

Bi-Directional Triode Thyristor

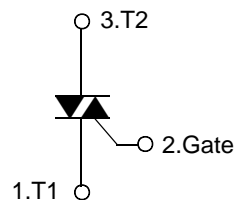
Features

- ◆ Repetitive Peak Off-State Voltage : 600/800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 1\text{ A}$)
- ◆ High Commutation dv/dt

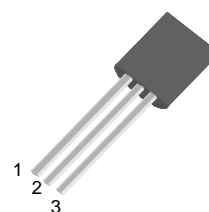
General Description

This device is suitable for low power AC switching application, phase control application such as fan speed and temperature modulation control, lighting control and static switching relay.

Symbol



TO-92



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

Symbol	Parameter	Condition	Ratings		Units
V_{DRM}	Repetitive Peak Off-State Voltage		600	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 58^\circ\text{C}$	1.0		A
I_{TSM}	Surge On-State Current	One Cycle, 50Hz/60Hz, Peak, Non-Repetitive	9.1/10		A
I_t^2	I_t^2		0.41		A^2s
P_{GM}	Peak Gate Power Dissipation		1.0		W
$P_{G(AV)}$	Average Gate Power Dissipation		0.1		W
I_{GM}	Peak Gate Current		0.5		A
V_{GM}	Peak Gate Voltage		6.0		V
T_J	Operating Junction Temperature		- 40 ~ 125		$^\circ\text{C}$
T_{STG}	Storage Temperature		- 40 ~ 150		$^\circ\text{C}$
	Mass		0.2		g

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Electrical Characteristics

Symbol	Items		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{DRM}	Repetitive Peak Off-State Current		$V_D = V_{DRM}$, Single Phase, Half Wave $T_J = 125\text{ }^\circ\text{C}$	-	-	0.5	mA
V_{TM}	Peak On-State Voltage		$I_T = 1.5\text{ A}$, Inst. Measurement	-	-	1.6	V
I_{GT1}^+	I	Gate Trigger Current	$V_D = 6\text{ V}$, $R_L = 10\ \Omega$	-	-	5	mA
I_{GT1}^-	II			-	-	5	
I_{GT3}^-	III			-	-	5	
I_{GT3}^+	IV			-	7	12	
V_{GT1}^+	I	Gate Trigger Voltage	$V_D = 6\text{ V}$, $R_L = 10\ \Omega$	-	-	1.8	V
V_{GT1}	II			-	-	1.8	
V_{GT3}	III			-	-	1.8	
V_{GT3}^+	IV			-	-	2.0	
V_{GD}	Non-Trigger Gate Voltage		$T_J = 125\text{ }^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	0.2	-	-	V
$(dv/dt)_c$	Critical Rate of Rise Off-State Voltage at Commutation		$T_J = 125\text{ }^\circ\text{C}$, $[di/dt]_c = -0.5\text{ A/ms}$, $V_D = 2/3 V_{DRM}$	2.0	-	-	V/ μs
I_H	Holding Current			-	4.0	-	mA
$R_{th(j-c)}$	Thermal Resistance		Junction to case	-	-	50	$^\circ\text{C/W}$
$R_{th(j-a)}$	Thermal Resistance		Junction to Ambient	-	-	120	$^\circ\text{C/W}$



