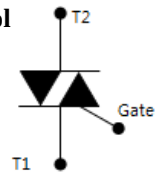
SemiHow
Know-How for Semiconductor

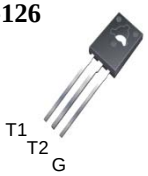
# HTC4A60H
## 3 Quadrants Standard TRIAC

$V_{DRM}$ = 600V
$I_{T(RMS)}$ = 4 A
$I_{TSM}$ = 42 A
$I_{GT}$ = 25mA

**Symbol**




**TO-126**




## FEATURES

- Repetitive Peak Off-State Voltage : 600V
- R.M.S On–State Current ($I_{T(RMS)}$ = 4A)
- Gate Trigger Current : 25mA
- High commutation capability.

## Applications

General purpose of AC switching, heating control, motor control, Humidifier, 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℃ unless otherwise specified )

| Symbol | Parameter | Conditions | Ratings | Unit |
|---|---|---|---|---|
| $V_{DRM}$ | Repetitive Peak Off-State Voltage | Sine wave, 50/60Hz, Gate open | 600 | V |
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | | 600 | V |
| $I_{T(AV)}$ | Average On-State Current | Full sine wave, $T_C$ = 102°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 | 40/42 | A |
| $I^2t$ | Fusing Current | t = 10ms | 8.8 | $A^2S$ |
| $P_{GM}$ | Forward Peak Gate Power Dissipation | $T_J$ = 125 ˚C | 5 | W |
| $P_{G(AV)}$ | Forward Average Gate Power Dissipation | $T_J$ = 125 ˚C, over any 20ms | 0.5 | W |
| $I_{FGM}$ | Forward Peak Gate Current | $T_J$ = 125 ˚C, pulse width ≤ 20us | 2 | A |
| $V_{RGM}$ | Reverse Peak Gate Voltage | $T_J$ = 125 ˚C, pulse width ≤ 20us | 5 | V |
| $T_J$ | Operating Junction Temperature | | -40~+150 | °C |
| $T_{STG}$ | Storage Temperature | | -40~+150 | °C |

## Electrical Characteristics ($T_J$=25℃ unless otherwise specified )

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $I_{DRM}$ | Repetitive Peak Off-State Current | $V_D = V_{DRM}$ | $T_J$=25ºC | - | - | 50 | uA |
| | | | $T_J$=125ºC | - | - | 5 | mA |
| $I_{RRM}$ | Repetitive Peak Reverse Current | $V_D = V_{DRM}$ | $T_J$=25ºC | - | - | 50 | uA |
| | | | $T_J$=125ºC | - | - | 5 | mA |
| $I_{GT}$ | Gate Trigger Current | $V_D$ = 12V, $R_L$=330Ω | 1+, 1-, 3- | - | - | 25 | mA |
| $V_{GT}$ | Gate Trigger Voltage | $V_D$ = 12V, $R_L$=330Ω | 1+, 1-, 3- | - | - | 1.5 | V |
| $V_{GD}$ | Non-Trigger Gate Voltage[1] | $V_D$ = 12V, $R_L$=330Ω, $T_J$=125ºC | | 0.2 | - | - | V |
| $V_{TM}$ | Peak On-State Voltage | $I_T$ = 5.6A, $I_G$ = 50mA | | - | 1.4 | 1.7 | V |
| dv/dt | Critical Rate of Rise of Off-State Voltage | $V_D$ = 2/3 $V_{DRM}$, $T_J$=125ºC | | 200 | - | - | V/us |
| $I_H$ | Holding current | $I_T$= 0.2A | | - | 30 | - | mA |

**Notes :**
1. Pulse Width ≤ 1.0ms, Duty Cycle ≤ 1%

## Thermal Characteristics

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance | Junction to Case | | | 4.2 | ºC/W |
| $R_{\theta JA}$ | Thermal Resistance | Junction to Ambient | | | 58 | ºC/W |

