

HTB1-600

BI-DIRECTIONAL TRIODE THYRISTOR (TRIAC)

FEATURES

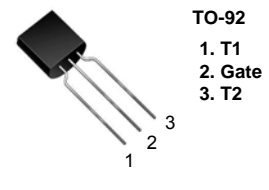
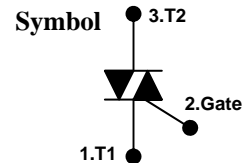
- Repetitive Peak Off-State Voltage: 600V
- R.M.S On-state Current ($I_{T(RMS)}=1A$)
- High Commutation dv/dt

General Description

The TRIAC HTB1-600 is suitable for AC switching application, phase control application such as heater control, motor control, lighting control, and static switching relay.

$$V_{DRM} = 600 V$$

$$I_{T(RMS)} = 1.0A$$



Absolute Maximum Ratings ($T_a=25^\circ C$)

Symbol	Parameter	Value	Units
V_{DRM}	Repetitive Peak Off-State Voltage	600	V
$I_{T(RMS)}$	R.M.S On-State Current ($T_a = 95^\circ C$)	1	A
I_{TSM}	Surge On-State Current (One Cycle, 50/60Hz, Peak, Non Repetitive)	9.1/10	A
V_{GM}	Peak Gate Voltage	6	V
I_{GM}	Peak Gate Current	0.5	A
$P_{G(AV)}$	Average Gate Power Dissipation	0.1	W
P_{GM}	Peak Gate Power Dissipation	1	W
T_{STG}	Storage Temperature Range	-40 to +125	$^\circ C$
T_j	Operating Temperature	-40 to +125	$^\circ C$

Electrical Characteristics ($T_a=25^\circ\text{C}$)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
I_{GT}	Gate Trigger Current	$V_D=6V, R_L=10\Omega$	1+, 1-, 3-		5	mA
			3+		10	mA
V_{GT}	Gate Trigger Voltage	$V_D=6V, R_L=10\Omega$	1+, 1-, 3-		1.8	V
			3+		2.0	V
V_{GD}	Non Trigger Gate Voltage	$T_j=125^\circ\text{C}, V_D=1/2V_{DRM}$	0.2			V
$(dv/dt)_c$	Critical Rate of Rise of Off-State Voltage at Communication	$T_j=125^\circ\text{C}, V_D=2/3V_{DRM}$ $(di/dt)_c=-0.5A/ms$	2.0			V/ μs
I_H	Holding Current			4.0		mA
I_{DRM}	Repetitive Peak Off-State Current	$V_D=V_{DRM}$, Single Phase, Half Wave, $T_j=125^\circ\text{C}$			0.5	mA
V_{TM}	Peak On-State Voltage	$I_T=6A$, Inst, Measurement			1.6	V

Thermal Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$R_{TH(j-c)}$	Thermal Resistance	Junction to Case			50	$^\circ\text{C}/\text{W}$
$R_{TH(j-a)}$	Thermal Resistance	Junction to Ambient			120	$^\circ\text{C}/\text{W}$