Fig 1. Gate Characteristics

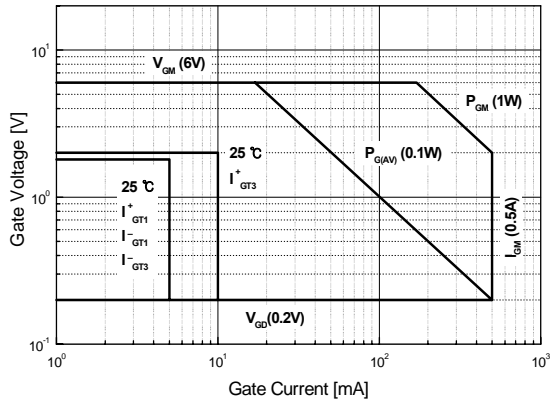


Fig 2. On-State Voltage

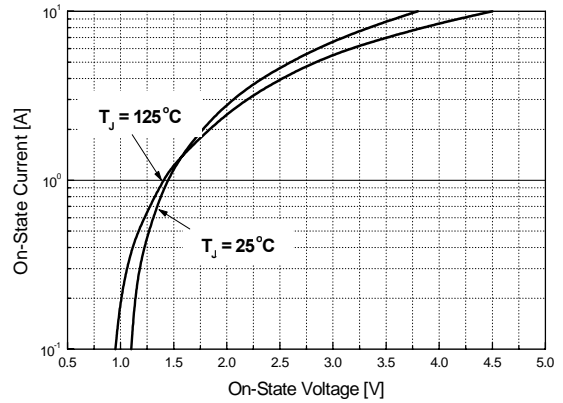


Fig 3. On State Current vs. Maximum Power Dissipation

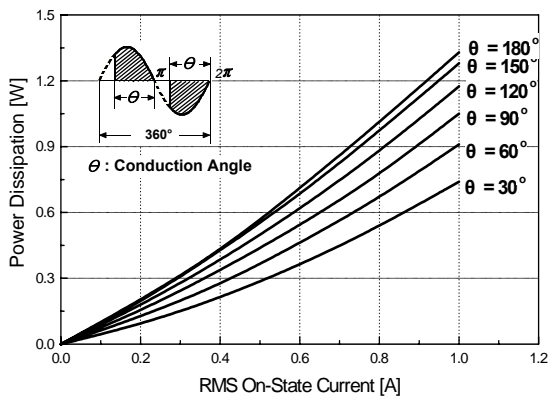


Fig 4. On State Current vs. Allowable Case Temperature

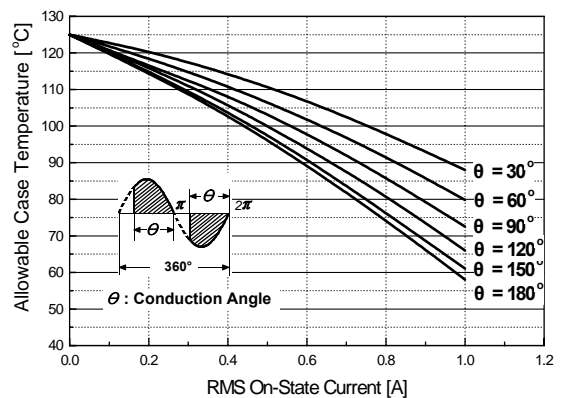


Fig 5. Surge On-State Current Rating (Non-Repetitive)

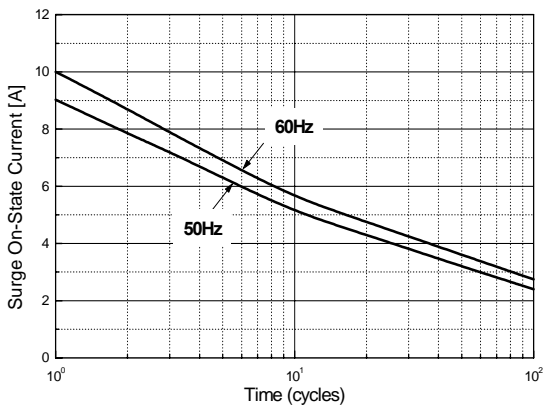
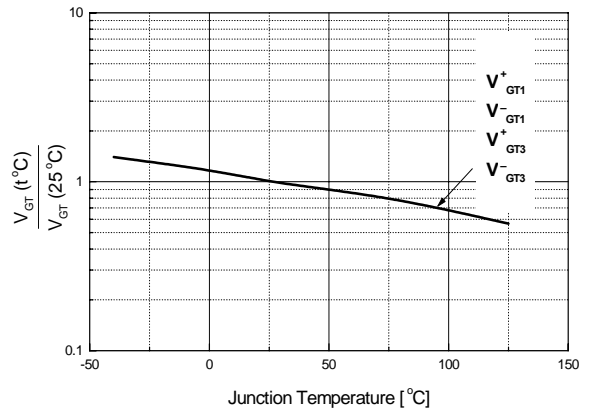


Fig 6. Gate Trigger Voltage vs. Junction Temperature



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Fig 7. Gate Trigger Current vs. Junction Temperature