## Typical Characteristics

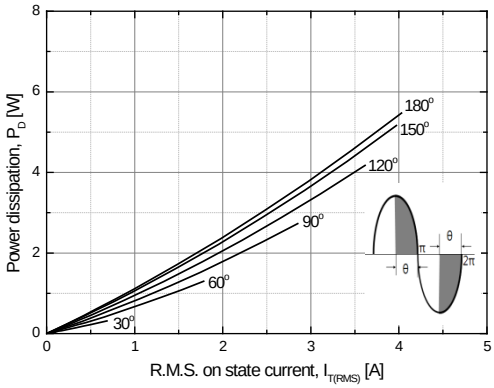



**Fig 1. R.M.S. current vs. Power dissipation**

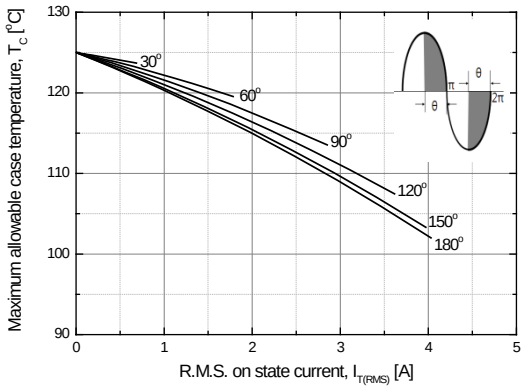



**Fig 2. R.M.S. current vs. Case temperature**

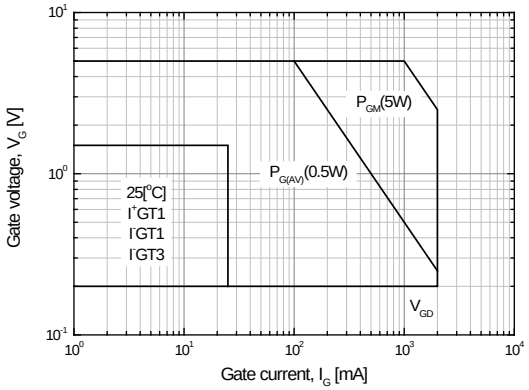



**Fig 3. Gate power characteristics**

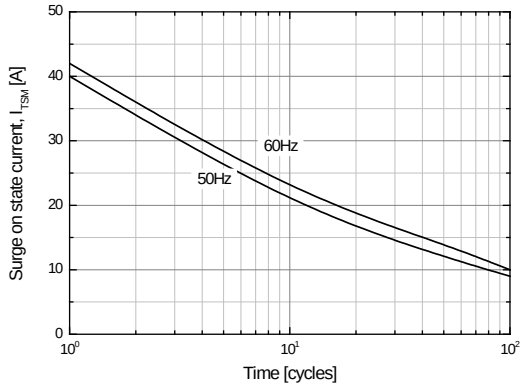



**Fig 4. Surge on state current rating (Non-repetitive)**

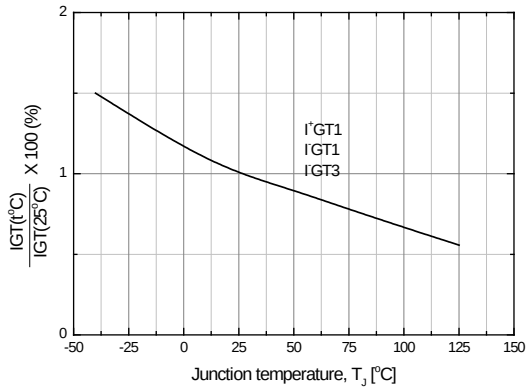



**Fig 5. Gate trigger current vs. junction temperature**

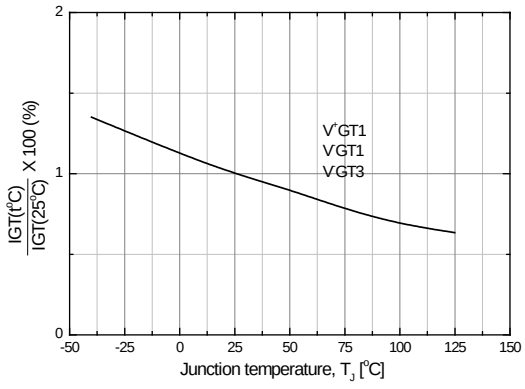



**Fig 6. Gate trigger voltage vs. junction temperature**

## Typical Characteristics

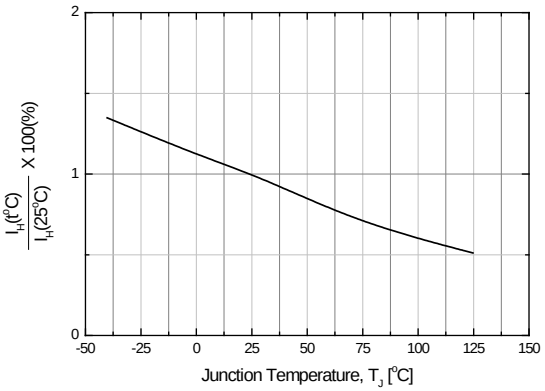



**Fig 7. Holding current vs. Junction temperature**

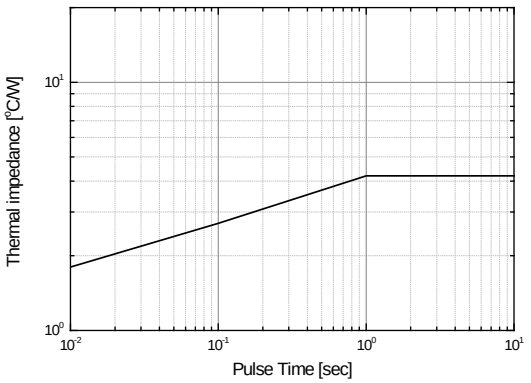



**Fig 8. Thermal Impedance vs. pulse time**

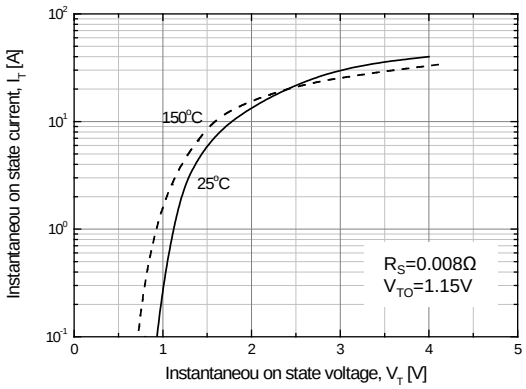
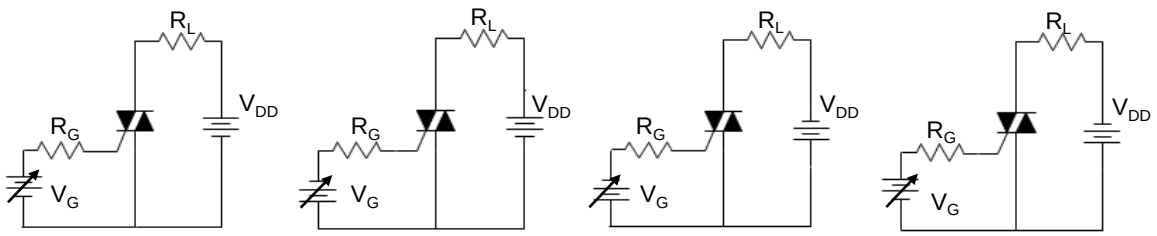



