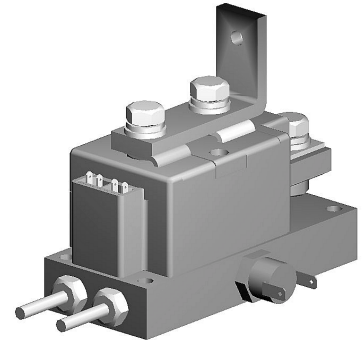
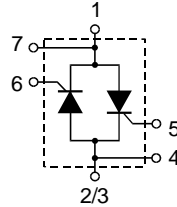


AC Controller with Isolated Water Flow

$I_{RMS} = 900\text{ A}$
 $V_{RRM} = 1200\text{-}1800\text{ V}$

Preliminary data

| V_{RSM} V_{DSM} V | V_{RRM} V_{DRM} V | Type |
|-----------------------------|-----------------------------|-----------------|
| 1300 | 1200 | HVL 900 - 12io1 |
| 1500 | 1400 | HVL 900 - 14io1 |
| 1700 | 1600 | HVL 900 - 16io1 |
| 1900 | 1800 | HVL 900 - 18io1 |



| Symbol | Test Conditions | Maximum Ratings | |
|-----------------------|---|---|--|
| I_{RMS} | $T_{Water} = 17^{\circ}\text{C}$; watervolume = 4 l/min | 900 | A |
| I_{TSM} , I_{FSM} | $T_{VJ} = 45^{\circ}\text{C}$; $V_R = 0$ | t = 10 ms (50 Hz) t = 8.3 ms (60 Hz) | A A |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ | t = 10 ms (50 Hz) t = 8.3 ms (60 Hz) | A A |
| I^2t | $T_{VJ} = 45^{\circ}\text{C}$ $V_R = 0$ | t = 10 ms (50 Hz) t = 8.3 ms (60 Hz) | A^2s A^2s |
| | $T_{VJ} = T_{VJM}$ $V_R = 0$ | t = 10 ms (50 Hz) t = 8.3 ms (60 Hz) | A^2s A^2s |
| $(di/dt)_{cr}$ | $T_{VJ} = T_{VJM}$ repetitive, $I_T = 960\text{ A}$ f = 50 Hz, $t_p = 200\ \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 1\text{ A}$, $di_G/dt = 1\text{ A}/\mu\text{s}$ | 100 | $\text{A}/\mu\text{s}$ |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise) | 1000 | $\text{V}/\mu\text{s}$ |
| P_{GM} | $T_{VJ} = T_{VJM}$ | $t_p = 30\ \mu\text{s}$ | 120 W |
| | $I_T = I_{TAVM}$ | $t_p = 500\ \mu\text{s}$ | 60 W |
| P_{GAV} | | | 20 W |
| V_{RGM} | | | 10 V |
| T_{VJ} | | -40...+140 | $^{\circ}\text{C}$ |
| T_{VJM} | | 140 | $^{\circ}\text{C}$ |
| T_{stg} | | -40...+125 | $^{\circ}\text{C}$ |
| V_{ISOL} | 50/60 Hz, RMS t = 1 min | 3000 | V~ |
| | $I_{ISOL} \leq 1\text{ mA}$ t = 1 s | 3600 | V~ |
| Weight | Typical including screws | 1300 | g |

Features

- Isolation between water and electrical connections with Direct copper bonded Al_2O_3 -ceramic
- Planar passivated chips
- Isolation voltage 3600 V~
- Keyed gate/cathode twin pins

