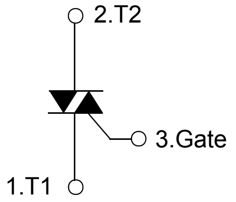
Bi-Directional Triode Thyristor

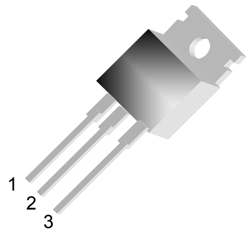
Symbol



Features

- Repetitive Peak Off-State Voltage : 600V
- R.M.S On-State Current ($I_{T(RMS)}$= 8 A)
- High Commutation dv/dt
- Non-isolated Type

TO-220



General Description

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

Absolute Maximum Ratings (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Condition	Ratings	Units
V_{DRM}	Repetitive Peak Off-State Voltage		600	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 105 °C	8.0	A
I_{TSM}	Surge On-State Current	One Cycle, 50Hz/60Hz, Peak, Non-Repetitive	80/88	A
I^2t	I^2t		32	A^2s
P_{GM}	Peak Gate Power Dissipation		5.0	W
$P_{G(AV)}$	Average Gate Power Dissipation		0.5	W
I_{GM}	Peak Gate Current		2.0	A
V_{GM}	Peak Gate Voltage		10	V
T_J	Operating Junction Temperature		- 40 ~ 125	°C
T_{STG}	Storage Temperature		- 40 ~ 150	°C
	Mass		2.0	g

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 °C	—	—	2.0	mA
V_{TM}	Peak On-State Voltage		I_T = 12 A, Inst. Measurement	—	—	1.4	V
I^{+}_{GT1}	Ⅰ	Gate Trigger Current	V_D = 6 V, R_L=10 Ω	—	—	30	mA
I^{-}_{GT1}	Ⅱ			—	—	30	
I^{-}_{GT3}	Ⅲ			—	—	30	
V^{+}_{GT1}	Ⅰ	Gate Trigger Voltage	V_D = 6 V, R_L=10 Ω	—	—	1.5	V
V^{-}_{GT1}	Ⅱ			—	—	1.5	
V^{-}_{GT3}	Ⅲ			—	—	1.5	
V_{GD}	Non-Trigger Gate Voltage		T_J = 125 °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 °C, [di/dt]c = -4.0 A/ms, V_D=2/3 V_{DRM}	10	—	—	V/μs
I_H	Holding Current			—	15	—	mA
$R_{th(j-c)}$	Thermal Impedance		Junction to case	—	—	2.0	°C/W

Fig 1. Gate Characteristics

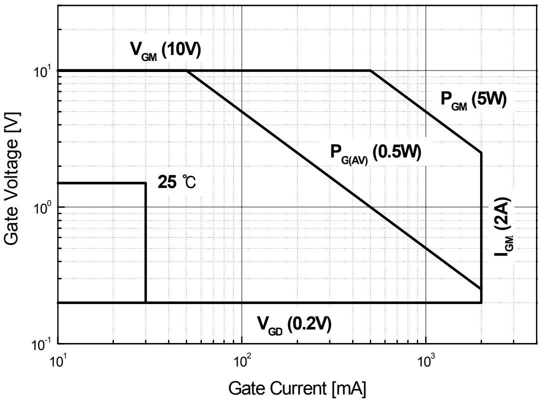


Fig 2. On-State Voltage

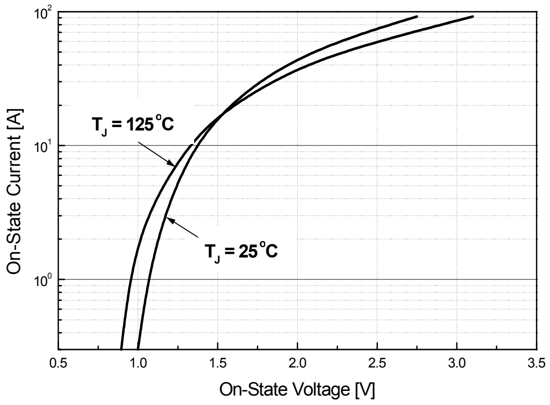


Fig 3. On State Current vs. Maximum Power Dissipation

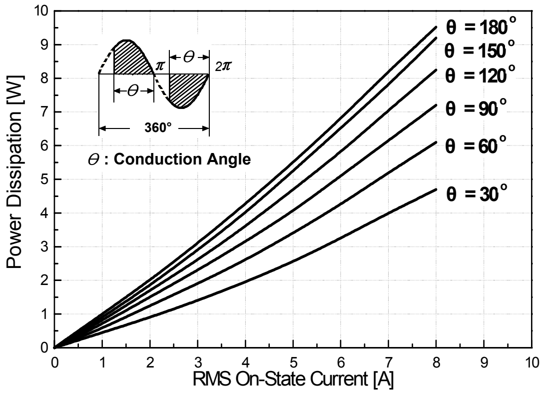


Fig 4. On State Current vs. Allowable Case Temperature

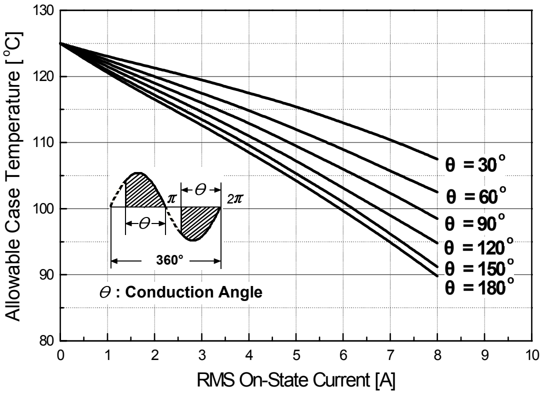


Fig 5. Surge On-State Current Rating (Non-Repetitive)

