

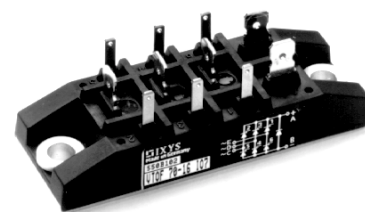
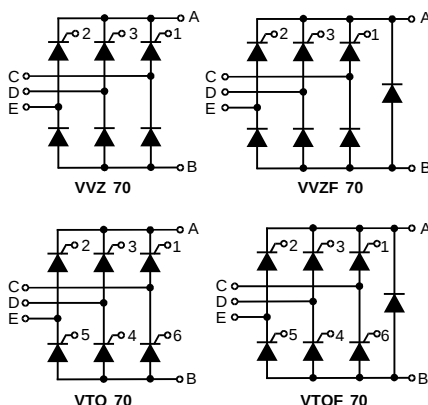
# Three Phase Rectifier Bridge

$$I_{dAV} = 70 \text{ A}$$

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

Preliminary data

| $V_{RSM}$<br>$V_{DSM}$<br>V | $V_{RRM}$<br>$V_{DRM}$<br>V | Type         |
|-----------------------------|-----------------------------|--------------|
| 800                         | 800                         | xxx 70-08io7 |
| 1200                        | 1200                        | xxx 70-12io7 |
| 1400                        | 1400                        | xxx 70-14io7 |
| 1600                        | 1600                        | xxx 70-16io7 |
|                             |                             | xxx = type   |



| Symbol                  | Test Conditions                                                                                                                                                        | Maximum Ratings                           |                       |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------|
| $I_{dAV}$ ①             | $T_C = 85^\circ\text{C}$ , module                                                                                                                                      | 70                                        | A                     |
| $I_{dAVM}$ ①            | module                                                                                                                                                                 | 70                                        | A                     |
| $I_{FRMS}$ , $I_{TRMS}$ | per leg                                                                                                                                                                | 36                                        | A                     |
| $I_{FSM}$ , $I_{TSM}$   | $T_{VJ} = 45^\circ\text{C}$ ;<br>$V_R = 0 \text{ V}$                                                                                                                   | $t = 10 \text{ ms}$ (50 Hz), sine         | 550 A                 |
|                         |                                                                                                                                                                        | $t = 8.3 \text{ ms}$ (60 Hz), sine        | 600 A                 |
|                         | $T_{VJ} = T_{VJM}$                                                                                                                                                     | $t = 10 \text{ ms}$ (50 Hz), sine         | 500 A                 |
|                         | $V_R = 0 \text{ V}$                                                                                                                                                    | $t = 8.3 \text{ ms}$ (60 Hz), sine        | 550 A                 |
| $I^2t$                  | $T_{VJ} = 45^\circ\text{C}$                                                                                                                                            | $t = 10 \text{ ms}$ (50 Hz), sine         | 1520 A <sup>2</sup> s |
|                         | $V_R = 0 \text{ V}$                                                                                                                                                    | $t = 8.3 \text{ ms}$ (60 Hz), sine        | 1520 A <sup>2</sup> s |
|                         | $T_{VJ} = T_{VJM}$                                                                                                                                                     | $t = 10 \text{ ms}$ (50 Hz), sine         | 1250 A <sup>2</sup> s |
|                         | $V_R = 0 \text{ V}$                                                                                                                                                    | $t = 8.3 \text{ ms}$ (60 Hz), sine        | 1250 A <sup>2</sup> s |
| $(di/dt)_{cr}$          | $T_{VJ} = 125^\circ\text{C}$<br>$f = 50 \text{ Hz}$ , $t_p = 200 \mu\text{s}$<br>$V_D = 2/3 V_{DRM}$<br>$I_G = 0.3 \text{ A}$<br>$di_G/dt = 0.3 \text{ A}/\mu\text{s}$ | repetitive, $I_T = 50 \text{ A}$          | 150 A/ $\mu\text{s}$  |
|                         |                                                                                                                                                                        | non repetitive, $I_T = 1/2 \cdot I_{dAV}$ | 500 A/ $\mu\text{s}$  |
| $(dv/dt)_{cr}$          | $T_{VJ} = T_{VJM}$ ; $V_{DR} = 2/3 V_{DRM}$<br>$R_{GK} = \infty$ ; method 1 (linear voltage rise)                                                                      |                                           | 1000 V/ $\mu\text{s}$ |
| $V_{RGM}$               |                                                                                                                                                                        | 10                                        | V                     |
| $P_{GM}$                | $T_{VJ} = T_{VJM}$<br>$I_T = I_{TAVM}$                                                                                                                                 | $t_p = 30 \mu\text{s}$                    | $\leq 10 \text{ W}$   |
|                         |                                                                                                                                                                        | $t_p = 500 \mu\text{s}$                   | $\leq 5 \text{ W}$    |
|                         |                                                                                                                                                                        | $t_p = 10 \text{ ms}$                     | $\leq 1 \text{ W}$    |
| $P_{GAVM}$              |                                                                                                                                                                        |                                           | 0.5 W                 |
| $T_{VJ}$                |                                                                                                                                                                        | -40...+125                                | $^\circ\text{C}$      |
| $T_{VJM}$               |                                                                                                                                                                        | 125                                       | $^\circ\text{C}$      |
| $T_{stg}$               |                                                                                                                                                                        | -40...+125                                | $^\circ\text{C}$      |
| $V_{ISOL}$              | 50/60 Hz, RMS<br>$I_{ISOL} \leq 1 \text{ mA}$                                                                                                                          | $t = 1 \text{ min}$                       | 2500 V~               |
|                         |                                                                                                                                                                        | $t = 1 \text{ s}$                         | 3000 V~               |
| $M_d$                   | Mounting torque<br>(M5)<br>(10-32 UNF)                                                                                                                                 | 5 $\pm$ 15 %                              | Nm                    |
|                         |                                                                                                                                                                        | 44 $\pm$ 15 %                             | lb.in.                |
| Weight                  |                                                                                                                                                                        | 50                                        | g                     |

