

## Three Phase AC Controller Modules

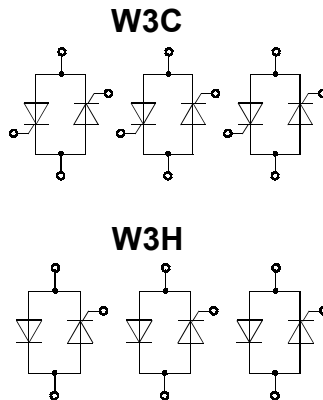
## PSUT 45 PSUH 45

$$I_{RMS} = 3 \times 44 \text{ A}$$

$$V_{RRM} = 800-1600 \text{ V}$$

Preliminary Data Sheet

| $V_{RSM}$<br>$V_{DSM}$<br>(V) | $V_{RRM}$<br>$V_{DRM}$<br>(V) | Type                  |
|-------------------------------|-------------------------------|-----------------------|
| 900                           | 800                           | PSUT 45/08 PSUH 45/08 |
| 1300                          | 1200                          | PSUT 45/12 PSUH 45/12 |
| 1500                          | 1400                          | PSUT 45/14 PSUH 45/14 |
| 1700                          | 1600                          | PSUT 45/16 PSUH 45/16 |



**ECO-PAC™ 3**

| Symbol         | Test Conditions                                                                                         | Maximum Ratings       |
|----------------|---------------------------------------------------------------------------------------------------------|-----------------------|
| $I_{RMS}$      | $T_C = 85^\circ\text{C}$ , 50-400 Hz (per phase)                                                        | 44 A                  |
| $I_{TRMS}$     | $T_{VJ} = T_{VJM}$                                                                                      | 32 A                  |
| $I_{TAVM}$     | $T_C = 85^\circ\text{C}$ ; 180° sine, per thyristor                                                     | 20 A                  |
| $I_{TSM}$      | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine                                           | 320 A                 |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine                                                            | 350 A                 |
|                | $T_{VJ} = 125^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine                                          | 290 A                 |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine                                                            | 320 A                 |
| $\int i^2 dt$  | $T_{VJ} = 45^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine                                           | 510 A <sup>2</sup> s  |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine                                                            | 500 A <sup>2</sup> s  |
|                | $T_{VJ} = 125^\circ\text{C}$ $t = 10 \text{ ms}$ (50 Hz), sine                                          | 420 A <sup>2</sup> s  |
|                | $V_R = 0$ $t = 8.3 \text{ ms}$ (60 Hz), sine                                                            | 420 A <sup>2</sup> s  |
| $(di/dt)_{cr}$ | $T_{VJ} = 125^\circ\text{C}$ repetitive, $I_T = 20 \text{ A}$<br>$f=50\text{Hz}$ , $t_p=200\mu\text{s}$ | 150 A/ $\mu\text{s}$  |
|                | $V_D=2/3V_{DRM}$                                                                                        |                       |
|                | $I_G=0.3 \text{ A}$ non repetitive, $I_T = I_{TAVM}$                                                    | 500 A/ $\mu\text{s}$  |
|                | $di_G/dt=0.3\text{A}/\mu\text{s}$                                                                       |                       |
| $(dv/dt)_{cr}$ | $T_{VJ} = 125^\circ\text{C}$ $V_D=2/3V_{DRM}$                                                           | 1000 V/ $\mu\text{s}$ |
|                | $R_{GK} = \infty$ , method 1 (linear voltage rise)                                                      |                       |
| $P_{GM}$       | $T_{VJ} = 125^\circ\text{C}$ $t_p=30\mu\text{s}$                                                        | $\leq 10 \text{ W}$   |
|                | $I_T = I_{TAVM}$ $t_p=300\mu\text{s}$                                                                   | $\leq 5 \text{ W}$    |
| $P_{GAVM}$     |                                                                                                         | 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 $t = 1 \text{ min}$                                                                       | 2500 V~               |
|                | $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$                                                          | 3000 V~               |
| $M_d$          | Mounting torque (M4)                                                                                    | 1.5 - 2.0 Nm          |
|                |                                                                                                         | 14 - 18 lb.in.        |
| <b>Weight</b>  | typ.                                                                                                    | 46 g                  |

### 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 single and 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

