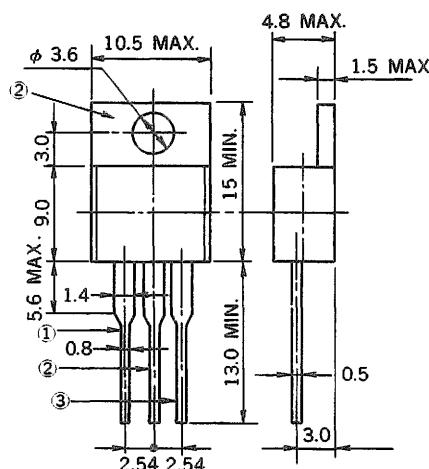


8 A(12 A_{r.m.s.})THYRISTOR**PACKAGE DIMENSIONS**
in millimeters
Pin Connection
 ① Cathode
 ② Anode
 ③ Gate

The 8P2M and 8P4M are P gate all diffused mold type Thyristor granted 8 Amp On-state Average Current ($T_c = 90^\circ\text{C}$), with voltages up to 400 volts.

FEATURES

- Easy installation by TO-220 AB package.
- 100 A surge current.
- High Voltage.
 - : $V_{DRM}, V_{RRM} = 200 \text{ V}$ (8P2M)
 - : $V_{DRM}, V_{RRM} = 400 \text{ V}$ (8P4M)

APPLICATIONS

- Motor speed control for household appliance.
- Temperature control for heater and constant temperature box.
- Constant voltage power source and battery charger.
- Automotive application such as regulator.
- Various solid state relay etc.

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	8P2M	8P4M	UNIT	NOTE
Non-Repetitive Peak Reverse Voltage	V_{RSM}	300	500	V	
Non-Repetitive Peak Off-State Voltage	V_{DSM}	300	500	V	
Repetitive Peak Reverse Voltage	V_{RRM}	200	400	V	
Repetitive Peak Off-State Voltage	V_{DRM}	200	400	V	
Average On-State Current	$I_{T(AV)}$	$8 \text{ (} T_c = 90^\circ\text{C}, \theta = 180^\circ \text{ Single phase half wave)}$			A See Fig. 11
Surge On-State Current	I_{TSM}	100			A See Fig. 2
Fusing Current	$\int i T^2 dt$	45 (1 ms $\leq t \leq 10$ ms)			$A^2 s$
Peak Gate Power Dissipation	P_{GM}	5 (f ≥ 50 Hz, Duty $\leq 10\%$)			W
Average Gate Power Dissipation	$P_{G(AV)}$	0.5			W
Peak Gate Forward Current	I_{FGM}	2 (f ≥ 50 Hz, Duty $\leq 10\%$)			A
	V_{RGM}	10			V
Junction Temperature	T_j	-40 to +125			$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150			$^\circ\text{C}$
Weight		2			g

NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Repetitive Peak Reverse Current	I _{RRM}	$V_{RM} = V_{RRM}, T_j = 125^\circ\text{C}$	—	—	2	mA	
Repetitive Peak Off-State Current	I _{DRM}	$V_{DM} = V_{DRM}, T_j = 125^\circ\text{C}$	—	—	2	mA	
On-State Voltage	V _{TM}	$I_{TM} = 25 \text{ A}$	—	—	1.4	V	See Fig. 1
Gate-Trigger Current	I _{GT}	$V_{DM} = 6 \text{ V}, R_L = 100 \Omega$	—	—	10	mA	See Fig. 4
Gate-Trigger Voltage	V _{GT}	$V_{DM} = 6 \text{ V}, R_L = 100 \Omega$	—	—	1.5	V	
Gate Non-Trigger Voltage	V _{GD}	$V_{DM} = 1/2 V_{DRM}, T_j = 125^\circ\text{C}$	0.2	—	—	V	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DM} = V_{DRM}, T_j = 125^\circ\text{C}$	—	40	—	V/ μ s	
Holding Current	I _H	$V_D = 24 \text{ V}$	—	6	—	mA	
Circuit Commuted Turn-Off Time	t _q	$I_{TM} = 5 \text{ A}, V_R \geq 25 \text{ V}$ $V_{DM} = 2/3 V_{DRM}, dI/dt = 15 \text{ A}/\mu\text{s}$ $dv/dt = 10 \text{ V}/\mu\text{s}, T_j = 125^\circ\text{C}$	—	100	—	μ s	
Thermal Resistance	R _{th}	Junction to case	—	—	3	$^\circ\text{C}/\text{W}$	See Fig. 13

