

# HTS4A80A

## 3 Quadrants Standard TRIAC

### FEATURES

- ☐ Repetitive Peak Off-State Voltage : 800V
- ☐ R.M.S On-State Current ( $I_{T(RMS)} = 4A$ )
- ☐ Gate Trigger Current : 35mA
- ☐ High commutation capability.

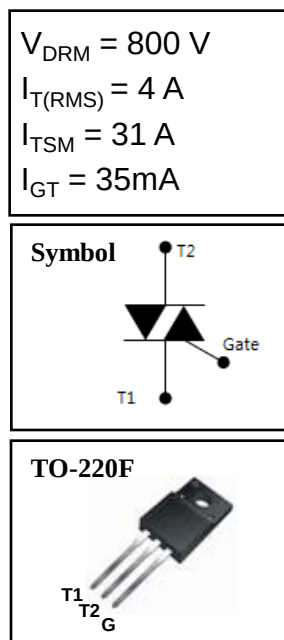
### Applications

General purpose of AC switching, heating control, motor control, etc

### General Description

Semihow's standard TRIAC product is a glass passivated device, has a high commutative performance, stable gate triggering level to temperature and high off state voltage. It is generally suitable for power and phase control in ac application

### Absolute Maximum Ratings ( $T_J=25^{\circ}\text{C}$ unless otherwise specified )



| Symbol       | Parameter                              | Conditions                                                     | Ratings  | Unit               |
|--------------|----------------------------------------|----------------------------------------------------------------|----------|--------------------|
| $V_{DRM}$    | Repetitive Peak Off-State Voltage      | Sine wave, 50/60Hz, Gate open                                  | 800      | V                  |
| $V_{RRM}$    | Repetitive Peak Reverse Voltage        |                                                                | 800      | V                  |
| $I_{T(AV)}$  | Average On-State Current               | Full sine wave, $T_C = 105^{\circ}\text{C}$                    | 3.6      | A                  |
| $I_{T(RMS)}$ | R.M.S. On-State Current                |                                                                | 4        | A                  |
| $I_{TSM}$    | Surge On-State Current                 | ½ cycle, 50Hz/60Hz, Sine wave, Non repetitive                  | 30/31    | A                  |
| $I^2t$       | Fusing Current                         | $t = 10\text{ms}$                                              | 5.1      | A <sup>2</sup> S   |
| $P_{GM}$     | Forward Peak Gate Power Dissipation    | $T_J = 125^{\circ}\text{C}$                                    | 5        | W                  |
| $P_{G(AV)}$  | Forward Average Gate Power Dissipation | $T_J = 125^{\circ}\text{C}$ , over any 20ms                    | 1        | W                  |
| $I_{FGM}$    | Forward Peak Gate Current              | $T_J = 125^{\circ}\text{C}$ , pulse width $\leq 20\mu\text{s}$ | 4        | A                  |
| $V_{RGM}$    | Reverse Peak Gate Voltage              | $T_J = 125^{\circ}\text{C}$ , pulse width $\leq 20\mu\text{s}$ | 5        | V                  |
| $T_J$        | Operating Junction Temperature         |                                                                | -40~+125 | $^{\circ}\text{C}$ |
| $T_{STG}$    | Storage Temperature                    |                                                                | -40~+150 | $^{\circ}\text{C}$ |

## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified )

| Symbol           | Parameter                                  | Conditions                                                        | Min                   | Typ | Max | Unit      |
|------------------|--------------------------------------------|-------------------------------------------------------------------|-----------------------|-----|-----|-----------|
| I <sub>DRM</sub> | Repetitive Peak Off-State Current          | V <sub>D</sub> = V <sub>DRM</sub>                                 | T <sub>J</sub> =25°C  | -   | -   | 5    uA   |
|                  |                                            |                                                                   | T <sub>J</sub> =125°C | -   | -   | 1    mA   |
| I <sub>RRM</sub> | Repetitive Peak Reverse Current            | V <sub>D</sub> = V <sub>DRM</sub>                                 | T <sub>J</sub> =25°C  | -   | -   | 5    uA   |
|                  |                                            |                                                                   | T <sub>J</sub> =125°C | -   | -   | 1    mA   |
| I <sub>GT</sub>  | Gate Trigger Current                       | V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω                        | 1+, 1-, 3-            | -   | -   | 35    mA  |
| V <sub>GT</sub>  | Gate Trigger Voltage                       | V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω                        | 1+, 1-, 3-            | -   | -   | 1.3    V  |
| V <sub>GD</sub>  | Non-Trigger Gate Voltage <sup>1</sup>      | V <sub>D</sub> = 12V, R <sub>L</sub> =330Ω, T <sub>J</sub> =125°C |                       | 0.2 | -   | -    V    |
| V <sub>TM</sub>  | Peak On-State Voltage                      | I <sub>T</sub> = 5.5A, I <sub>G</sub> = 20mA                      |                       | -   | -   | 1.6    V  |
| dv/dt            | Critical Rate of Rise of Off-State Voltage | V <sub>D</sub> = 2/3 V <sub>DRM</sub> , T <sub>J</sub> =125°C     |                       | 400 | -   | -    V/us |
| I <sub>H</sub>   | Holding current                            | I <sub>T</sub> = 0.2A                                             |                       | -   | -   | 35    mA  |

