

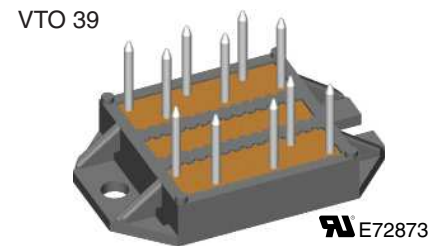
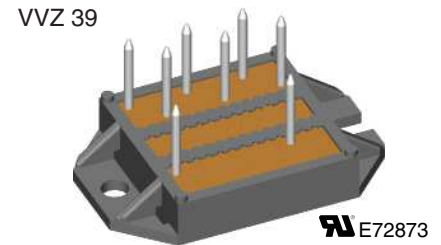
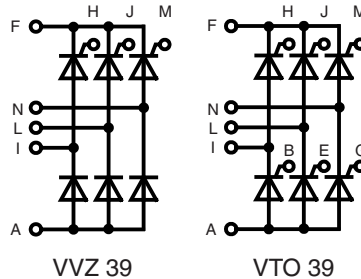
# Three Phase Rectifier Bridge

$$I_{dAV} = 39 \text{ A}$$

$$V_{RRM} = 800/1200 \text{ V}$$

## Preliminary data

| $V_{RSM}$ | $V_{RRM}$ | Type         |
|-----------|-----------|--------------|
| 900       | 800       | VTO 39-08ho7 |
| 1300      | 1200      | VVZ 39-12ho7 |



| Symbol         | Conditions  | Maximum Ratings                         |  |
|----------------|---|---|--|
| $I_{dAV}$ ①    | $T_C = 85^\circ\text{C}$ ; module   | 39                                      | A  |
| $I_{TAVM}$     | $T_C = 85^\circ\text{C}$ (180° sine; per thyristor)   | 16                                      | A  |
| $I_{TSM}$      | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$  | t = 10 ms (50 Hz)<br>t = 8.3 ms (60 Hz) | 200 A<br>210 A                               |
|                | $T_{VJ} = T_{VJM}$<br>$V_R = 0$   | t = 10 ms (50 Hz)<br>t = 8.3 ms (60 Hz) | 180 A<br>190 A                               |
| $I^2t$         | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$  | t = 10 ms (50 Hz)<br>t = 8.3 ms (60 Hz) | 200 A <sup>2</sup> s<br>150 A <sup>2</sup> s |
|                | $T_{VJ} = T_{VJM}$<br>$V_R = 0$   | t = 10 ms (50 Hz)<br>t = 8.3 ms (60 Hz) | 160 A <sup>2</sup> s<br>150 A <sup>2</sup> s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$<br>f = 50 Hz; $t_p = 200 \mu\text{s}$<br>$V_D = \frac{2}{3} V_{DRM}$<br>$I_G = 0.15 \text{ A}$<br>$di_G/dt = 0.15 \text{ A}/\mu\text{s}$ | repetitive; $I_T = 20 \text{ A}$        | 100 A/ $\mu\text{s}$                         |
|                |   | non repetitive;<br>$I_T = I_{TAVM}$     | 500 A/ $\mu\text{s}$                         |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ ; $V_D = \frac{2}{3} V_{DRM}$<br>$R_{GK} = \infty$ , method 1 (linear voltage rise)  |   | 500 V/ $\mu\text{s}$                         |
| $V_{RGM}$      |   | 10                                      | V  |
| $P_{GM}$       | $T_{VJ} = T_{VJM}$  | $t_p = 30 \mu\text{s}$                  | $\leq 5 \text{ W}$                           |
|                | $I_T = I_{TAVM}$  | $t_p = 300 \mu\text{s}$                 | $\leq 2.5 \text{ W}$                         |
| $P_{GAVM}$     |   |   | 0.5 W  |
| $T_{VJ}$       |   | -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 (M4)  |   | 1.5 - 2 Nm                                   |
|                |   |   | 14 - 18 lb.in.                               |
| <b>Weight</b>  | Typ.  | 18                                      | g  |

① for resistive load at bridge output.

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IXYS reserves the right to change limits, test conditions and dimensions.

