

2 A (4 Ar.m.s.) THYRISTOR

<R> DESCRIPTION

The 2P4M and 2P6M are a P gate all diffused mold type Thyristor granted 2 A On-state Average Current ($T_c = 77^\circ\text{C}$), with rated voltages up to 600 V.

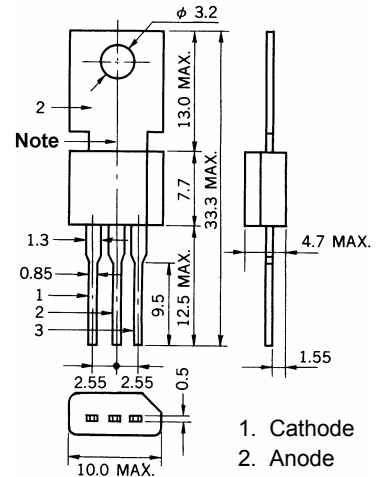
FEATURES

- Easy installation by TO-202AA package.
- Less holding current distribution provides free application design.

APPLICATIONS

- Electric blanket, Electronic jar, Various temperature control.
- Electric sewing machine, Speed control of miniature type motor.
- Light display equipment, Lamp dimmer such as a display for entertainment.
- Automatic gas lighter, Battery charger.
- Solid state static switches etc.

<R> PACKAGE DRAWING (Unit: mm)



1. Cathode
 2. Anode
 3. Gate
- Standard weight : 1.4g

Note T_c test point

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<R> **MAXIMUM RATINGS**

CHARACTERISTICS	SYMBOL	2P4M	2P6M	UNIT	REMARK
Non-repetitive Peak Reverse Voltage ^{Note}	V_{RSM}	500	700	V	$R_{GK} = 1\text{ k}\Omega$
Non-repetitive Peak Off-state Voltage ^{Note}	V_{DSM}	500	700	V	$R_{GK} = 1\text{ k}\Omega$
Repetitive Peak Reverse Voltage ^{Note}	V_{RRM}	400	600	V	$R_{GK} = 1\text{ k}\Omega$
Repetitive Peak Off-state Voltage ^{Note}	V_{DRM}	400	600	V	$R_{GK} = 1\text{ k}\Omega$
On-state Current	$I_{T(AV)}$	2 ($T_c = 77^\circ\text{C}$, $\theta = 180^\circ$, Single phase half wave)		A	See Fig. 3, Fig. 4
Effective On-state Current	$I_{T(RMS)}$	4		A	–
Surge Non-repetitive On-state Current	I_{TSM}	20 (f = 50 Hz, sin half wave, 1 cycle)		A	See Fig. 10
Fusing Current	$\int i^2 dt$	1.6 (1 ms $\leq t \leq$ 10 ms)		A ² s	–
Critical Rate Rise of On-state Current	di_T/dt	50		A/ μ s	–
Peak Gate Power Dissipation	P_{GM}	0.5 (f \geq 50 Hz, Duty \leq 10%)		W	–
Average Gate Power Dissipation	$P_{G(AV)}$	0.1		W	–
Peak Gate Forward Current	I_{FGM}	0.2 (f \geq 50 Hz, Duty \leq 10%)		A	–
Peak Gate Reverse Voltage	V_{RGM}	6		V	–
Junction Temperature	T_j	–40 to +125		°C	–
Storage Temperature	T_{stg}	–55 to +150		°C	–

Note T_c: Case Temperature is measured at 1.5 mm from the neck of Tablet.