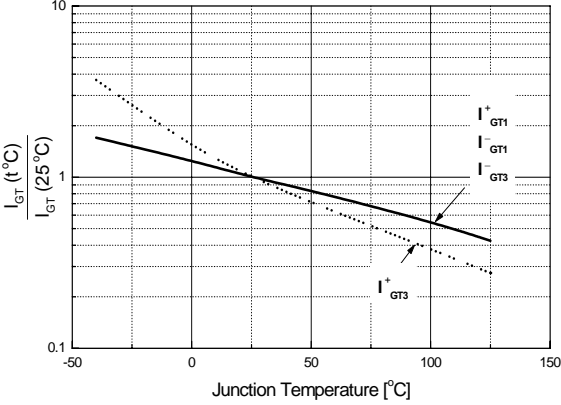


Fig 8. Transient Thermal Impedance

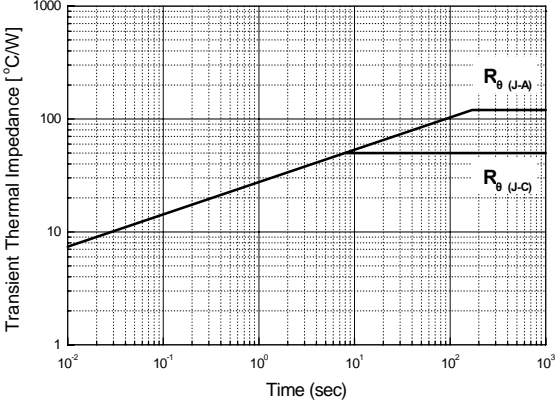
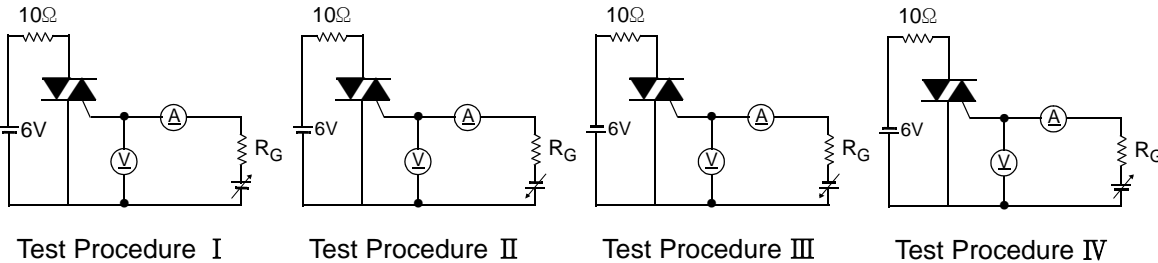


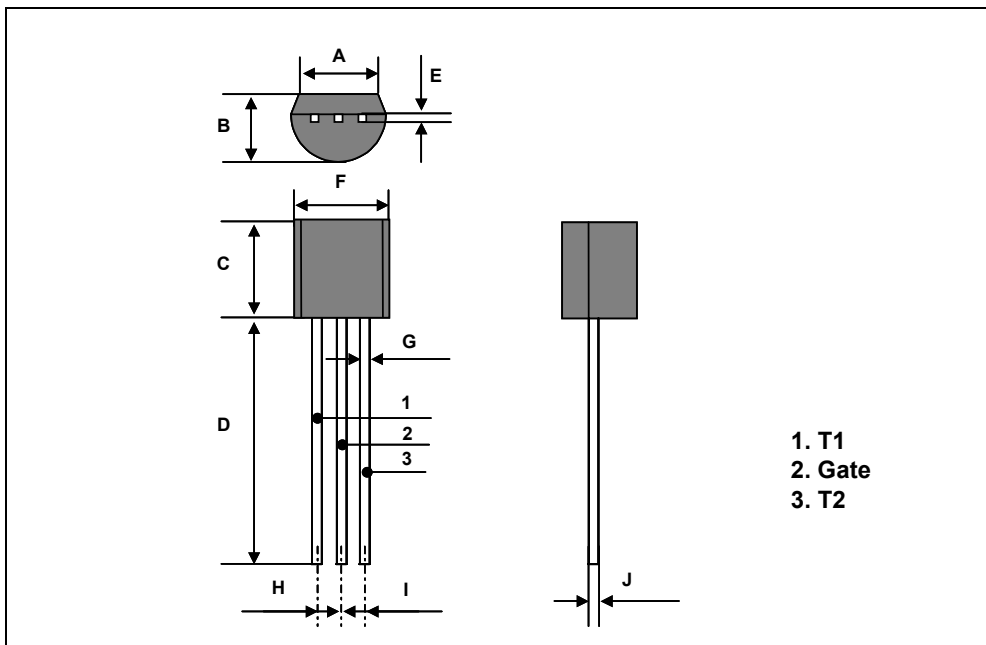
Fig 9. Gate Trigger Characteristics Test Circuit



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TO-92 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		4.2			0.165	
B			3.7			0.146
C	4.43		4.83	0.174		0.190
D	14.07		14.87	0.554		0.585
E			0.4			0.016
F	4.43		4.83	0.174		0.190
G			0.45			0.017
H		2.54			0.100	
I		2.54			0.100	
J	0.33		0.48	0.013		0.019



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G			0.45			0.017
H		2.54			0.100	
I		2.54			0.100	
J	0.33		0.48	0.013		0.019
K	4.5		5.5	0.177		0.216
L	7.8		8.2	0.295		0.323
M	1.8		2.2	0.070		0.086
N	1.3		1.7	0.051		0.067