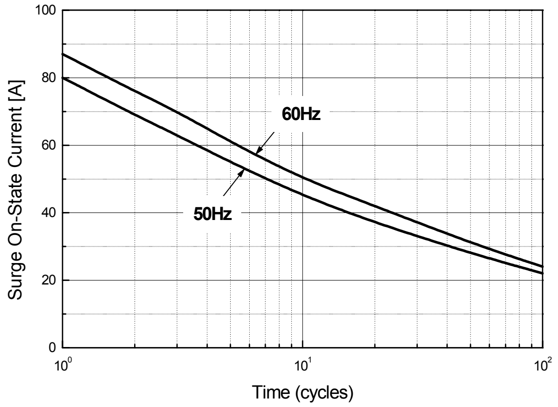
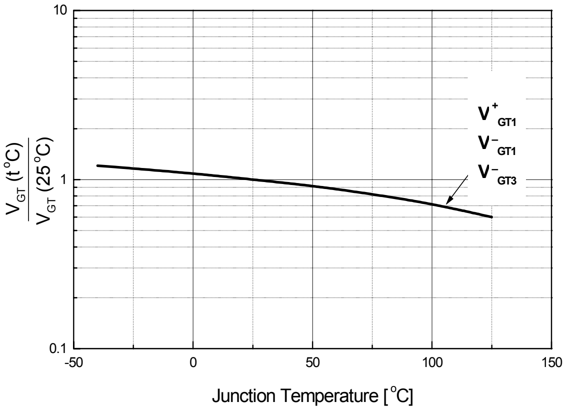


Fig 6. Gate Trigger Voltage vs. Junction Temperature



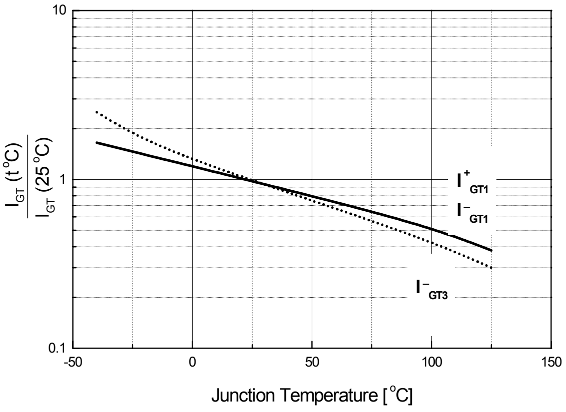


Fig 7. Gate Trigger Current vs. Junction Temperature

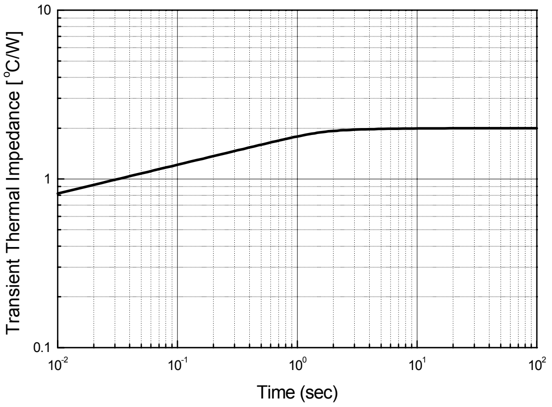
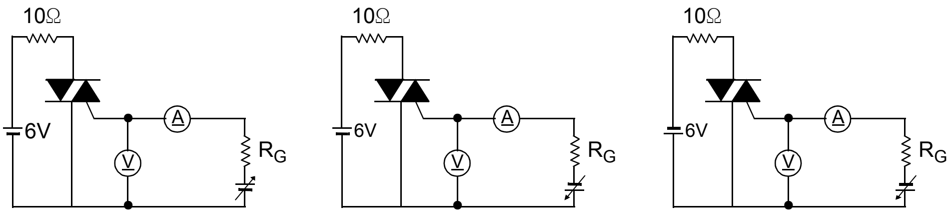


Fig 8. Transient Thermal Impedance

Fig 9. Gate Trigger Characteristics Test Circuit



Test Procedure Ⅰ

Test Procedure Ⅱ

Test Procedure Ⅲ

TO-220 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.7		10.1	0.382		0.398
B	6.3		6.7	0.248		0.264
C	9.0		9.47	0.354		0.373
D	12.8		13.3	0.504		0.524
E	1.2		1.4	0.047		0.055
F		1.7			0.067	
G		2.5			0.098	
H	3.0		3.4	0.118		0.134
I	1.25		1.4	0.049		0.055
J	2.4		2.7	0.094		0.106
K	5.0		5.15	0.197		0.203
L	2.2		2.6	0.087		0.102
M	1.42		1.62	0.056		0.064
N	0.45		0.6	0.018		0.024
O	0.7		0.9	0.027		0.035
ϕ		3.6			0.142