## Features

- Package with copper base plate
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- ¼" fast-on power terminals

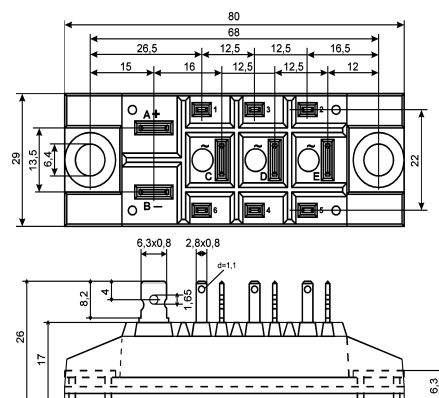
## Applications

- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

## Advantages

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

## Dimensions in mm (1 mm = 0.0394")



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

① for resistive load at bridge output. 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               |
| $V_T$      | $I_T = 80 \text{ A}; T_{VJ} = 25^\circ\text{C}$                                                                                                                                | $\leq$                | 1.64         | V                |
| $V_{T0}$   | For power-loss calculations only                                                                                                                                               |                       | 0.85         | V                |
| $r_T$      |                                                                                                                                                                                |                       | 11           | mΩ               |
| $V_{GT}$   | $V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$                                                                                                                                 | $\leq$                | 1.5          | V                |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                                                                                                   | $\leq$                | 1.6          | V                |
| $I_{GT}$   | $V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$                                                                                                                                 | $\leq$                | 100          | mA               |
|            | $T_{VJ} = -40^\circ\text{C}$                                                                                                                                                   | $\leq$                | 200          | mA               |
| $V_{GD}$   | $T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$                                                                                                                                          | $\leq$                | 0.2          | V                |
| $I_{GD}$   |                                                                                                                                                                                | $\leq$                | 5            | mA               |
| $I_L$      | $T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$<br>$I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$                                                              | $\leq$                | 450          | mA               |
| $I_H$      | $T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$                                                                                                                | $\leq$                | 200          | mA               |
| $t_{gd}$   | $T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$<br>$I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$                                                                 | $\leq$                | 2            | μs               |
| $t_q$      | $T_{VJ} = T_{VJM}; I_T = 20 \text{ A}, t_p = 200 \mu\text{s}; di/dt = -10 \text{ A}/\mu\text{s}$<br>$V_R = 100 \text{ V}; dv/dt = 15 \text{ V}/\mu\text{s}; V_D = 2/3 V_{DRM}$ | typ.                  | 250          | μs               |
| $R_{thJC}$ | per thyristor / Diode; DC<br>per module                                                                                                                                        |                       | 0.9<br>0.15  | K/W<br>K/W       |
| $R_{thJH}$ | per thyristor / Diode; DC<br>per module                                                                                                                                        |                       | 1.1<br>0.157 | K/W<br>K/W       |
| $d_s$      | Creeping distance on surface                                                                                                                                                   |                       | 16.1         | mm               |
| $d_A$      | Creepage distance in air                                                                                                                                                       |                       | 7.5          | mm               |
| $a$        | Max. allowable acceleration                                                                                                                                                    |                       | 50           | m/s <sup>2</sup> |