NEC
ELECTRON DEVICE

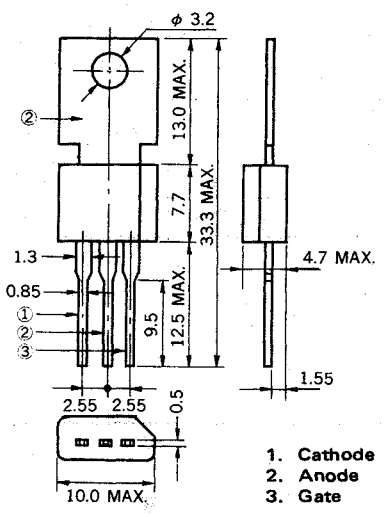
THYRISTOR

2V5P4M

2.5 A(4 $A_{r.m.s.}$) PLASTIC MOLDED THYRISTOR

PACKAGE DIMENSIONS

in millimiters



DESCRIPTION

The 2V5P4M is P-gate all diffused plastic molded type SCR granted average on-state current 2.5 Amps (T_C = 86 °C), with rated voltages 400 volts.

FEATURES

- Easy installation by its miniature size and thin electrode leads.
- Less holding current distribution provides free application design.
- Low cost because of mass-production.

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.

MAXIMUM RATINGS

ITEM	SYMBOL	2V5P4M	UNIT	NOTE
Non-Repetitive Peak Reverse Voltage *	V_{RSM}	500	V	
Non-Repetitive Peak-off Voltage *	V_{DSM}	500	V	
Repetitive Reverse Voltage *	V_{RRM}	400	V	
Repetitive Peak-off Voltage *	V_{DRM}	400	V	
On-state Current	$I_{T(AV)}$	2.5 (T_C = 86 °C, θ = 180 Single Phase half wave)	A	Fig. 10
	$I_{T(RSM)}$	4.0		
Surge On-state Current	I_{TSM}	45	A	Fig. 2
Critical Rate-Rise of On-State Current	di/dt	50	A/μs	
Gate Power Dissipation	P_{GM}	1 (f ≧ 50 Hz, Duty ≦ 10 %)	W	
Gate Power Dissipation	$P_{G(AV)}$	0.2	W	
Gate Forward Current	I_{FGM}	0.5 (f ≧ 50 Hz, Duty ≦ 10 %)	A	
Gate Reverse Voltage	V_{RGM}	6	V	
Junction Temperature	T_j	−40 to +125	°C	
Storage Temperature	T_{stg}	−40 to +150	°C	

***Note**: Insert a resistance below 1 kΩ between gate and cathode, because the items are guaranteed by connecting short resistance between gate and cathode (R_{GK} = 1 kΩ).

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

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Repetitive Peak Reverse Current*	I_{RRM}	V_{RM} = 400 V, T_j = 125 °C R_{GK} = 1 kΩ	–	–	1	mA	
Repetitive Peak Off-state Current*	I_{DRM}	V_{DM} = 400 V, T_j = 125 °C R_{GK} = 1 kΩ	–	–	1	mA	
On-state Voltage	V_{TM}	I_{TM} = 4 A	–	–	1.4	V	See Fig. 1
Gate-Trigger Current*	I_{GT}	V_{DM} = 6 V, R_L = 100 Ω R_{GK} = 1 kΩ	–	–	100	μA	See Fig. 4, Fig. 6
Gate-Trigger Voltage*	V_{GT}	V_{DM} = 6 V, R_L = 100 Ω R_{GK} = 1 kΩ	–	–	0.8	V	See Fig. 5, Fig. 7
Gate Non-Trigger Voltage*	V_{GD}	V_{DM} = 200 V, T_j = 125 °C R_{GK} = 1 kΩ	0.2	–	–	V	
Critical Rate-of-Rise of Off-state Voltage	dv/dt	V_{DM} = 270 V, T_j = 125 °C R_{GK} = 1 kΩ	–	10	–	V/μS	
Holding Current*	I_H	V_D = 24 V, R_{GK} = 1 kΩ I_{TM} = 5 A	–	–	5	mA	See Fig. 8
Thermal Resistance	$R_{th\ (j\text{-}c)}$	Junction to Case	–	–	10	°C/W	See Fig. 12
	$R_{th\ (j\text{-}a)}$	Junction to Ambient	–	–	75		See Fig. 12