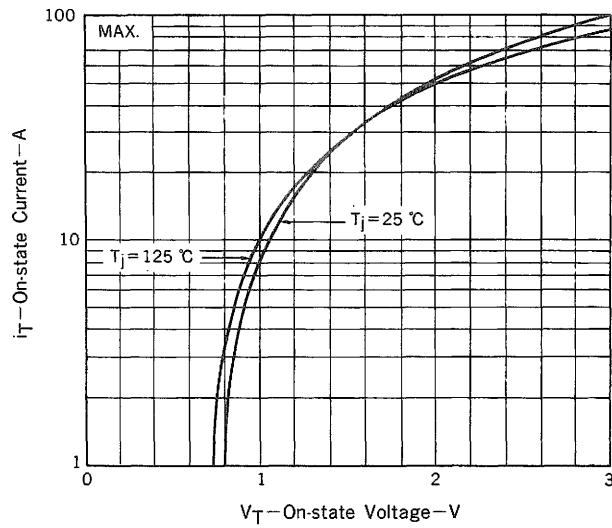
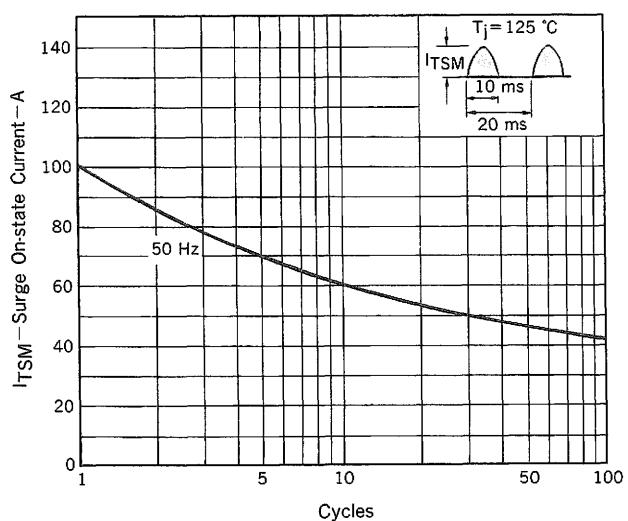
Fig. 1 i_T - V_T CHARACTERISTICFig. 2 I_{TSM} RATING