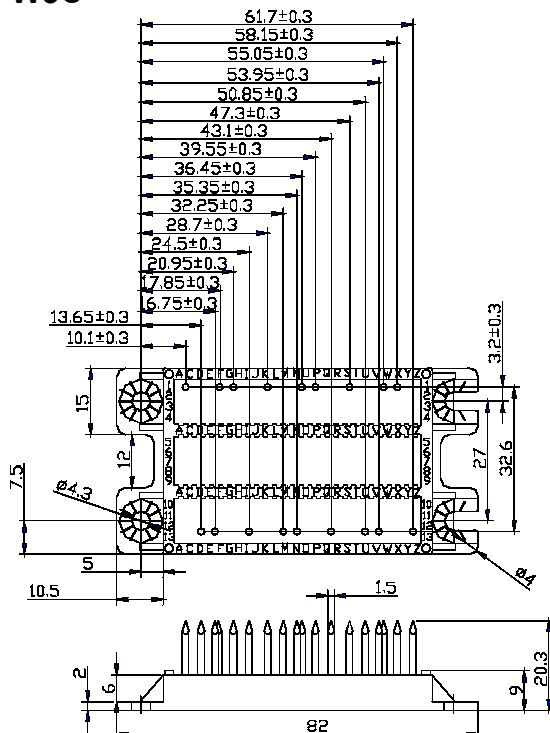
Data according to IEC 60747 refer to a single thyristor unless otherwise stated

| Symbol     | Test Conditions                                                                                        | Characteristic Value  |
|------------|--------------------------------------------------------------------------------------------------------|-----------------------|
| $I_D, I_R$ | $T_{VJ} = 125^\circ\text{C}, V_R = V_{RRM}, V_D = V_{DRM}$                                             | $\leq 5 \text{ mA}$   |
| $V_T$      | $I_T = 45 \text{ A}, T_{VJ} = 25^\circ\text{C}$                                                        | $\leq 1.45 \text{ V}$ |
| $V_{TO}$   | For power-loss calculations only                                                                       | $0.85 \text{ V}$      |
| $r_T$      |                                                                                                        | $13 \text{ m}\Omega$  |
| $V_{GT}$   | $V_D = 6\text{V}, T_{VJ} = 25^\circ\text{C}$                                                           | $\leq 1.0 \text{ V}$  |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                           | $\leq 1.2 \text{ V}$  |
| $I_{GT}$   | $V_D = 6\text{V}, T_{VJ} = 25^\circ\text{C}$                                                           | $\leq 65 \text{ mA}$  |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                           | $\leq 80 \text{ mA}$  |
| $V_{GD}$   | $T_{VJ} = 125^\circ\text{C}, V_D = 2/3 V_{DRM}$                                                        | $\leq 0.2 \text{ V}$  |
| $I_{GD}$   | $T_{VJ} = 125^\circ\text{C}, V_D = 2/3 V_{DRM}$                                                        | $\leq 5 \text{ mA}$   |
| $I_L$      | $T_{VJ} = 25^\circ\text{C}, t_p = 10\mu\text{s}, I_G = 0.3\text{A}, di_G/dt = 0.3\text{A}/\mu\text{s}$ | $\leq 150 \text{ mA}$ |
| $I_H$      | $T_{VJ} = 25^\circ\text{C}, V_D = 6\text{V}, R_{GK} = \infty$                                          | $\leq 100 \text{ mA}$ |
| $t_{gd}$   | $T_{VJ} = 25^\circ\text{C}, V_D = 1/2 V_{DRM}, I_G = 0.3\text{A}, di_G/dt = 0.3\text{A}/\mu\text{s}$   | $\leq 2 \mu\text{s}$  |
| $t_q$      | $T_{VJ} = T_{VJM}, I_T = 20\text{A}; t_p = 200\mu\text{s}; di/dt = -10\text{A}/\mu\text{s}$            | $150 \mu\text{s}$     |
|            | $V_R = 100\text{V}; dv/dt = 15\text{V}/\mu\text{s}; V_D = 2/3 V_{DRM}$                                 |                       |
| $R_{thJC}$ | per thyristor; DC                                                                                      | $1.3 \text{ K/W}$     |
|            | per module                                                                                             | $0.217 \text{ K/W}$   |
| $R_{thJH}$ | per thyristor; DC                                                                                      | $1.5 \text{ K/W}$     |
|            | per module                                                                                             | $0.25 \text{ K/W}$    |
| $d_s$      | Creepage distance on surface (Pin to heatsink)                                                         | $11.2 \text{ mm}$     |
| $d_A$      | Strike distance in air (Pin to heatsink)                                                               | $11.2 \text{ mm}$     |
| $a$        | Max. allowable acceleration                                                                            | $50 \text{ m/s}^2$    |

## Package style and outline

Dimensions in mm (1mm = 0.0394")

### W3C



### W3H