<R> **ELECTRICAL CHARACTERISTICS (T_A = 25°C, R_{GK} = 1 kΩ)**

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	REMARK	
Repetitive Peak Reverse Current ^{Note}	I_{RRM}	$V_{RM} = V_{RRM}$,	$T_j = 25^\circ\text{C}$	–	–	10	μA	–
			$T_j = 125^\circ\text{C}$	–	–	100		–
Repetitive Peak Off-state Current ^{Note}	I_{DRM}	$V_{DM} = V_{DRM}$,	$T_j = 25^\circ\text{C}$	–	–	10	μA	–
			$T_j = 125^\circ\text{C}$	–	–	100		–
Critical Rate Rise of Off-state Voltage	dV_D/dt	$T_j = 125^\circ\text{C}$, $V_{DM} = 2/3 V_{DRM}$	10	–	–	V/ μ s	2P4M	
			–	10	–		2P6M	
On-state Voltage	V_{TM}	$I_{TM} = 4\text{ A}$	–	–	2.2	V	See Fig. 1	
Gate-trigger Current ^{Note}	I_{GT}	$V_{DM} = 6\text{ V}$, $R_L = 100\ \Omega$,	–	–	200	μA	See Fig. 5, Fig. 7	
Gate-trigger Voltage ^{Note}	V_{GT}	$V_{DM} = 6\text{ V}$, $R_L = 100\ \Omega$,	–	–	0.8	V	See Fig. 6, Fig. 8	
Gate Non-trigger Voltage ^{Note}	V_{GD}	$V_{DM} = 1/2 V_{DRM}$, $T_j = 125^\circ\text{C}$,	0.2	–	–	V	–	
Holding Current ^{Note}	I_H	$V_{DM} = 24\text{ V}$, $I_{TM} = 4\text{ A}$	–	1	3	mA	See Fig. 9	
Circuit Commuted Turn-off Time	t_q	$T_j = 125^\circ\text{C}$, $I_{TM} = 500\text{ mA}$, $di_T/dt = 15\text{ A}/\mu\text{s}$, $V_R \geq 25\text{ V}$, $V_{DM} = 2/3 V_{DRM}$, $dV_D/dt = 10\text{ V}/\mu\text{s}$	–	30	–	μs	–	
Thermal Resistance	$R_{th(j-c)}$	Junction to case DC	–	–	10	°C/W	See Fig. 11	
	$R_{th(j-a)}$	Junction to ambient DC	–	–	75			

Note Insert a resistance less than 1 kΩ between gate and cathode, because the items indicated are guaranteed by connecting short resistance between gate and cathode ($R_{GK} = 1\text{ k}\Omega$).

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Fig. 1 $I_{TM}-V_{TM}$ CHARACTERISTICS