Fig. 3 GATE POWER RATING

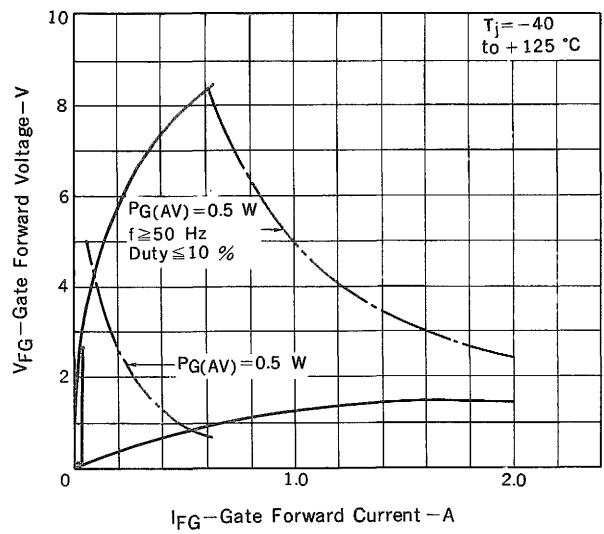
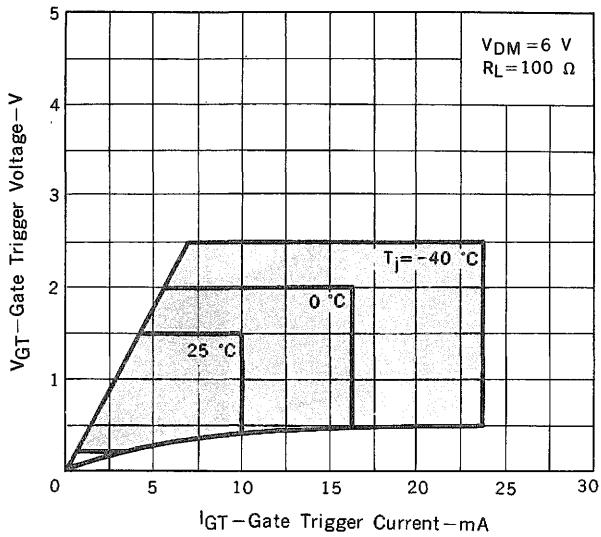
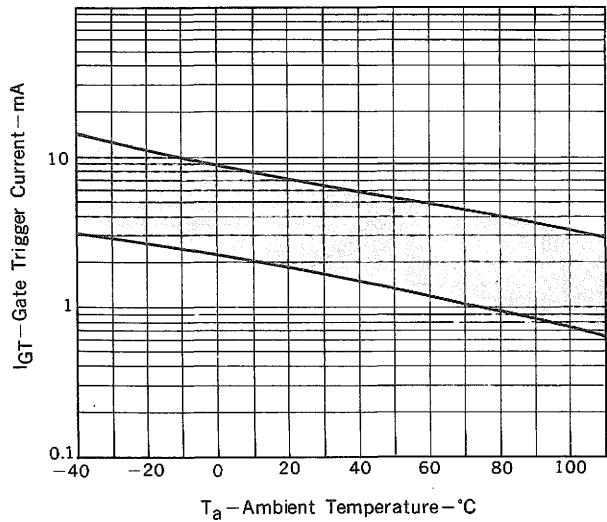
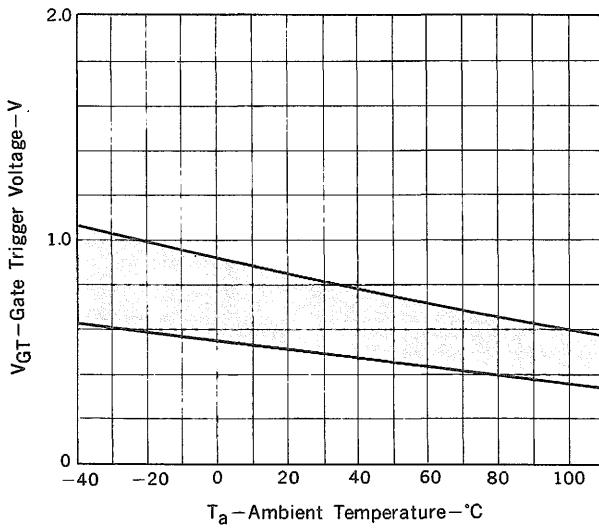
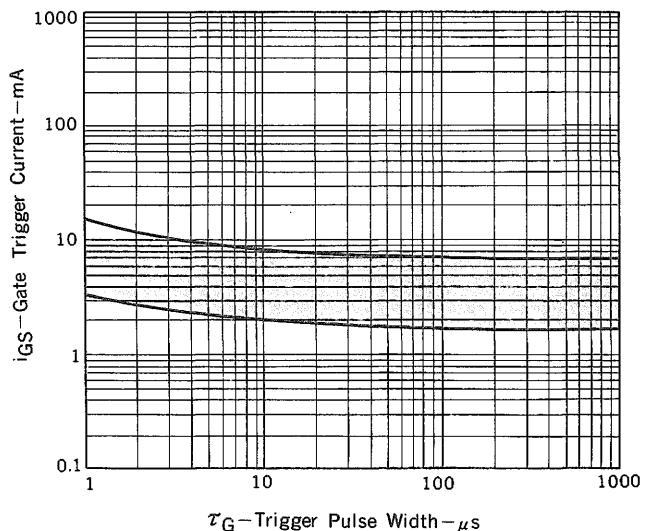
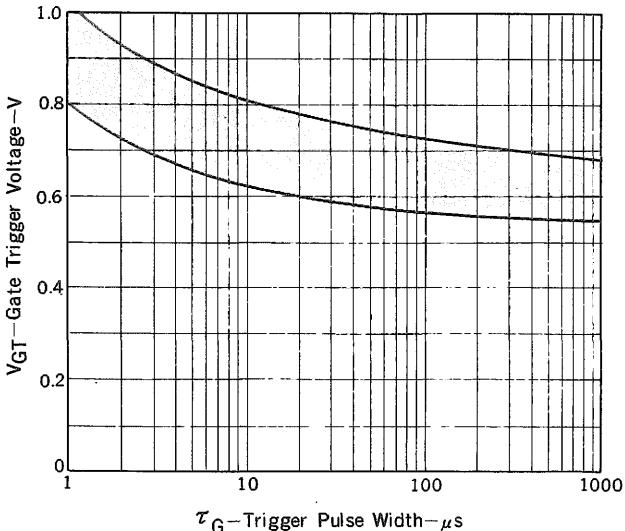
Fig. 4 $I_{GT} - V_{GT}$ DISTRIBUTIONFig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTIONFig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTIONFig. 7 $i_{GS} - \tau_G$ TYPICAL DISTRIBUTIONFig. 8 $V_{GT} - \tau_G$ TYPICAL DISTRIBUTION

