SemiHow
Know-How for Semiconductor

HTC4A60S
4 Quadrants Sensitive TRIAC

V_{DRM} = 600 V
$I_{T(RMS)}$ = 4 A
I_{TSM} = 33 A
I_{GT} = 5mA/12mA

Symbol

TO-126

FEATURES

❑ Repetitive Peak Off-State Voltage : 600V
❑ R.M.S On–State Current ($I_{T(RMS)}$ = 4A)
❑ Sensitive Gate Trigger Current
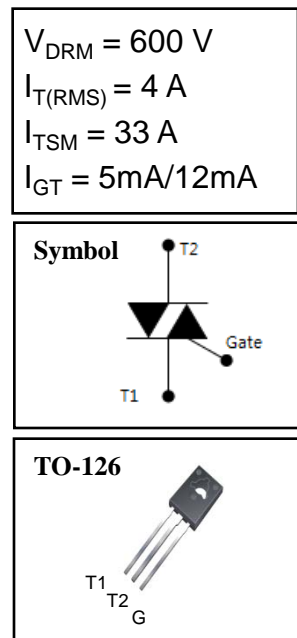   - 5[mA] of IGT at I, II and III Quadrants.
    - 12[mA] of IGT at IV Quadrant.

Applications

Heating control, Lighting control, Motor control such like dimmer, sensor light, Humidifier, etc.

General Description

Semihow's sensitive TRIAC product is a glass passivated device, has a low gate trigger current, high stability in gate trigger current to variation of operating 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 = 109.5ºC	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	30/33	A
I^2t	Fusing Current	t = 10ms	4.5	A^2S
P_{GM}	Forward Peak Gate Power Dissipation	T_J = 125 ˚C	2	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	T_J = 125 ˚C, over any 20ms	0.2	W
I_{FGM}	Forward Peak Gate Current	T_J = 125 ˚C, pulse width ≤ 20us	1	A
V_{RGM}	Reverse Peak Gate Voltage	T_J = 125 ˚C, pulse width ≤ 20us	6	V
T_J	Operating Junction Temperature		-40~+125	ºC
T_{STG}	Storage Temperature		-40~+150	ºC

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$_J$=25°C	-	-	50	uA
			T$_J$=125°C	-	-	5	mA
I$_{RRM}$	Repetitive Peak Reverse Current	V$_D$ = V$_{DRM}$	T$_J$=25°C	-	-	50	uA
			T$_J$=125°C	-	-	5	mA
I$_{GT}$	Gate Trigger Current	V$_D$ = 12V, R$_L$=330Ω	1+, 1-, 3-	-	-	5	mA
			3+	-	-	12	mA
V$_{GT}$	Gate Trigger Voltage	V$_D$ = 12V, R$_L$=330Ω	1+, 1-, 3-	-	-	1.5	V
			3+	-	-	2.0	V
V$_{GD}$	Non-Trigger Gate Voltage[1]	V$_D$ = 12V, R$_L$=330Ω, T$_J$=125°C		0.2	-	-	V
V$_{TM}$	Peak On-State Voltage	I$_T$ = 5.6A, I$_G$ = 20mA		-	-	1.6	V
dv/dt	Critical Rate of Rise of Off-State Voltage	V$_D$ = 2/3 V$_{DRM}$, T$_J$=125°C		10	-	-	V/us
I$_H$	Holding current	I$_T$= 0.2A		-	5	-	mA

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

Thermal Characteristics

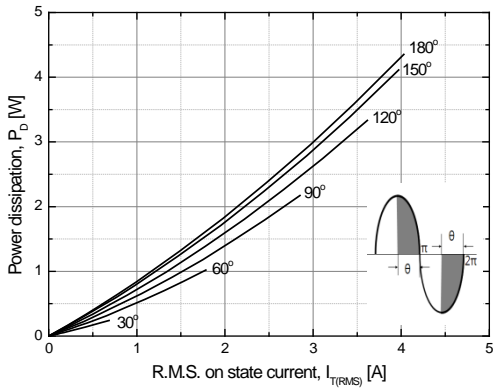| Symbol	Parameter	Conditions	Min	Typ	Max	Unit
R$_{θJC}$	Thermal Resistance	Junction to Case			3.6	°C/W
R$_{θJA}$	Thermal Resistance	Junction to Ambient			80	°C/W

Typical Characteristics

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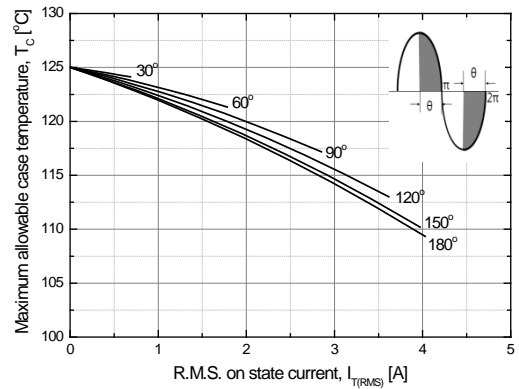

