

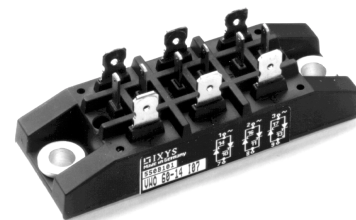
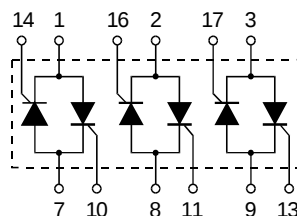
# Three Phase AC Controller Modules

$$I_{RMS} = 3 \times 39 \text{ A}$$

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

Preliminary data

| $V_{RSM}$<br>$V_{DSM}$<br>$V$ | $V_{RRM}$<br>$V_{DRM}$<br>$V$ | Type         |
|-------------------------------|-------------------------------|--------------|
| 800                           | 800                           | VWO 36-08io7 |
| 1200                          | 1200                          | VWO 36-12io7 |
| 1400                          | 1400                          | VWO 36-14io7 |
| 1600                          | 1600                          | VWO 36-16io7 |



| Symbol         | Test Conditions                                                                                  | Maximum Ratings       |
|----------------|--------------------------------------------------------------------------------------------------|-----------------------|
| $I_{RMS}$      | $T_K = 85^\circ\text{C}$ , 50 - 400 Hz (per phase)                                               | 39 A                  |
| $I_{TRMS}$     | $T_{VJ} = T_{VJM}$                                                                               | 28 A                  |
| $I_{TAVM}$     | $T_K = 85^\circ\text{C}$ ; (180° sine)                                                           | 18 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                 |
|                | $T_{VJ} = T_{VJM}$ ; $t = 10 \text{ ms}$ (50 Hz), sine                                           | 280 A                 |
|                | $V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz), sine                                                   | 310 A                 |
| $I^2t$         | $T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz), sine                                  | 500 A <sup>2</sup> s  |
|                | $V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz), sine                                                   | 520 A <sup>2</sup> s  |
|                | $T_{VJ} = T_{VJM}$ ; $t = 10 \text{ ms}$ (50 Hz), sine                                           | 390 A <sup>2</sup> s  |
|                | $V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz), sine                                                   | 400 A <sup>2</sup> s  |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ ; $f = 50 \text{ Hz}$ , $t_p = 200 \mu\text{s}$                               | 150 A/ $\mu\text{s}$  |
|                | $V_D = 2/3 V_{DRM}$ ; $I_G = 0.3 \text{ A}$ ; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$              | 500 A/ $\mu\text{s}$  |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ ; $V_{DR} = 2/3 V_{DRM}$ ; $R_{GK} = \infty$ ; method 1 (linear voltage rise) | 1000 V/ $\mu\text{s}$ |
| $P_{GM}$       | $T_{VJ} = T_{VJM}$ ; $t_p = 30 \mu\text{s}$                                                      | 10 W                  |
|                | $I_T = I_{TAVM}$ ; $t_p = 300 \mu\text{s}$                                                       | 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; $t = 1 \text{ min}$                                                               | 2500 V~               |
|                | $I_{ISOL} \leq 1 \text{ mA}$ ; $t = 1 \text{ s}$                                                 | 3000 V~               |
| $M_d$          | Mounting torque (M5)                                                                             | 5 ± 15 % Nm           |
|                | (10-32 UNF)                                                                                      | 44 ± 15 % lb.in.      |
| Weight         | typ.                                                                                             | 110 g                 |

## Features

- Thyristor controller for AC (circuit W3C acc. to IEC) for mains frequency
- Package with metal base plate
- Isolation voltage 3000 V~
- Planar passivated chips
- UL applied
- ¼" fast-on power terminals

## Applications

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

## Advantages

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

Data according to IEC 60747 refer to a single thyristor/diode unless otherwise stated.  
IXYS reserves the right to change limits, test conditions and dimensions

| Symbol     | Test Conditions                                                                                                             | Characteristic Values |
|------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|
| $I_D, I_R$ | $T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$                                                                            | $\leq 5$ mA           |
| $V_T$      | $I_T = 45$ A; $T_{VJ} = 25^\circ\text{C}$                                                                                   | $\leq 1.45$ V         |
| $V_{T0}$   | For power-loss calculations only                                                                                            | 0.85 V                |
| $r_T$      |                                                                                                                             | 13 mΩ                 |
| $V_{GT}$   | $V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$                                                                                    | $\leq 1.0$ V          |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                                                | $\leq 1.2$ V          |
| $I_{GT}$   | $V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$                                                                                    | $\leq 65$ mA          |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                                                | $\leq 80$ mA          |
| $V_{GD}$   | $T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$                                                                                       | $\leq 0.2$ V          |
| $I_{GD}$   |                                                                                                                             | $\leq 5$ mA           |
| $I_L$      | $T_{VJ} = 25^\circ\text{C}; t_p = 10$ μs<br>$I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs                                             | $\leq 150$ mA         |
| $I_H$      | $T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$                                                                   | $\leq 100$ mA         |
| $t_{gd}$   | $T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$<br>$I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs                                       | $\leq 2$ μs           |
| $t_q$      | $T_{VJ} = T_{VJM}; I_T = 20$ A, $t_p = 200$ μs; $di/dt = -10$ A/μs<br>$V_R = 100$ V; $dv/dt = 15$ V/μs; $V_D = 2/3 V_{DRM}$ | typ. 150 μs           |
| $R_{thJC}$ | per thyristor; sine 180°el                                                                                                  | 1.3 K/W               |
|            | per module                                                                                                                  | 0.216 K/W             |
| $R_{thJK}$ | per thyristor; sine 180°el                                                                                                  | 1.5 K/W               |
|            | per module                                                                                                                  | 0.25 K/W              |
| $d_s$      | Creeping distance on surface                                                                                                | 16.1 mm               |
| $d_A$      | Creepage distance in air                                                                                                    | 6.0 mm                |
| $a$        | Max. allowable acceleration                                                                                                 | 50 m/s <sup>2</sup>   |

Dimensions in mm (1 mm = 0.0394")