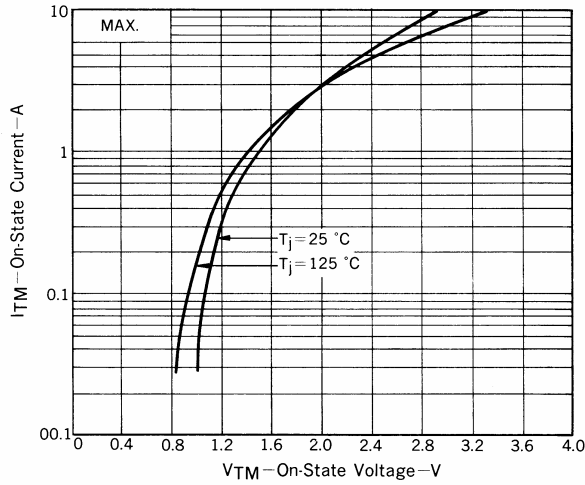


Fig. 2 $P_{T(AV)}-I_{T(AV)}$ CHARACTERISTICS

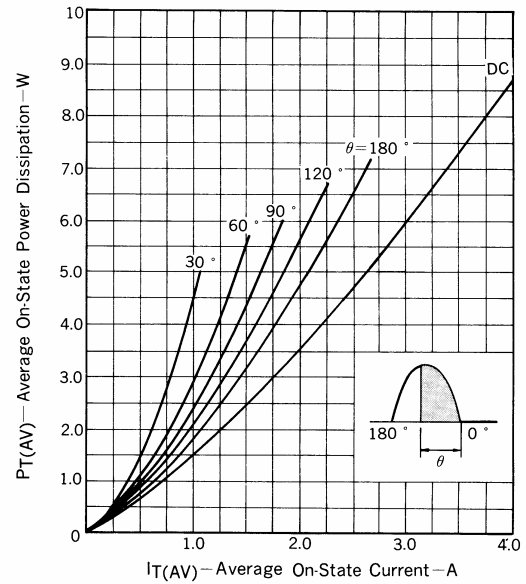


Fig. 3 $I_{T(AV)}-T_C$ RATINGS

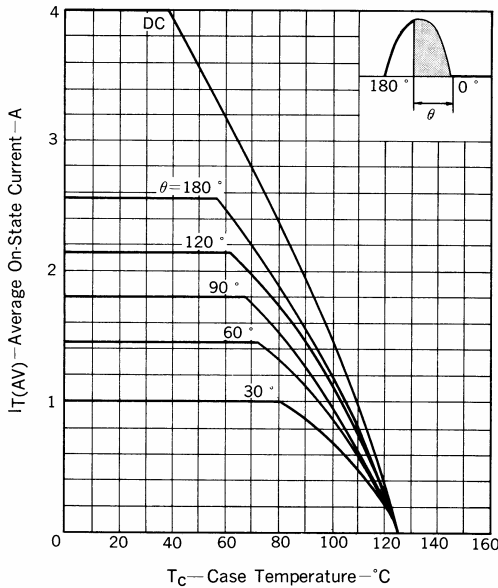


Fig. 4 $T_a-I_{T(AV)}$ RATINGS

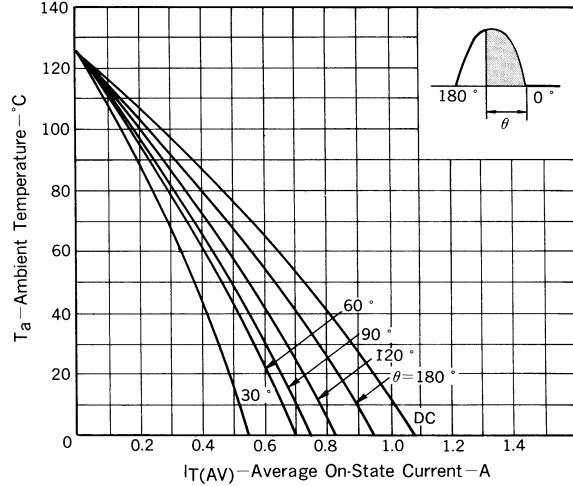


Fig. 5 $I_{GT}-T_a$ TYPICAL DISTRIBUTION

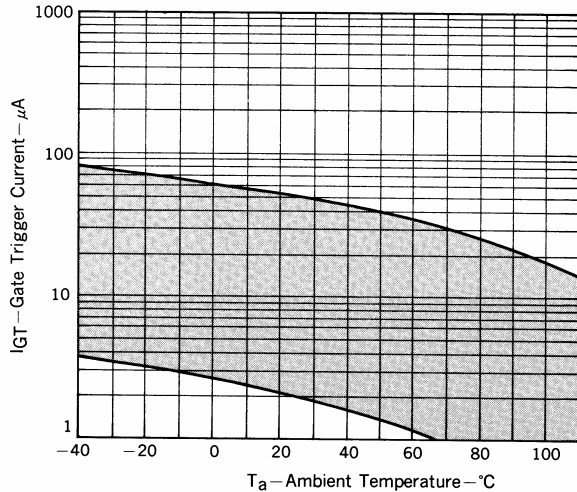
