# Three Phase AC Controller Modules

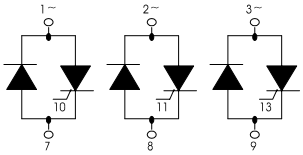
**PSUH 40**

$I_{RMS}$ = 3 x 40A
$V_{RRM}$ = 400-1600 V

Preliminary Data Sheet

| $V_{RSM}$ $V_{DSM}$ | $V_{RRM}$ $V_{DRM}$ | Type |
|---|---|---|
| 500 | 400 | PSUH 40/04 |
| 900 | 800 | PSUH 40/08 |
| 1300 | 1200 | PSUH 40/12 |
| 1500 | 1400 | PSUH 40/14 |
| *1700 | *1600 | PSUH 40/16 |

* Delivery on request





| Symbol | Test Conditions | | | Maximum Ratings | |
|---|---|---|---|---|---|
| $I_{RMS}$ | $T_C$ = 85 °C, 50-400 Hz (per phase) | | | 40 | A |
| $I_{TRMS}$ | $T_{VJ} = T_{VJM}$ | | | 29 | A |
| $I_{TAVM}$ | $T_C$ = 85 °C | 180° sine | | 18 | A |
| $I_{TSM}$ | $T_{VJ}$ = 45°C | t = 10 ms | (50 Hz), sine | 400 | A |
| | $V_R$ = 0 | t = 8.3 ms | (60 Hz), sine | 450 | A |
| | $T_{VJ} = T_{VJM}$ | t = 10 ms | (50 Hz), sine | 360 | A |
| | $V_R$ = 0 | t = 8.3 ms | (60 Hz), sine | 390 | A |
| $\int i^2 dt$ | $T_{VJ}$ = 45°C | t = 10 ms | (50 Hz), sine | 800 | $A^2$ s |
| | $V_R$ = 0 | t = 8.3 ms | (60 Hz), sine | 850 | $A^2$ s |
| | $T_{VJ} = T_{VJM}$ | t = 10 ms | (50 Hz), sine | 650 | $A^2$ s |
| | $V_R$ = 0 | t = 8.3 ms | (60 Hz), sine | 640 | $A^2$ s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{JVM}$ | repetitive, $I_T$ = 150 A | | 100 | A/µs |
| | f = 50Hz, $t_P$ = 200µs | | | | |
| | $V_D$ = 2/3 $V_{DRM}$ | | | | |
| | $I_G$ = 0.3 A | non repetitive, $I_T = I_{TAVM}$ | | 500 | A/µs |
| | $di_G/dt$ = 0.3 A/µs | | | | |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ | $V_{DR}$ = 2/3 $V_{DRM}$ | | 1000 | V/µs |
| | $R_{GK}$ = ∞, method 1 (linear voltage rise) | | | | |
| $P_{GM}$ | $T_{VJ} = T_{VJM}$ | $t_P$ = 30µs | | 10 | W |
| | $I_T = I_{TAVM}$ | $t_P$ = 300µs | | 5 | W |
| $P_{GAVM}$ | | | | 0.5 | W |
| $V_{RGM}$ | | | | 10 | V |
| $T_{VJ}$ | | | | -40 ... + 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 mA | t = 1 s | | 3000 | V ~ |
| $M_d$ | Mounting torque | | (M5) | 5 | Nm |
| | Terminal connection torque | | (M3) | 1.5 | Nm |
| | | | (M5) | 5 | Nm |
| **Weight** | typ. | | | 220 | g |

### Features

- Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Package with metal base plate
- UL registered E 148688

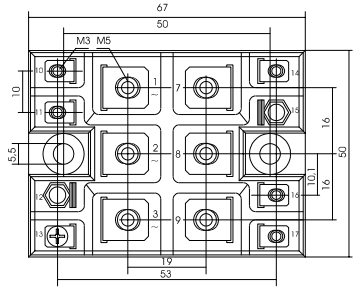
### Applications

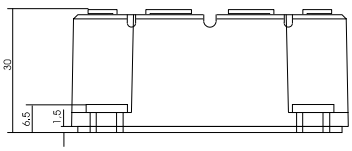
- Switching and control of three phase AC circuits
- Light and temperature control
- Softstart AC motor controller
- Solid state switches

### Advantages

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

**Package, stil and outline**
Dimensions in mm (1mm = 0.0394“)




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

| Symbol | Test Conditions | | Characteristic Value | | |
|---|---|---|---|---|---|
| $I_D$, $I_R$ | $T_{VJ} = T_{VJM}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$ | | ≤ | 5 | mA |
| $V_T$ | $I_T$ = 80A, $T_{VJ}$ = 25°C | | ≤ | 1.65 | V |
| $V_{TO}$ | For power-loss calculations only ($T_{VJ} = T_{VJM}$) | | | 0.85 | V |
| $r_T$ | | | | 15 | mΩ |
| $V_{GT}$ | $V_D$ = 6V | $T_{VJ}$ = 25°C | ≤ | 1.0 | V |
| | | $T_{VJ}$ = -40°C | ≤ | 1.6 | V |
| $I_{GT}$ | $V_D$ = 6V | $T_{VJ}$ = 25°C | ≤ | 100 | mA |
| | | $T_{VJ}$ = -40°C | ≤ | 150 | mA |
| $V_{GD}$ | $T_{VJ} = T_{VJM}$ | $V_D$ = 2/3 $V_{DRM}$ | ≤ | 0.2 | V |
| $I_{GD}$ | $T_{VJ} = T_{VJM}$ | $V_D$ = 2/3 $V_{DRM}$ | ≤ | 5 | mA |
| $I_L$ | $T_{VJ}$ = 25°C, $t_P$ = 10µs | | ≤ | 200 | mA |
| | $I_G$ = 0.3A, $di_G/dt$ = 0.3A/µs | | | | |
| $I_H$ | $T_{VJ}$ = 25°C, $V_D$ = 6V, $R_{GK}$ = ∞ | | ≤ | 150 | mA |
| $t_{gd}$ | $T_{VJ}$ = 25°C, $V_D$ = ½ $V_{DRM}$ | | ≤ | 2 | µs |
| | $I_G$ = 0.3A, $di_G/dt$ = 0.3A/µs | | | | |
| $t_q$ | $T_{VJ} = T_{VJM}$, $I_T$ = 20A, $t_P$ = 200µs, $V_R$ = 100V | | | 150 | µs |
| | -di/dt = 10A/µs, dv/dt = 15V/µs, $V_D$ = 2/3 $V_{DRM}$ | | | | |
| $R_{thJC}$ | per thyristor; sine 180°el | | | 1.43 | K/W |
| | per module | | | 0.238 | K/W |
| $R_{thJK}$ | per thyristor; sine 180° el | | | 1.53 | K/W |
| | per module | | | 0.255 | K/W |
| $d_S$ | Creeping distance on surface | | | 8.0 | mm |
| $d_A$ | Creeping distance in air | | | 4.5 | mm |
| a | Max. allowable acceleration | | | 50 | $m/s^2$ |

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