**Fig 9. Instantaneous on state current vs. Instantaneous on state voltage**

**Measurement of gate trigger current**

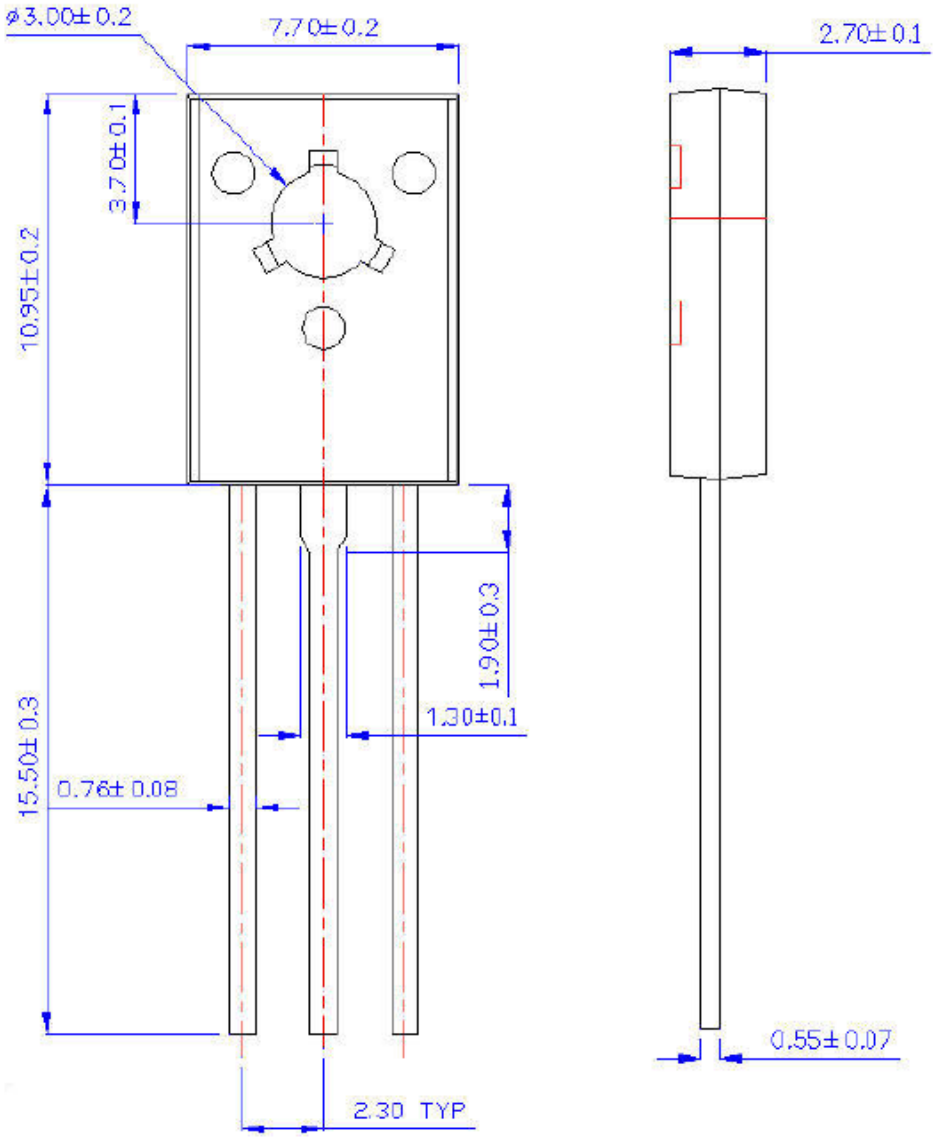



(1) Quadrant I (2) Quadrant II (3) Quadrant III (4) Quadrant IV