Performance Curves

Fig 1. Gate Characteristics

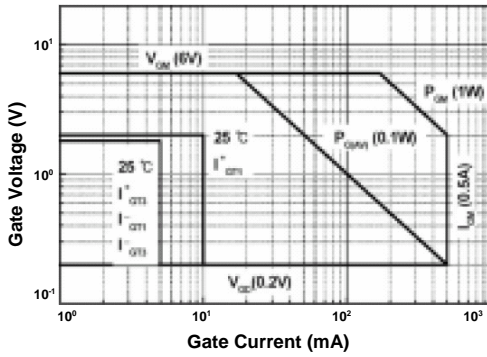


Fig 2. On-State Voltage

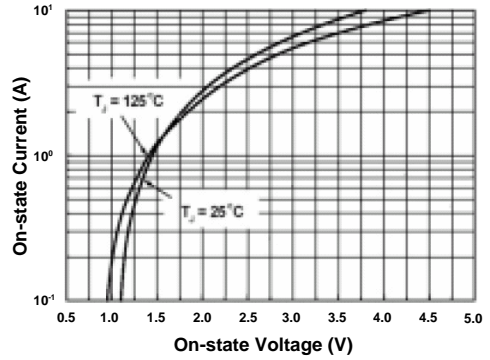


Fig 3. Gate Trigger Voltage vs. Junction Temperature

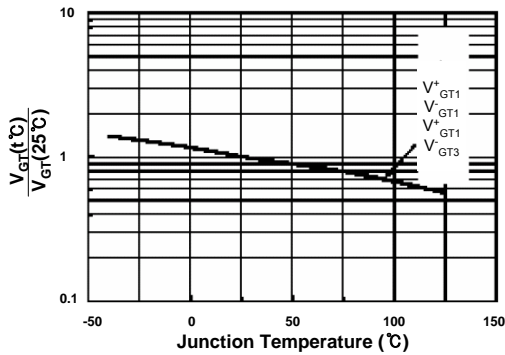


Fig 4. On State Current vs. Maximum Power Dissipation

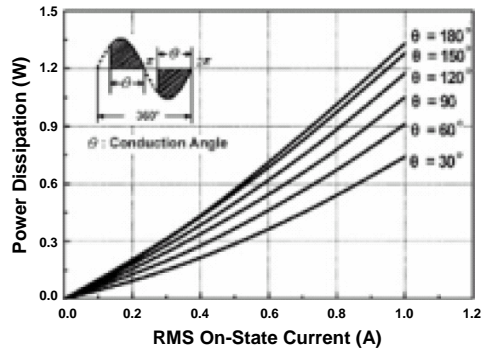


Fig 5. On State Current vs. Allowable Case Temperature

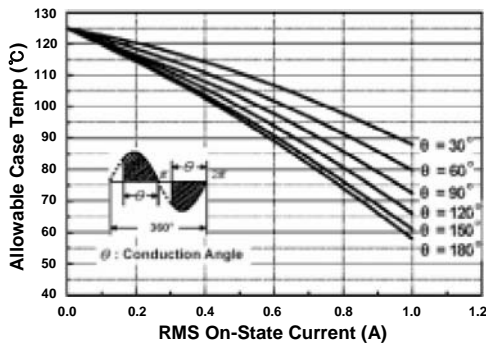


Fig 6. Surge On-State Current Rating (Non-Repetitive)

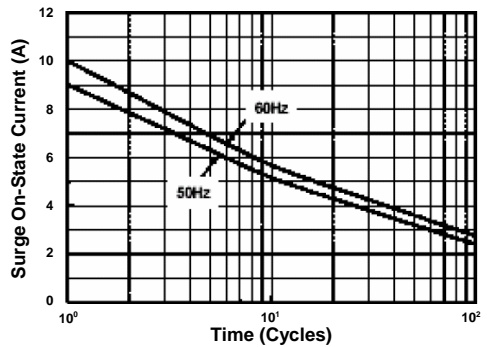


Fig 7. Gate Trigger Current vs. Junction Temperature

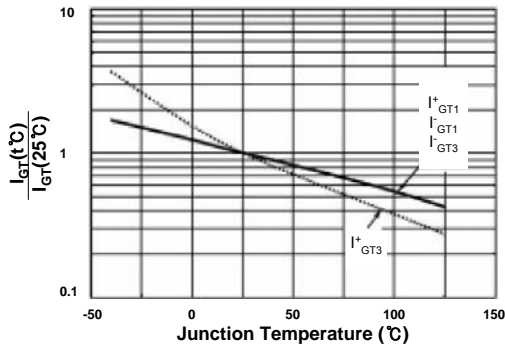


Fig8. Transient Thermal Impedance

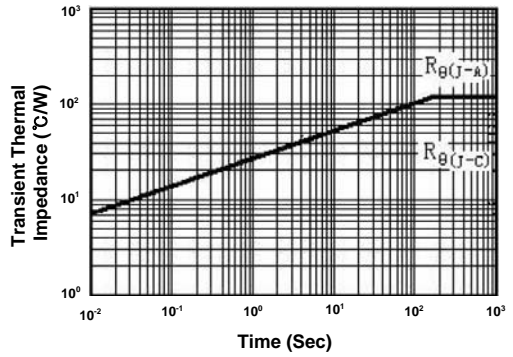
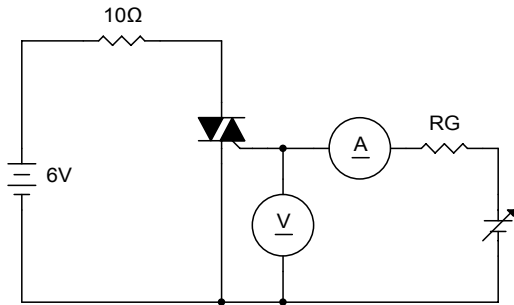
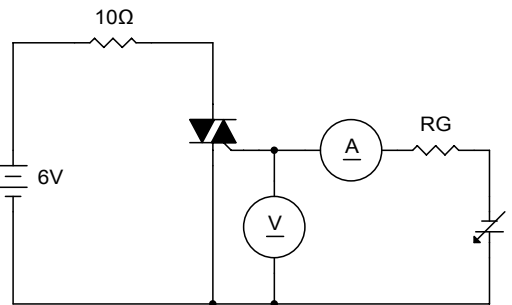