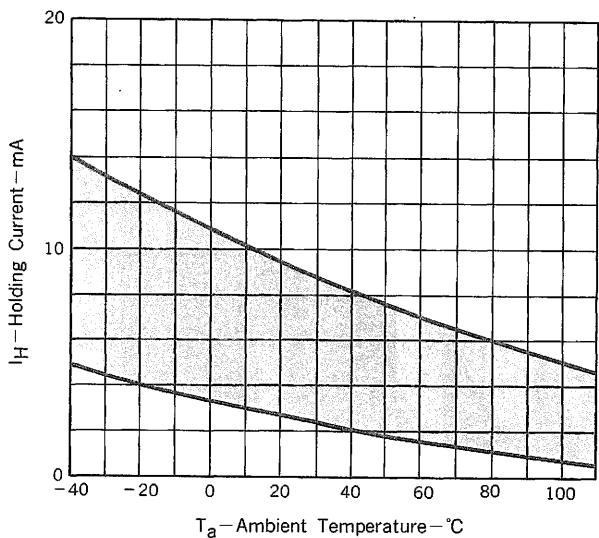
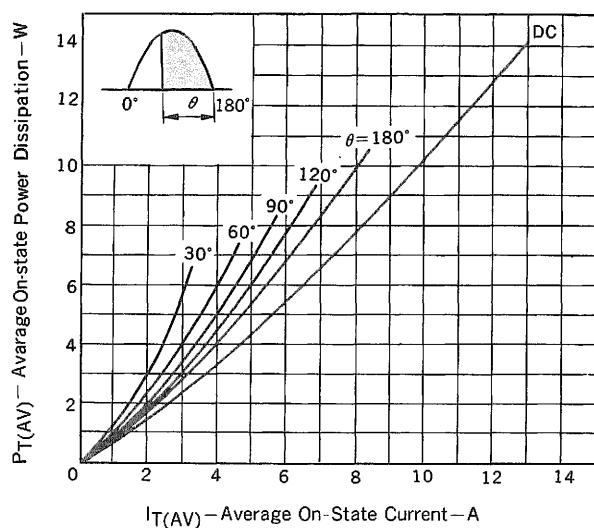
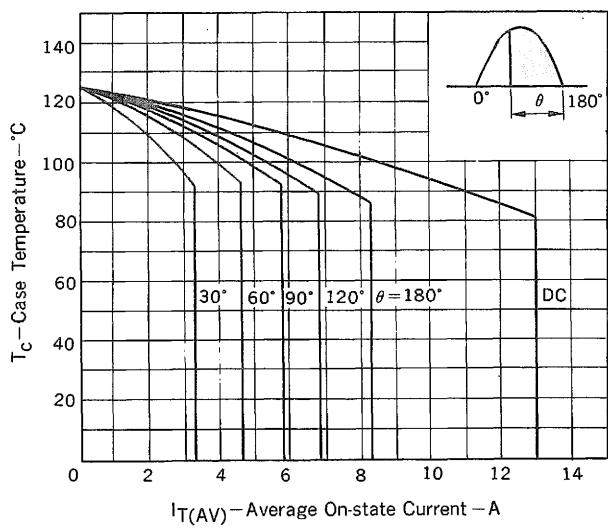
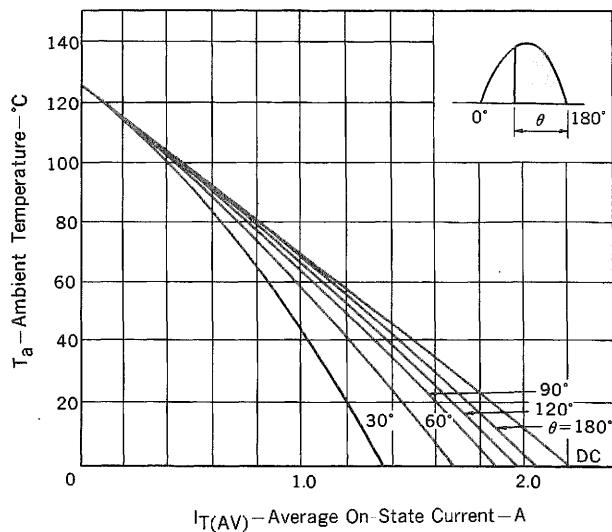
Fig. 9 $I_H - T_a$ TYPICAL DISTRIBUTIONFig. 10 $P_T(AV) - I_T(AV)$ CHARACTERISTICSFig. 11 $T_c - I_T(AV)$ RATINGFig. 12 $T_a - I_T(AV)$ RATING

Fig. 13 Z_{th} CHARACTERISTICS