

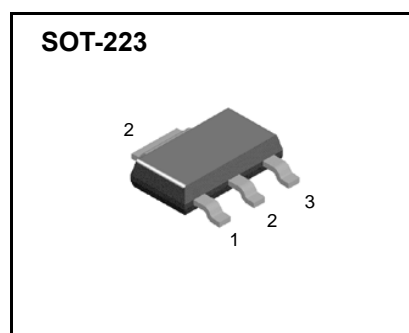
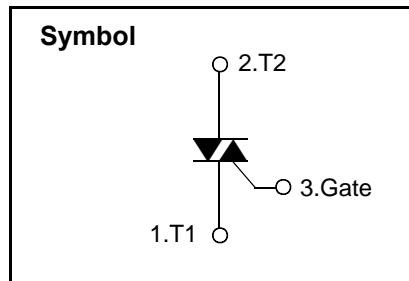
Bi-Directional Triode Thyristor

Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 1\text{ A}$)
- ◆ High Commutation dv/dt
- ◆ Sensitive Gate Triggering 4 Mode
- ◆ Surface Mount Package

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 also designed for use in MPU interface, TTL logic.



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

Symbol	Parameter	Condition	Ratings	Units
V_{DRM}	Repetitive Peak Off-State Voltage	Sine wave, 50 to 60 Hz, Gate open	600	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 90^\circ\text{C}$, Full Sine wave	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 Value for fusing	$t_p = 10\text{ms}$	0.41	A^2s
P_{GM}	Peak Gate Power Dissipation	$T_C = 90^\circ\text{C}$, Pulse width $\leq 1.0\mu\text{s}$	1.0	W
$P_{G(AV)}$	Average Gate Power Dissipation	$T_C = 90^\circ\text{C}$, $t = 8.3\text{ms}$	0.1	W
I_{GM}	Peak Gate Current	$t_p = 20\mu\text{s}$, $T_J = 125^\circ\text{C}$	0.5	A
V_{GM}	Peak Gate Voltage	$t_p = 20\mu\text{s}$, $T_J = 125^\circ\text{C}$	6.0	V
T_J	Operating Junction Temperature		- 40 ~ 125	$^\circ\text{C}$
T_{STG}	Storage Temperature		- 40 ~ 150	$^\circ\text{C}$

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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	$V_D = 6\text{ V}$, $R_L = 10\text{ }\Omega$	-	-	5	mA
I_{GT1}^-	II			-	-	5	
I_{GT3}^-	III			-	-	5	
I_{GT3}^+	IV			-	7	12	
V_{GT1}^+	I	Gate Trigger Voltage	$V_D = 6\text{ V}$, $R_L = 10\text{ }\Omega$	-	-	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	-	-	25	$^\circ\text{C/W}$
$R_{th(j-a)}$	Thermal Resistance		Junction to Ambient	-	-	60	$^\circ\text{C/W}$

※ Notes :

1. Pulse Width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$



Fig 1. Gate Characteristics

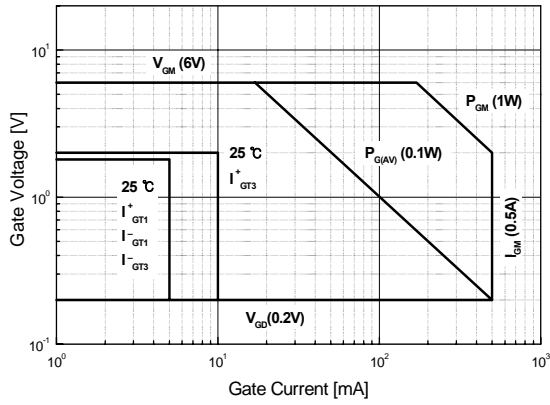


Fig 2. On-State Voltage

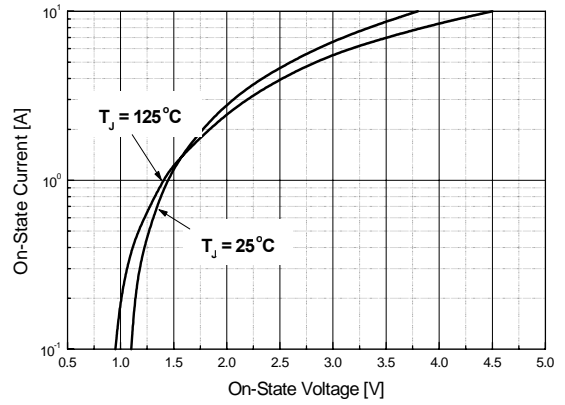


Fig 3. On State Current vs. Maximum Power Dissipation

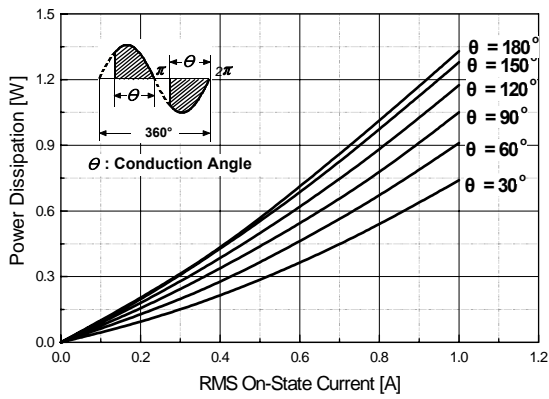


Fig 4. On State Current vs. Allowable Case Temperature

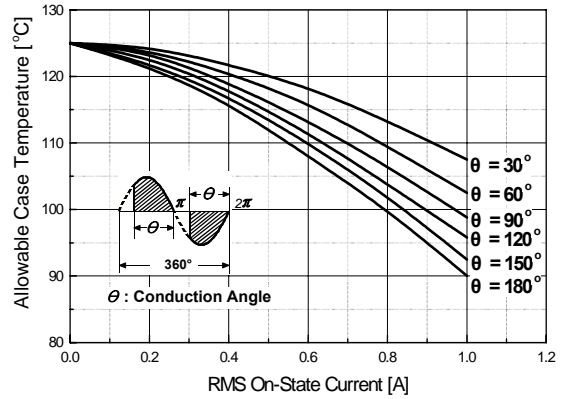


Fig 5. Surge On-State Current Rating (Non-Repetitive)