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

## Package Dimension

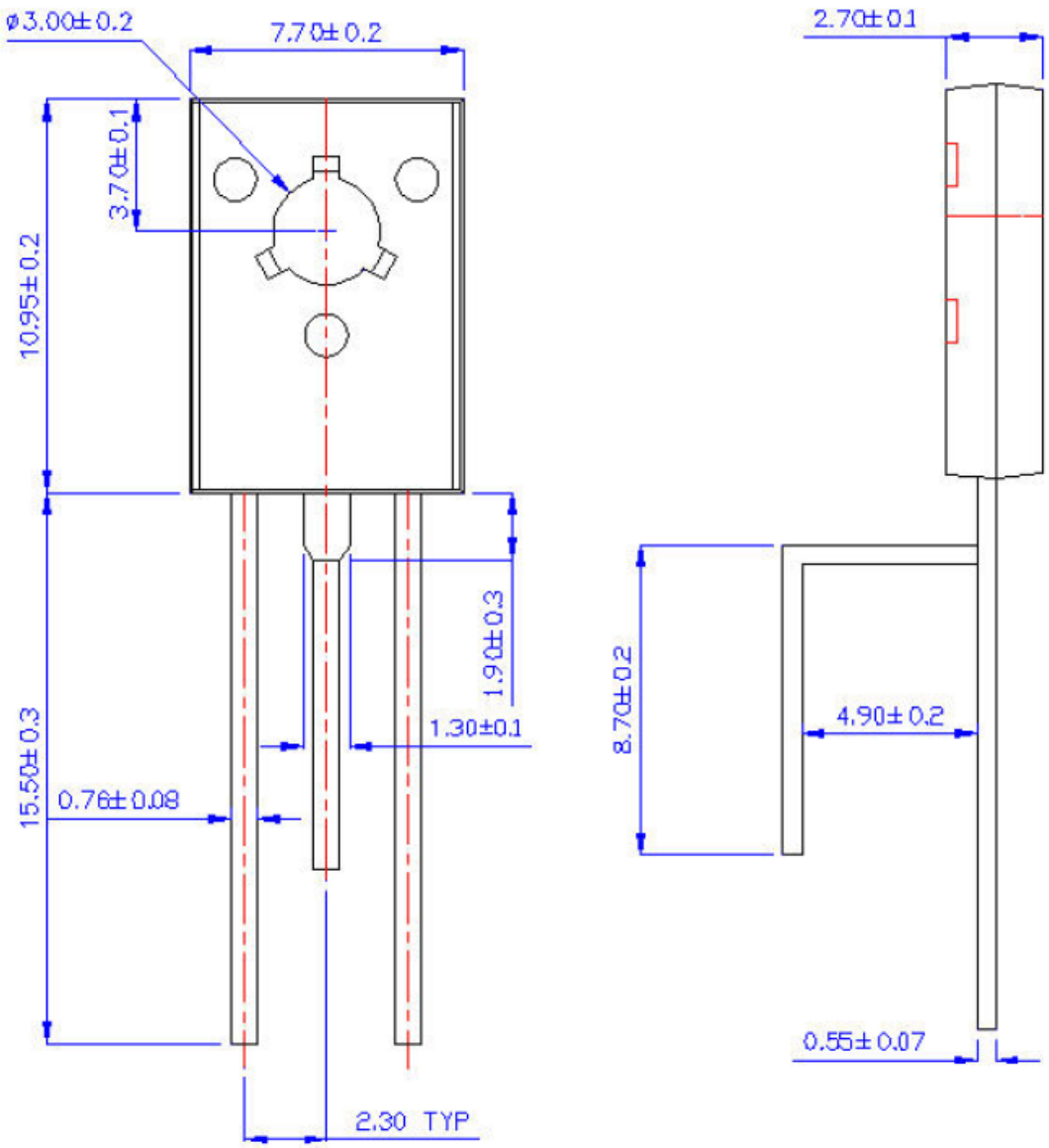
# TO-126




Dimensions in Millimeters

## Package Dimension

# TO-126 (Forming)




Dimensions in Millimeters