### Notes :

1. Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%

## Thermal Characteristics

| Symbol           | Parameter          | Conditions          | Min | Typ | Max | Unit |
|------------------|--------------------|---------------------|-----|-----|-----|------|
| R <sub>θJC</sub> | Thermal Resistance | Junction to Case    |     |     | 4.0 | °C/W |
| R <sub>θJA</sub> | Thermal Resistance | Junction to Ambient |     |     | 58  | °C/W |

# Typical Characteristics

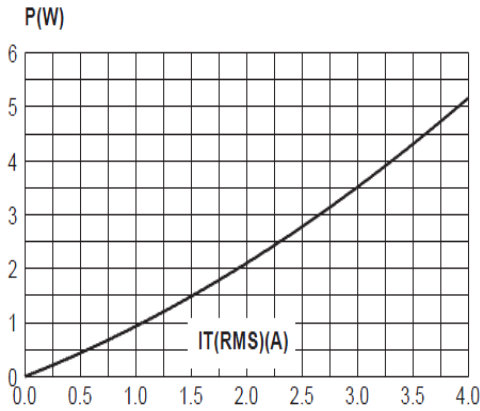


Fig 1. R.M.S. current vs. Power dissipation

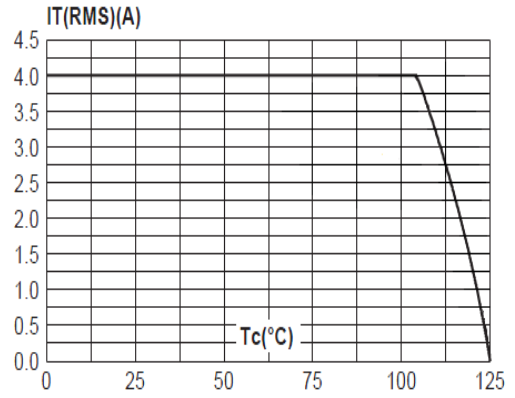


Fig 2. R.M.S. current vs. Case temperature

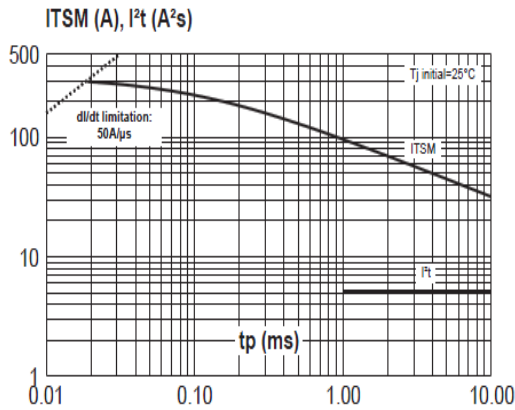


Fig 3. Surge on state vs. pulse time (Non-repetitive)

