POWERSEM

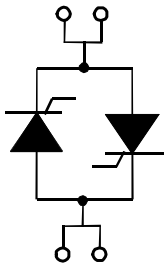
**Subassembly**

# Single Phase AC Controller Subassemblies

**PSW1C112** $I_{RMS}$ = 112 A
$V_{RRM}$ = 800-1400 V

Preliminary Data Sheet

| $V_{RSM}$ $V_{DSM}$ (V) | $V_{RRM}$ $V_{DRM}$ (V) | Type |
|---|---|---|
| 900 | 800 | PSW1C 112/08 |
| 1300 | 1200 | PSW1C 112/12 |
| 1500 | 1400 | PSW1C 112/14 |



| Symbol | Test Conditions | | Maximum Ratings | |
|---|---|---|---|---|
| $I_{RMS}$ | $T_C$ = 85 °C; 50-400 Hz (per single controller) | | 112 | A |
| $I_{TRMS}$ | | | 81 | A |
| $I_{TAVM}$ | $T_C$ = 85 °C; | 180° sine | 51 | A |
| $I_{TSM}$ | $T_{VJ}$ = 45 °C | t = 10 ms (50 Hz), sine | 1000 | A |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 1070 | A |
| | $T_{VJ}$ = 125 °C | t = 10 ms (50 Hz), sine | 870 | A |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 930 | A |
| $\int i^2 dt$ | $T_{VJ}$ = 45 °C | t = 10 ms (50 Hz), sine | 5000 | A²s |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 4750 | A²s |
| | $T_{VJ}$ = 125 °C | t = 10 ms (50 Hz), sine | 3780 | A²s |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 3590 | A²s |
| $(di/dt)_{cr}$ | $T_{VJ}$ = 125 °C | repetitive, $I_T$ = 50 A | 100 | A/µs |
| | f=50Hz, $t_P$=200µs | | | |
| | $V_D$=2/3$V_{DRM}$ | | | |
| | $I_G$=0.45 A | non repetitive, $I_T$ = $I_{TAVM}$ | 500 | A/µs |
| | $di_G/dt$=0.45A/µs | | | |
| $(dv/dt)_{cr}$ | $T_{VJ}$ = 125 °C | $V_D$=2/3$V_{DRM}$ | 1000 | V/µs |
| | $R_{GK}$= ∞, method 1 (linear voltage rise) | | | |
| $P_{GM}$ | $T_{VJ}$ = 125 °C | $t_P$=30µs | ≤ 10 | W |
| | $I_T$ =$I_{TAVM}$ | $t_P$=300µs | ≤ 5 | W |
| $P_{GAVM}$ | | | 0.5 | W |
| $V_{RGM}$ | | | 10 | V |
| $T_{VJ}$ | | | -40... + 150 | °C |
| $T_{VJM}$ | | | 150 | °C |
| $T_{stg}$ | | | -40... + 125 | °C |
| Weight | typ. | | 8 | g |

### Features

- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

### Applications

- Solid state relays

### Advantages

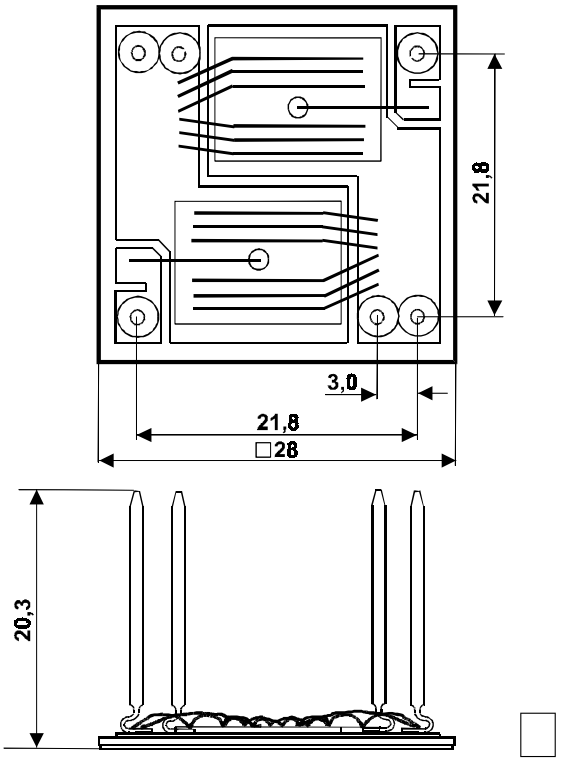
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

Data according to IEC 60747 refer to a single thyristor unless otherwise stated

POWERSEM GmbH, Walpersdorfer Str. 53
D - 91126 Schwabach
Phone: 09122 - 9764 - 0 FAX: 09122 - 9764 - 20

| Symbol | Test Conditions | | Characteristic Value | | |
|---|---|---|---|---|---|
| $I_D, I_R$ | $T_{VJ}$ = 125°C, | $V_R = V_{RRM}$, $V_D = V_{DRM}$ | ≤ | 5 | mA |
| $V_T$ | $I_T$ = 150 A, | $T_{VJ}$ = 25 °C | ≤ | 1.57 | V |
| $V_{TO}$ | For power-loss calculations only | | | 0.85 | V |
| $r_T$ | | | | 5.6 | mΩ |
| $V_{GT}$ | $V_D$=6V | $T_{VJ}$= 25°C | ≤ | 1.5 | V |
| | | $T_{VJ}$=-40°C | ≤ | 1.9 | V |
| $I_{GT}$ | $V_D$=6V | $T_{VJ}$= 25°C | ≤ | 100 | mA |
| | | $T_{VJ}$=-40°C | ≤ | 200 | mA |
| $V_{GD}$ | $T_{VJ}$= 125°C | $V_D = 2/3V_{DRM}$ | ≤ | 0.2 | V |
| $I_{GD}$ | $T_{VJ}$= 125°C | $V_D = 2/3V_{DRM}$ | ≤ | 1 | mA |
| $I_L$ | $T_{VJ}$= 25°C, $t_P$=10µs | | ≤ | 200 | mA |
| | $I_G$=0.45A, $di_G/dt$=0.45A/µs | | | | |
| $I_H$ | $T_{VJ}$= 25°C, $V_D$=6V, $R_{GK}$= ∞ | | ≤ | 100 | mA |
| $t_{gd}$ | $T_{VJ}$= 25°C, $V_D = 1/2V_{DRM}$ | | ≤ | 2 | µs |
| | $I_G$=0.45A, $di_G/dt$=0.45A/µs | | | | |
| $R_{thJC}$ | per thyristor; DC | | | 0.8 | K/W |
| | per module | | | 0.4 | K/W |
| a | Max. allowable acceleration | | | 50 | m/s² |

**Package style and outline**
Dimensions in mm (1mm = 0.0394")

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