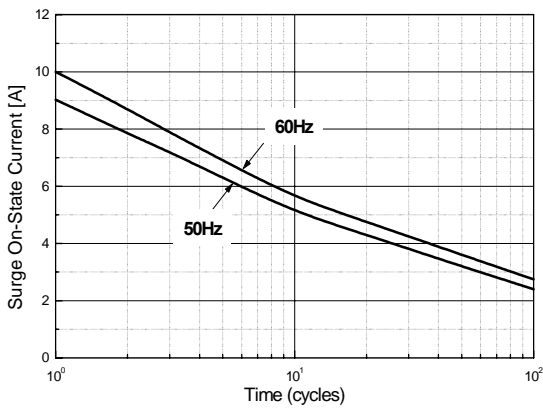
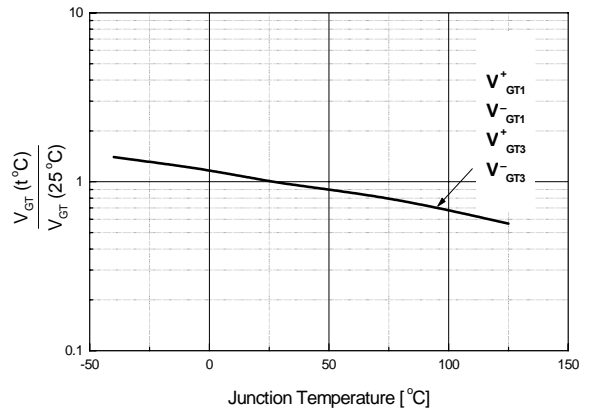


Fig 6. Gate Trigger Voltage vs. Junction Temperature



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Fig 7. Gate Trigger Current vs. Junction Temperature

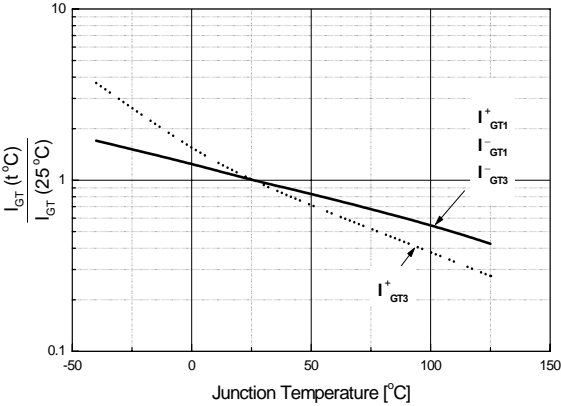


Fig 8. Transient Thermal Impedance

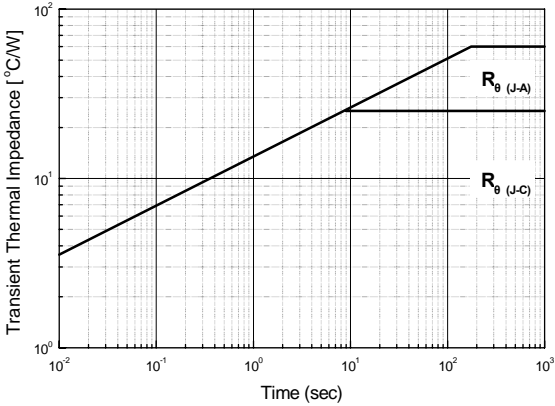
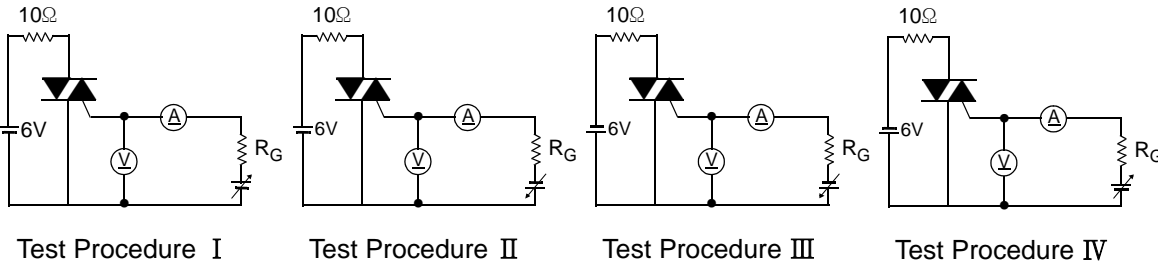


Fig 9. Gate Trigger Characteristics Test Circuit



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SOT-223 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.80			0.071
A1	0.02		0.1	0.0008		0.004
B	0.60	0.70	0.85	0.024	0.027	0.034
B1	2.90	3.00	3.15	0.114	0.118	0.124
C	0.24	0.26	0.35	0.009	0.010	0.014
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.3			0.090	
e1		4.6			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V	10° Max					