20200117b

### Features

- Package with DCB ceramic base plate
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

### Applications

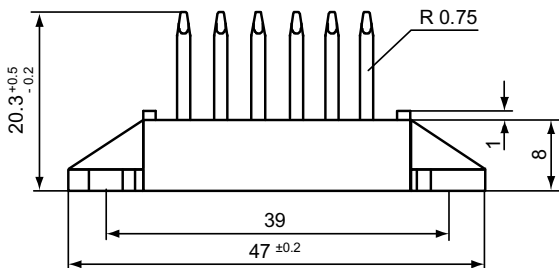
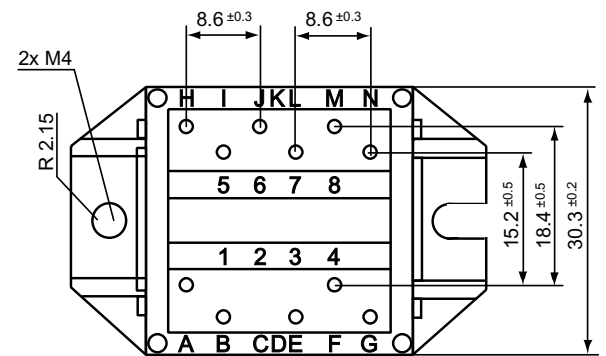
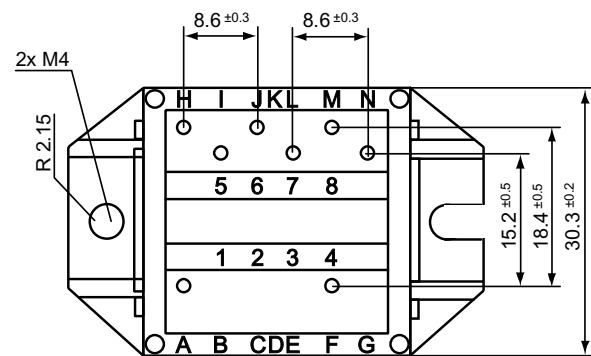
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

### Advantages

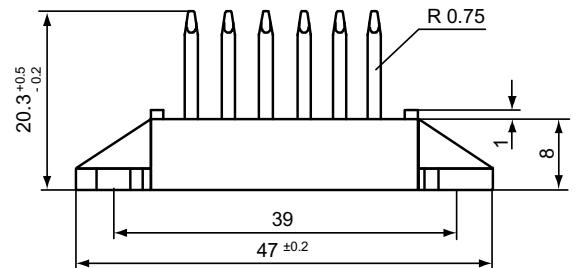
- Easy to mount with two screw
- Space and weight savings
- Improved temperature & power cycling capability
- Small and light weight

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

| Symbol     | Conditions   | Characteristic Values        |        |                     |
|------------|--|------------------------------|--------|---------------------|
| $I_D; I_R$ | $V_R = V_{RRM}; V_D = V_{DRM}$   | $T_{VJ} = T_{VJM}$           | $\leq$ | 5 mA                |
| $V_T$      | $I_T = 20 \text{ A}$   | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 1.6 V               |
| $V_{T0}$   | For power-loss calculations only   | $T_{VJ} = 125^\circ\text{C}$ |        | 0.85 V              |
| $r_T$      |  |                              |        | 27 m $\Omega$       |
| $V_{GT}$   | $V_D = 6 \text{ V}$  | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 1.5 V               |
|            |  | $T_{VJ} = -40^\circ\text{C}$ | $\leq$ | 2.5 V               |
| $I_{GT}$   | $V_D = 6 \text{ V}$  | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 25 mA               |
|            |  | $T_{VJ} = -40^\circ\text{C}$ | $\leq$ | 50 mA               |
| $V_{GD}$   | $V_D = \frac{2}{3}V_{DRM}$   | $T_{VJ} = T_{VJM}$           | $\leq$ | 0.2 V               |
| $I_{GD}$   |  |                              | $\leq$ | 3 mA                |
| $I_L$      | $t_p = 10 \mu\text{s}$<br>$I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$     | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 75 mA               |
| $I_H$      | $V_D = 6 \text{ V}; R_{GK} = \infty$   | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 50 mA               |
| $t_{gd}$   | $V_D = \frac{1}{2}V_{DRM}$<br>$I_G = 0.1 \text{ A}; di_G/dt = 0.1 \text{ A}/\mu\text{s}$ | $T_{VJ} = 25^\circ\text{C}$  | $\leq$ | 2 $\mu\text{s}$     |
| $R_{thJC}$ | per thyristor / diode; DC  |                              |        | 1.3 K/W             |
|            | per module   |                              |        | 0.22 K/W            |
| $R_{thJH}$ | per thyristor / diode; DC  |                              |        | 1.8 K/W             |
|            | per module   |                              |        | 0.3 K/W             |
| $d_s$      | Creeping distance on surface   |                              |        | 11.2 mm             |
| $d_A$      | Creepage distance in air   |                              |        | 5 mm                |
| $a$        | Max. allowable acceleration  |                              |        | 50 m/s <sup>2</sup> |

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


VVZ 39



VTO 39