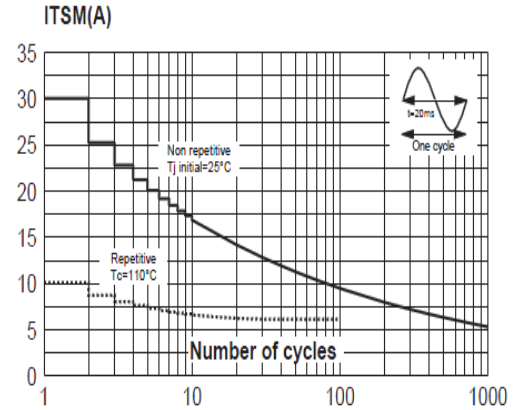


Fig 4. Surge on state current rating

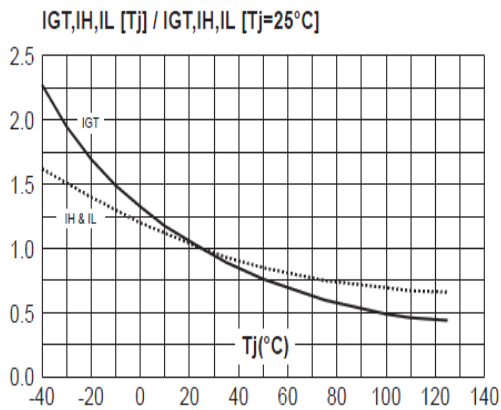


Fig 5. Gate trigger current vs. junction temperature

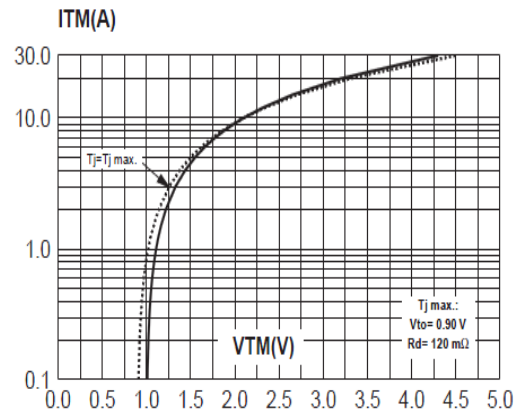


Fig 6. Instantaneous on state current vs. Instantaneous on state voltage

# Typical Characteristics

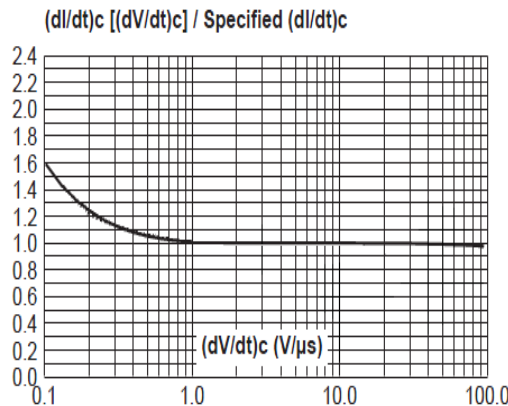


**Fig 7. Relative Variation of Critical Rate of Decrease of main Current Versus(dV/dt)<sub>c</sub>**

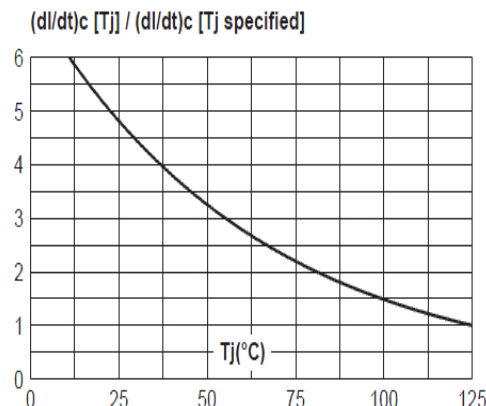
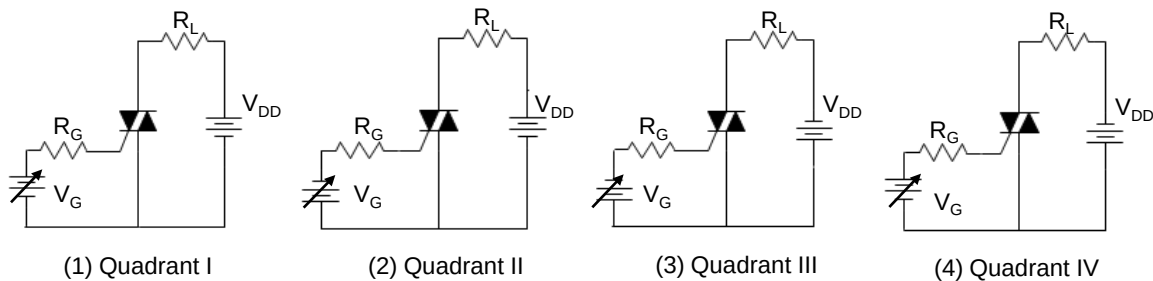


**Fig 8. Relative Variation of Critical Rate of Decrease of main Current Junction Temperature**

## Measurement of gate trigger current



Note. Whole parameter and test condition can not be over absolute maximum ratings in this datasheet.

Package Dimension

TO-220F