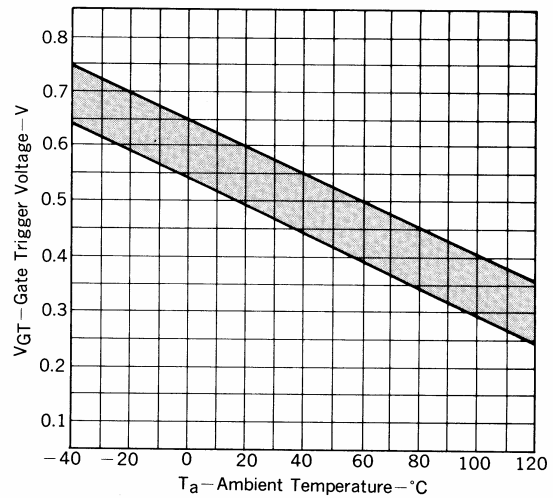
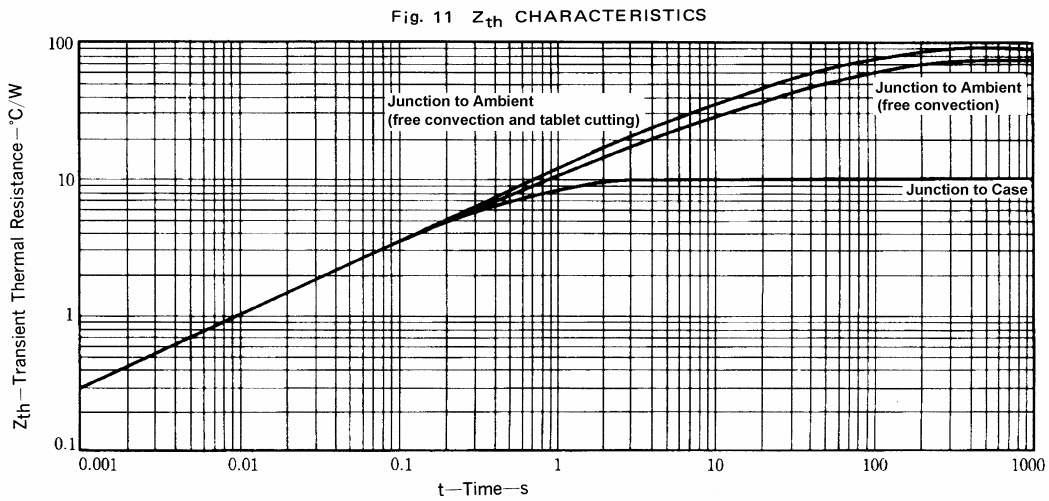
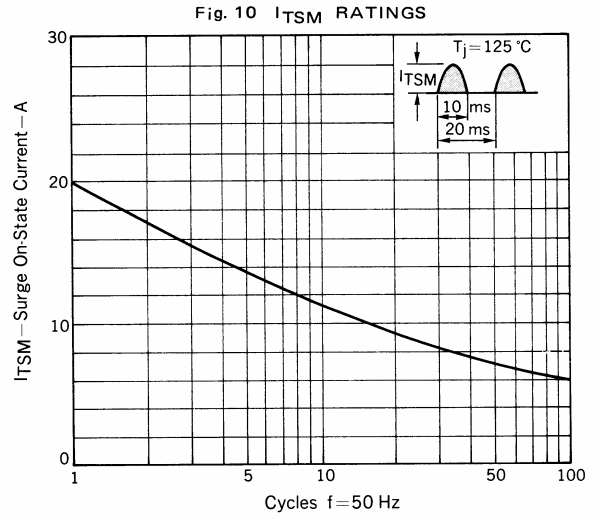
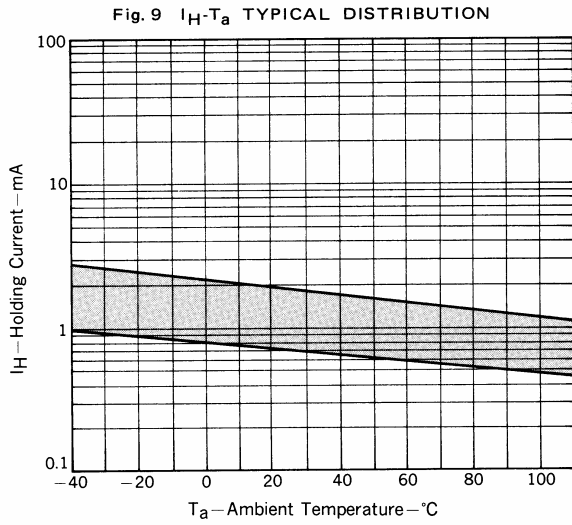
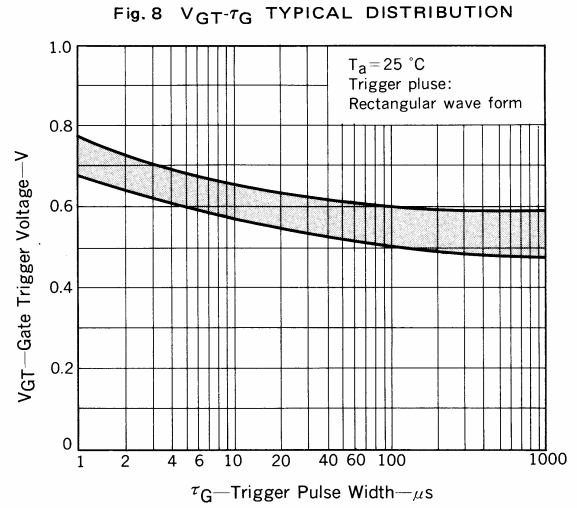
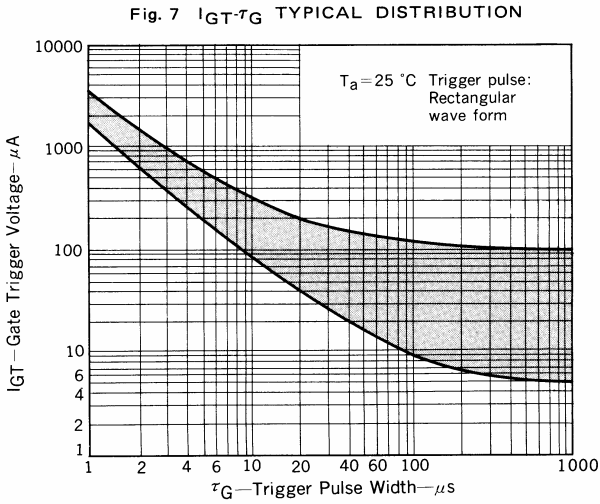


Fig. 6 $V_{GT}-T_a$ TYPICAL DISTRIBUTION





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