Applications

- Large resistance welding equipment
- Large electroplating equipment

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

| Symbol | Test Conditions | Characteristic Values |
|--------------------|--|-----------------------|
| I_{RRM}, I_{DRM} | $T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$ | 40 mA |
| V_T, V_F | $I_T, I_F = 600 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | 1.32 V |
| V_{T0} | For power-loss calculations only | 0.8 V |
| r_T | | 0.68 mΩ |
| V_{GT} | $V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$ | 2 V |
| | $T_{VJ} = -40^\circ\text{C}$ | 3 V |
| I_{GT} | $V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$ | 150 mA |
| | $T_{VJ} = -40^\circ\text{C}$ | 220 mA |
| V_{GD} | $T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$ | 0.25 V |
| I_{GD} | $T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$ | 10 mA |
| I_L | $T_{VJ} = 25^\circ\text{C}; t_p = 30 \mu\text{s}; V_D = 6 \text{ V}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | 200 mA |
| I_H | $T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$ | 150 mA |
| t_{gd} | $T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 1 \text{ A}; di_G/dt = 1 \text{ A}/\mu\text{s}$ | 2 μs |
| Q_S | $T_{VJ} = 125^\circ\text{C}; I_T, I_F = 300 \text{ A}; -di/dt = 50 \text{ A}/\mu\text{s}$ | 760 μC |
| I_{RM} | | 275 A |
| R_{thJW} | per thyristor ; 180° el; watervolume = 4 l/min | 0.203 K/W |
| d_S | Creeping distance on surface | 12.7 mm |
| d_A | Creepage distance in air | |
| a | Maximum allowable acceleration | |

Optional accessories for modules

Keyed Gate/Cathode twin plugs with wire length = 350 mm, gate = yellow, cathode = red
 Type ZY 180 L (L = Left for pin pair 4/5) } UL 758, style 1385,
 Type ZY 180 R (R = Right for pin pair 6/7) } CSA class 5851, guide 460-1-1

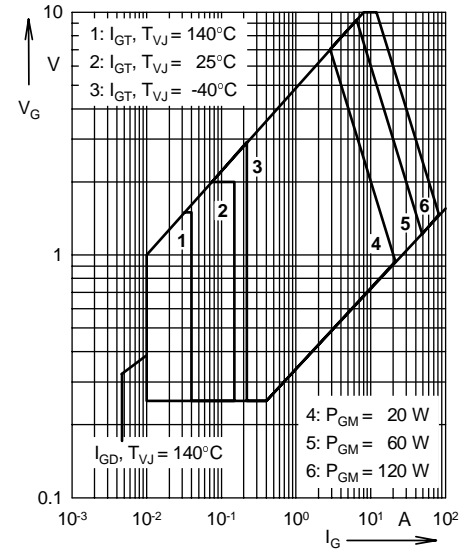
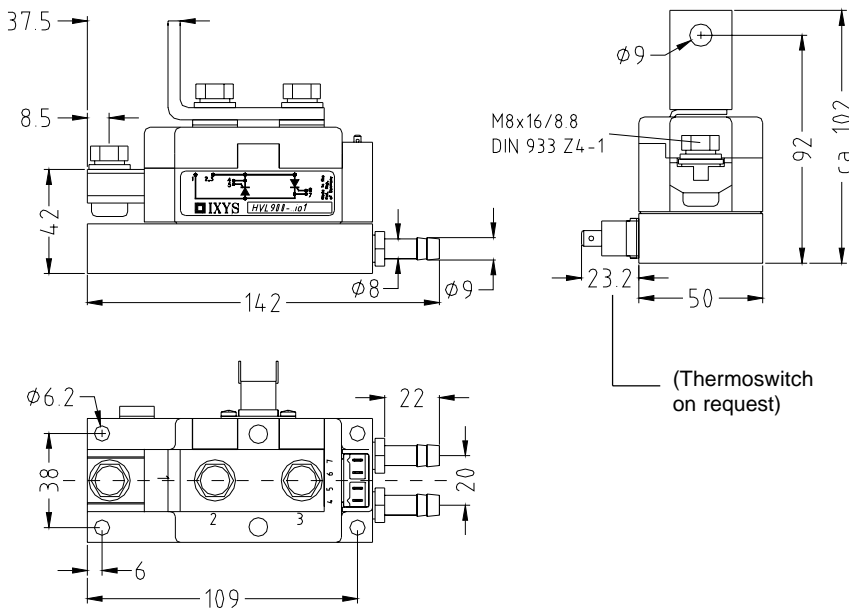


