

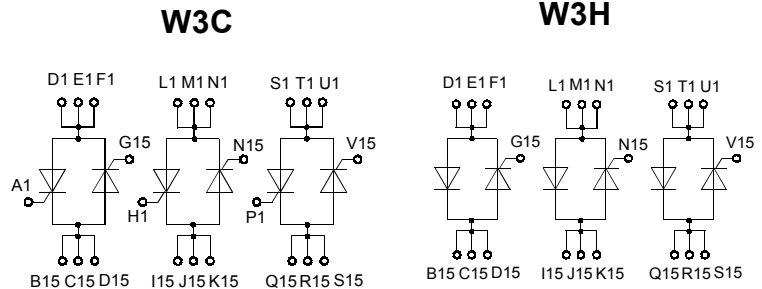
Three Phase AC Controller Modules

PSUT 90
PSUH 90

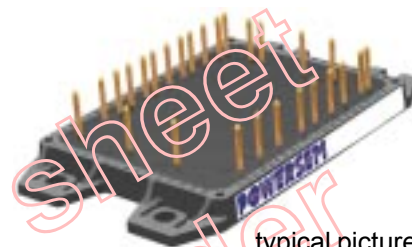
$I_{RMS} = 3 \times 90 \text{ A}$
 $V_{RRM} = 800-1800 \text{ V}$

Preliminary Data Sheet

| V_{RSM} V_{DSM} (V) | V_{RRM} V_{DRM} (V) | Type |
|-------------------------------|-------------------------------|-----------------------|
| 900 | 800 | PSUT 90/08 PSUH 90/08 |
| 1300 | 1200 | PSUT 90/12 PSUH 90/12 |
| 1500 | 1400 | PSUT 90/14 PSUH 90/14 |
| 1700 | 1600 | PSUT 90/16 PSUH 90/16 |
| 1900 | 1800 | PSUT 90/18 PSUH 90/18 |



| Symbol | Test Conditions | Maximum Ratings |
|----------------|---|-----------------------|
| I_{RMS} | $T_C = 85 \text{ }^\circ\text{C}$; 50-400 Hz (per phase) | 90 A |
| I_{TRMS} | | 64 A |
| I_{TAVM} | $T_C = 85 \text{ }^\circ\text{C}$; 180° sine, per Thyristor | 40 A |
| I_{TSM} | $T_{VJ} = 45 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine | 1000 A |
| | $V_R = 0$ t = 8.3 ms (60 Hz), sine | 1100 A |
| | $T_{VJ} = 125 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine | 900 A |
| | $V_R = 0$ t = 8.3 ms (60 Hz), sine | 1000 A |
| $\int i^2 dt$ | $T_{VJ} = 45 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine | 5000 A ² s |
| | $V_R = 0$ t = 8.3 ms (60 Hz), sine | 5200 A ² s |
| | $T_{VJ} = 125 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine | 4050 A ² s |
| | $V_R = 0$ t = 8.3 ms (60 Hz), sine | 4150 A ² s |
| $(di/dt)_{cr}$ | $T_{VJ} = 125 \text{ }^\circ\text{C}$ repetitive, $I_T = 60 \text{ A}$ f=50Hz, $t_p=200\mu\text{s}$ | 150 A/ μs |
| | $V_D = 2/3V_{DRM}$ $I_G = 0.45 \text{ A}$ non repetitive, $I_T = I_{TAVM}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | 500 A/ μs |
| $(dv/dt)_{cr}$ | $T_{VJ} = 125 \text{ }^\circ\text{C}$ $V_D = 2/3V_{DRM}$ $R_{GK} = \infty$, method 1 (linear voltage rise) | 1000 V/ μs |
| | | |
| P_{GM} | $T_{VJ} = 125 \text{ }^\circ\text{C}$ $t_p = 30\mu\text{s}$ | $\leq 10 \text{ W}$ |
| | $I_T = I_{TAVM}$ $t_p = 300\mu\text{s}$ | $\leq 5 \text{ W}$ |
| P_{GAVM} | | 0.5 W |
| V_{RGM} | | 10 V |
| T_{VJ} | | -40... + 125 °C |
| T_{VJM} | | 125 °C |
| T_{stg} | | -40... + 125 °C |
| V_{ISOL} | 50/60 Hz, RMS t = 1 min | 2500 V~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ t = 1 s | 3000 V~ |
| M_d | Mounting torque (M5) | 3 Nm |
| | | 26 lb.in. |
| Weight | typ. | 86 g |



typical picture, for pin configuration see outline drawing

Features

- Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- UL Release applied

Applications

- Switching and control of three phase AC circuits
- Light and temperature control
- Softstart AC motor controller
- Solid state switches