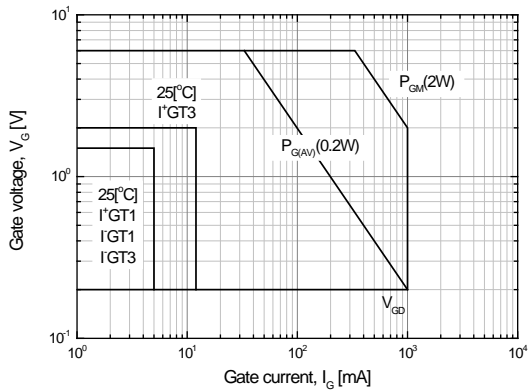**Fig 2. R.M.S. current vs. Case temperature**

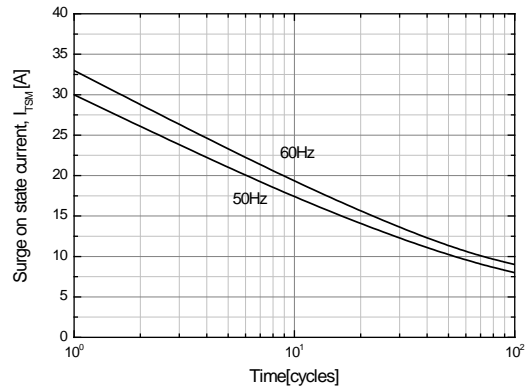**Fig 3. Gate power characteristics**

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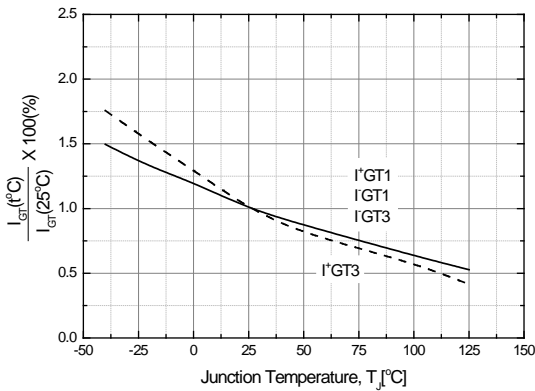(Non-repetitive)**

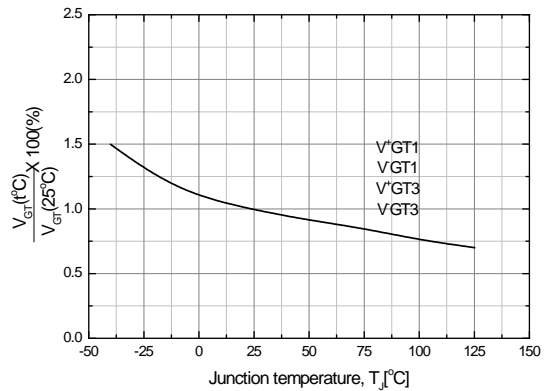**Fig 5. Gate trigger current vs.
junction temperature**

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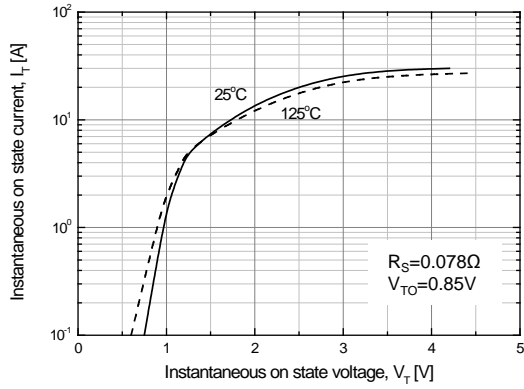junction temperature**