Fig. 1 Gate trigger characteristics

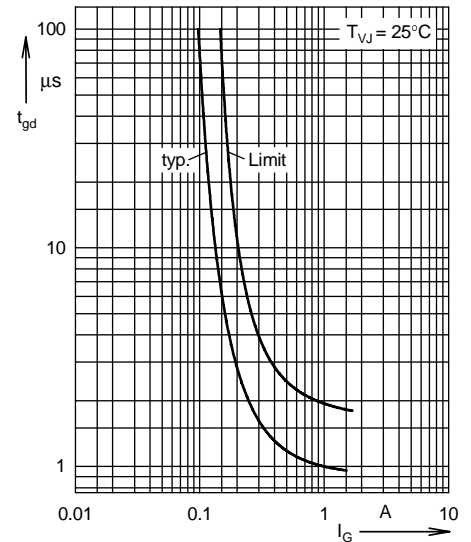


Fig. 2 Gate trigger delay time

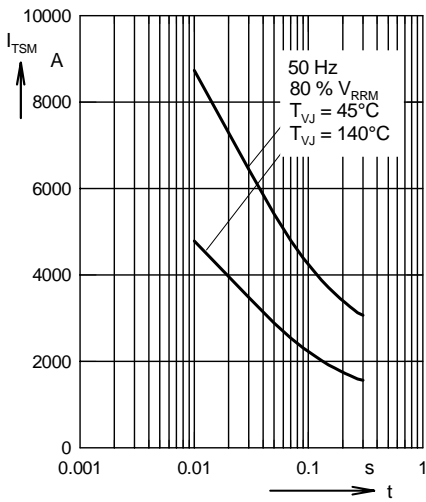


Fig. 3 Surge overload current
 I_{TSM} : Crest value, t : duration

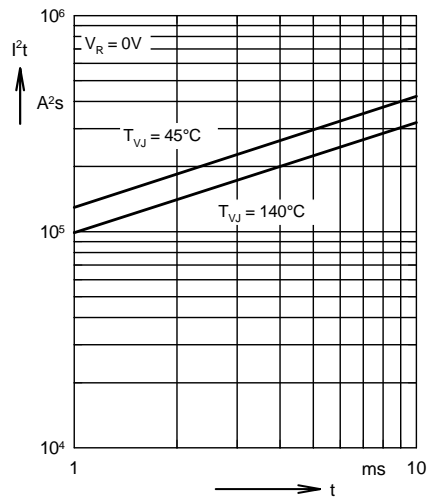


Fig. 4 I^2t versus time (1-10 ms)

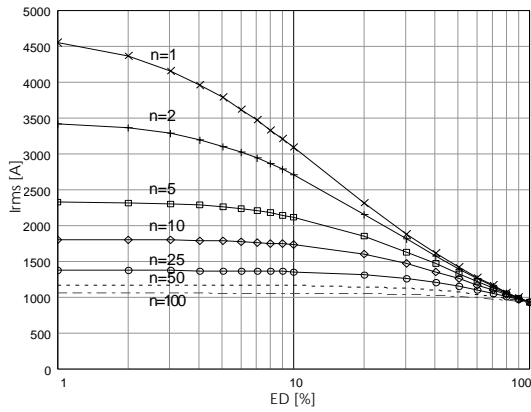


Fig. 5 Rated rms current vs. duty cycle

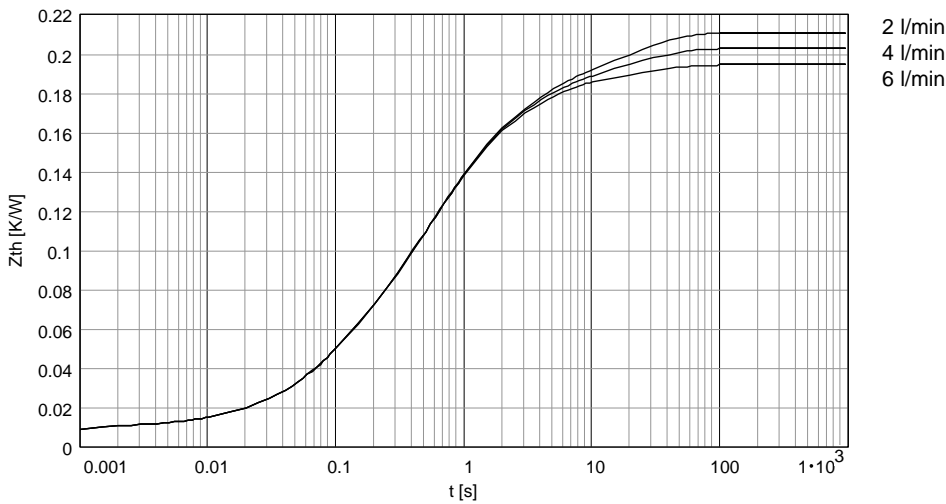


Fig. 6 Transient thermal impedance vs. time