Advantages

- Easy to mount with four screws
- Space and weight savings
- Improved temperature and power cycling capability
- High power density
- Small and light weight

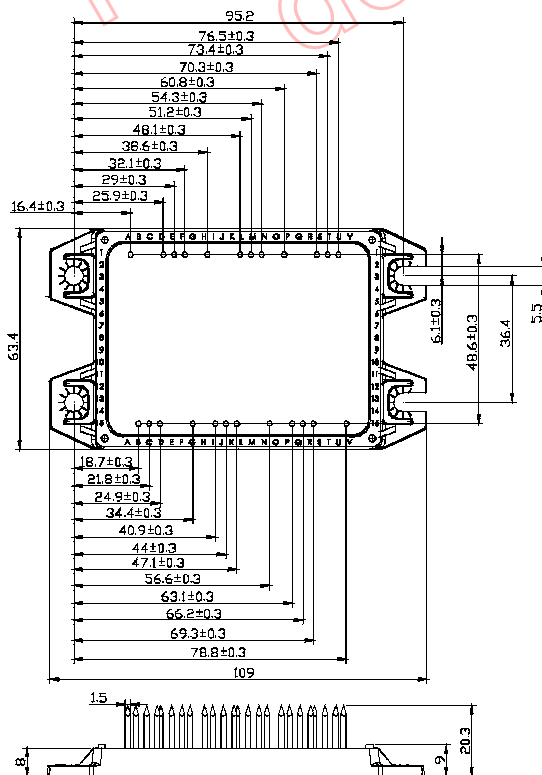
Data according to IEC 60747 refer to a single thyristor unless otherwise stated

| Symbol | Test Conditions | Characteristic Value |
|------------|---|------------------------|
| $I_{D,R}$ | $T_{VJ} = 125^{\circ}\text{C}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$ | ≤ 5 mA |
| V_T | $I_T = 200$ A, $T_{VJ} = 25^{\circ}\text{C}$ | ≤ 1.75 V |
| V_{TO} | For power-loss calculations only | 0.85 V |
| r_T | | 5 m Ω |
| V_{GT} | $V_D = 6\text{V}$, $T_{VJ} = 25^{\circ}\text{C}$ | ≤ 1.5 V |
| | $T_{VJ} = -40^{\circ}\text{C}$ | ≤ 1.6 V |
| I_{GT} | $V_D = 6\text{V}$, $T_{VJ} = 25^{\circ}\text{C}$ | ≤ 100 mA |
| | $T_{VJ} = -40^{\circ}\text{C}$ | ≤ 200 mA |
| V_{GD} | $T_{VJ} = 125^{\circ}\text{C}$, $V_D = 2/3V_{DRM}$ | ≤ 0.2 V |
| I_{GD} | $T_{VJ} = 125^{\circ}\text{C}$, $V_D = 2/3V_{DRM}$ | ≤ 10 mA |
| I_L | $T_{VJ} = 25^{\circ}\text{C}$, $t_p = 10\mu\text{s}$ | ≤ 450 mA |
| | $I_G = 0.45\text{A}$, $di_G/dt = 0.45\text{A}/\mu\text{s}$ | |
| I_H | $T_{VJ} = 25^{\circ}\text{C}$, $V_D = 6\text{V}$, $R_{GK} = \infty$ | ≤ 200 mA |
| t_{gd} | $T_{VJ} = 25^{\circ}\text{C}$, $V_D = 1/2V_{DRM}$ | ≤ 2 μs |
| | $I_G = 0.45\text{A}$, $di_G/dt = 0.45\text{A}/\mu\text{s}$ | |
| R_{thJC} | per thyristor; DC | 0.73 K/W |
| | per module | 0.122 K/W |
| R_{thJK} | per thyristor; sine 180° el | typ. 0.82 K/W |
| | per module | typ. 0.137 K/W |
| d_s | Creeping distance on surface (pin to heatsink) | min. 11.2 mm |
| d_A | Strike distance in air (pin to heatsink) | min. 11.2 mm |
| a | Max. allowable acceleration | 50 m/s ² |

Package style and outline

Dimensions in mm (1mm = 0.0394")

W3C



W3H