Typical Characteristics

Fig 7. Instantaneous on state current vs.
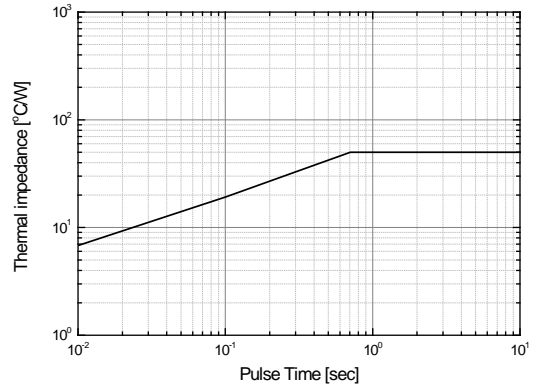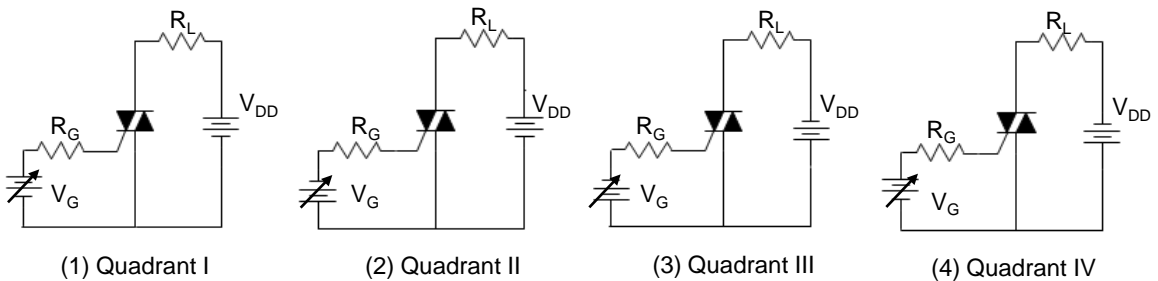Instantaneous on state voltage

$R_S = 0.078\Omega$
$V_{TO} = 0.85V$

25°C
125°C

Fig 8. Thermal Impedance vs. pulse time

Measurement of gate trigger current

(1) Quadrant I

(2) Quadrant II

(3) Quadrant III

(4) Quadrant IV
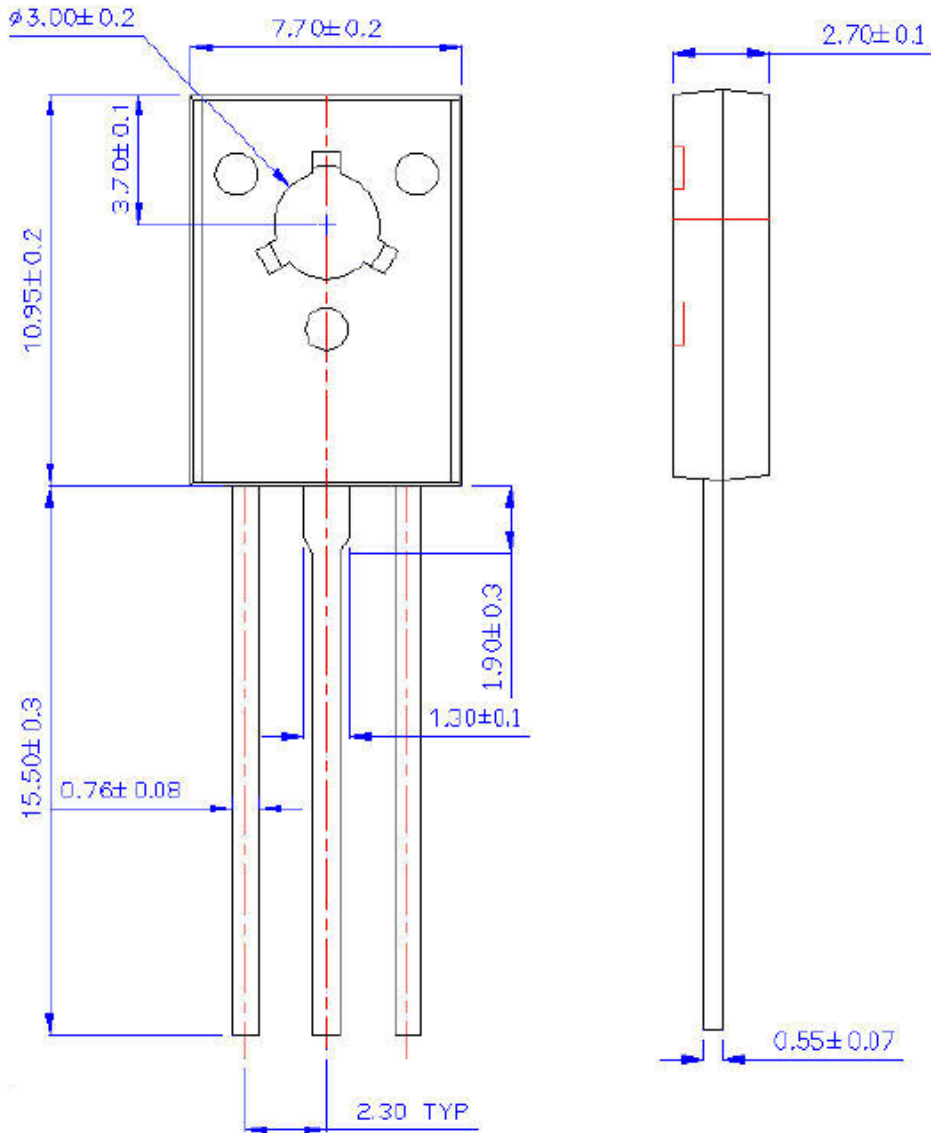
Note. Whole parameter and test condition can not be over absolute maximum ratings in this datasheet.

