

Preliminary Data

Case M8

**Features**

- High level power integration
- Two-screws-mounting to the customer heatsink, compact design
- Low thermal impedance due to durable ceramic insulation
- Pressure contact technology with simple connection to DCB through pressure contact (no soldering) and with increased power cycling capability
- Low stray inductance
- High power density, low losses
- Integrated temperature sensor
- Three integrated compensated current sensors for the ac current (SKiiP 83 AC 12 I)
- Mechanical drawing available on disc for Auto CAD 12 (.DWG, .DXF)

1) $T_{heatsink}$ = 25 °C, unless otherwise specified
2) CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
3) With integrated current sensors Available November 1996.

 