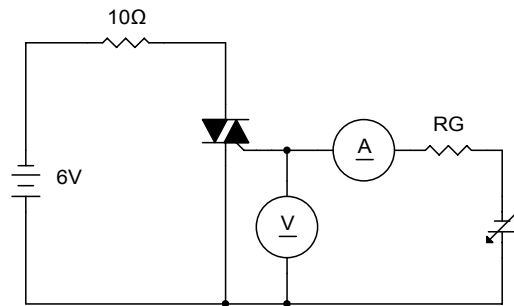
Fig 7. Gate Trigger Characteristics Test Circuit



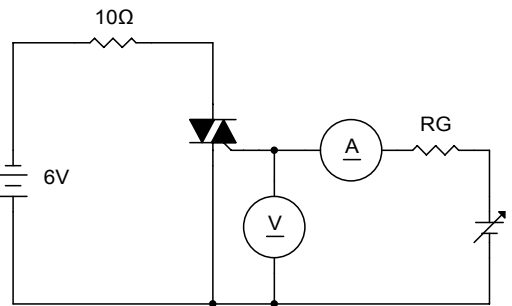
Test Procedure I



Test Procedure II



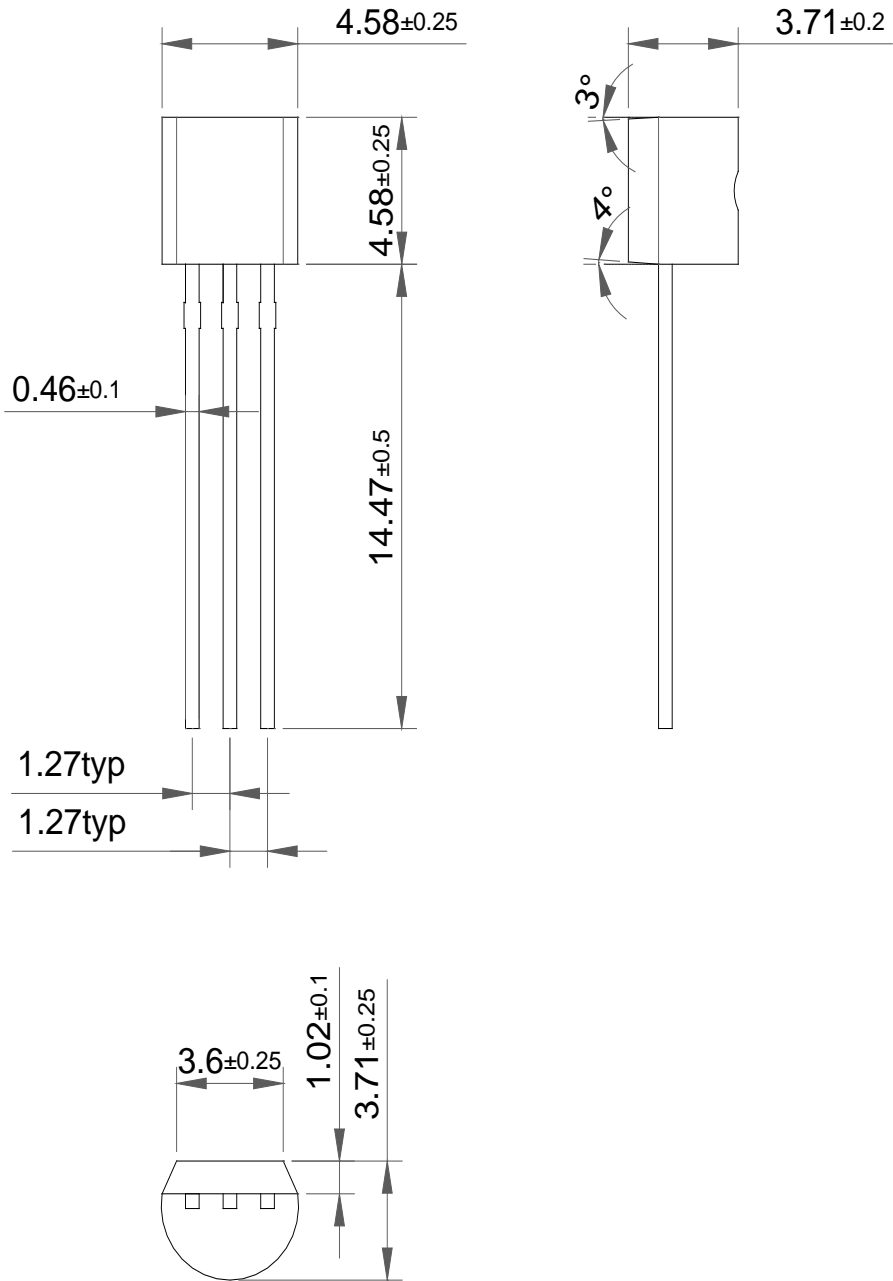
Test Procedure III



Test Procedure IV

Package Dimension

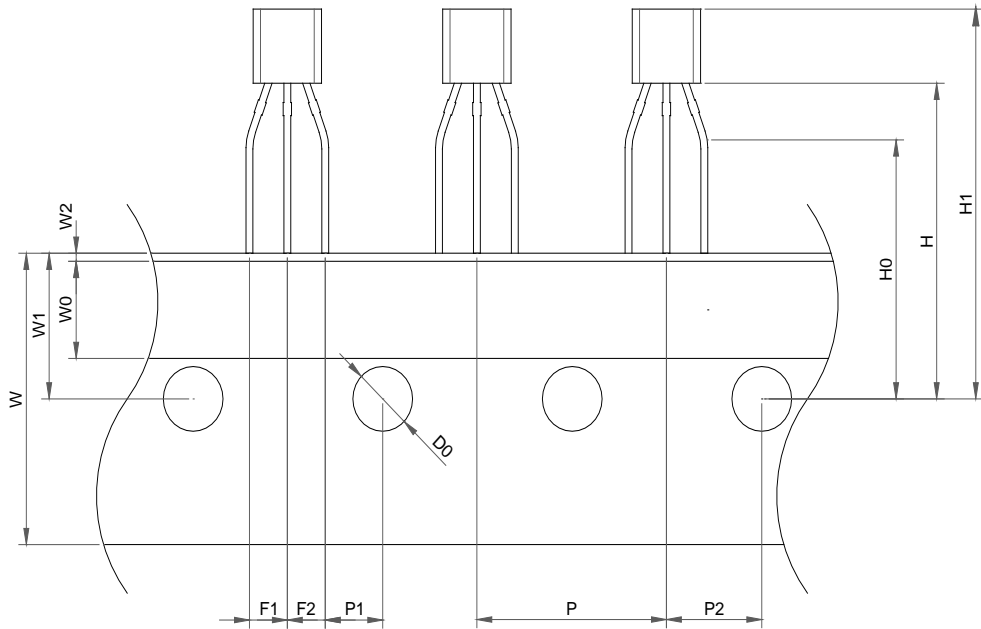
TO-92



Dimensions in Millimeters

Package Dimension

TO-92 TAPING



Item	Symbol	Dimension [mm]	
		Reference	Tolerance
Component pitch	P	12.7	±0.5
Side lead to center of feed hole	P1	3.85	±0.5
Center lead to center of feed hole	P2	6.35	±0.5
Lead pitch	F1,F2	2.5	+0.2/-0.1
Carrier Tape width	W	18.0	+1.0/-0.5
Adhesive tape width	W0	6.0	±0.5
Tape feed hole location	W1	9.0	±0.5
Adhesive tape position	W2	1.0 MAX	
Center of feed hole to bottom of component	H	19.5	±1
Center of feed hole to lead form	H0	16.0	±0.5
Component height	H1	27.0 max	
Tape feed hole diameter	D0	4.0	±0.2