Package Dimension

TO-126

$\phi 3.00 \pm 0.2$

7.70 ± 0.2

2.70 ± 0.1

3.70 ± 0.1

10.95 ± 0.2

1.90 ± 0.3

1.30 ± 0.1

15.50 ± 0.3

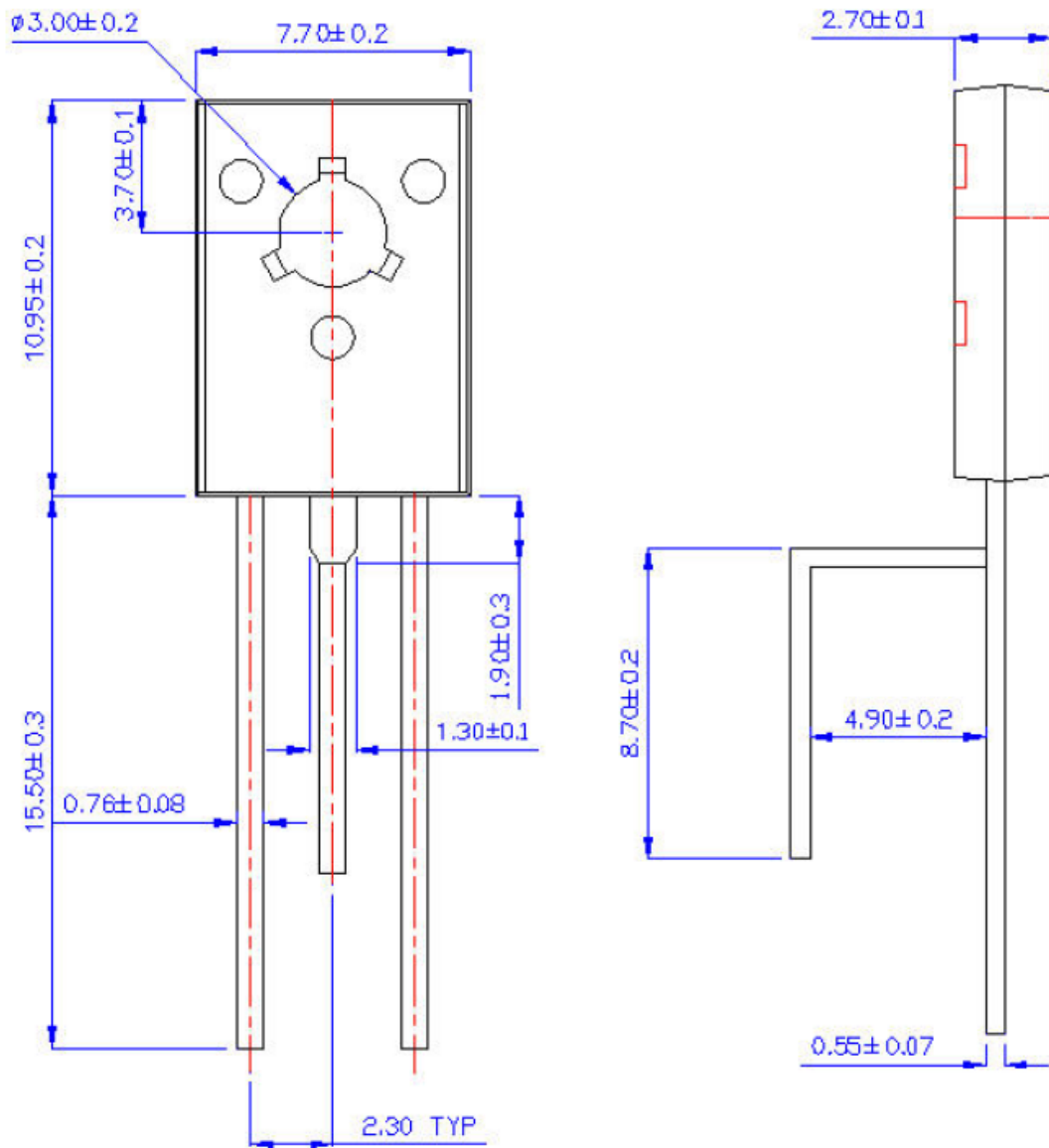0.76 ± 0.08

0.55 ± 0.07

2.30 TYP

Dimensions in Millimeters

Package Dimension

TO−126 (Forming)

Dimensions in Millimeters