EXAMPLE OF R_{GK} INSERTION

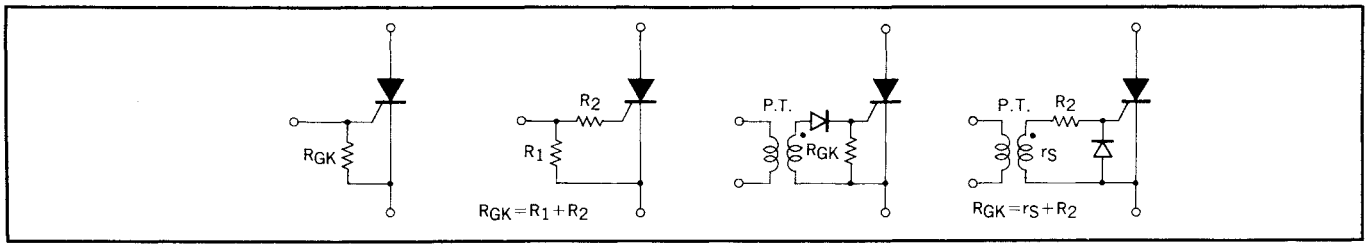


Fig. 1 I_{TM}-V_{TM} CHARACTERISTICS

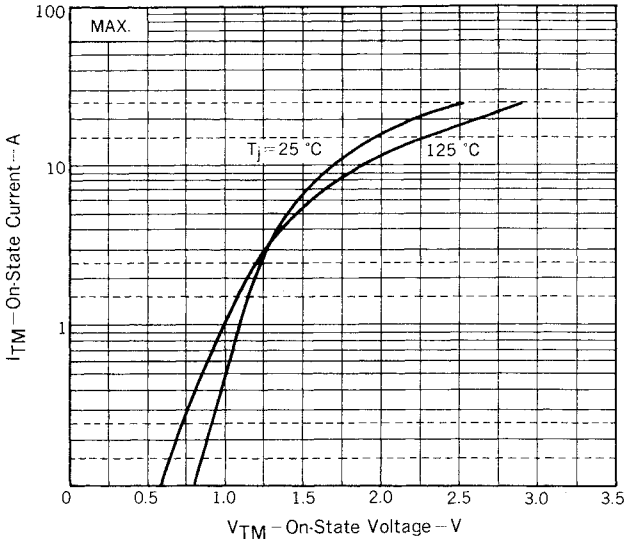


Fig. 2 I_{TSM} RATING

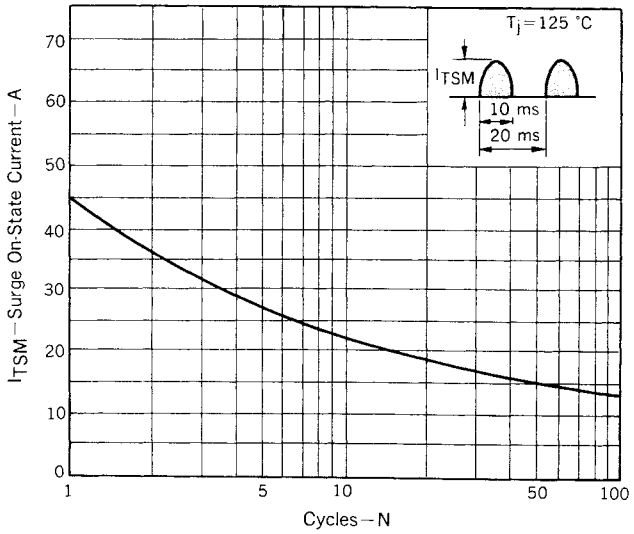


Fig. 3 GATE RATINGS, CHARACTERISTICS

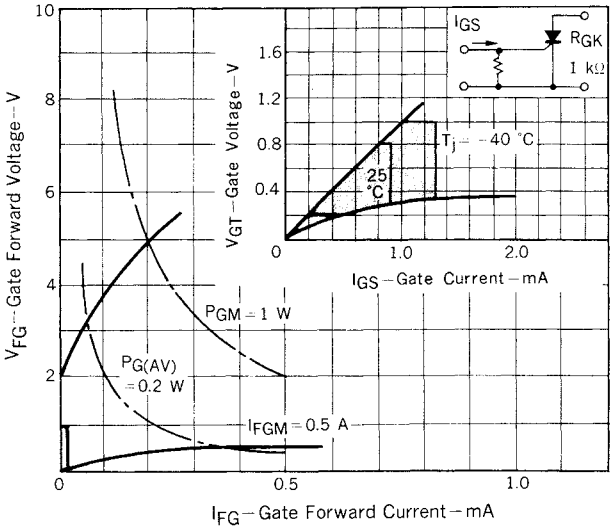


Fig. 4 I_{GT}-T_a TYPICAL DISTRIBUTION

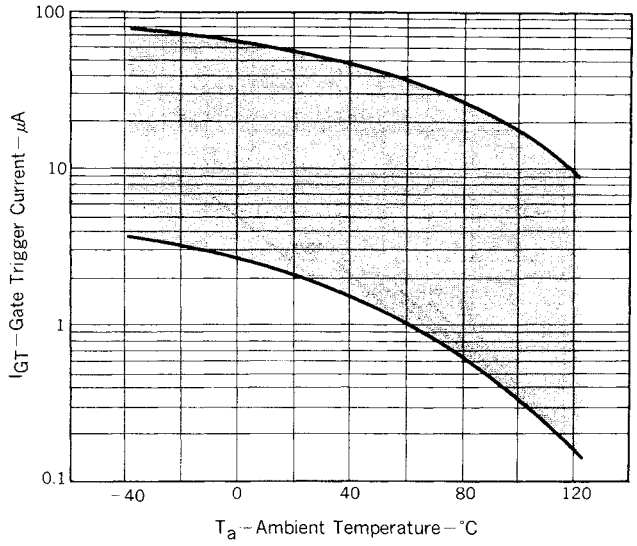


Fig. 5 V_{GT}-T_a TYPICAL DISTRIBUTION

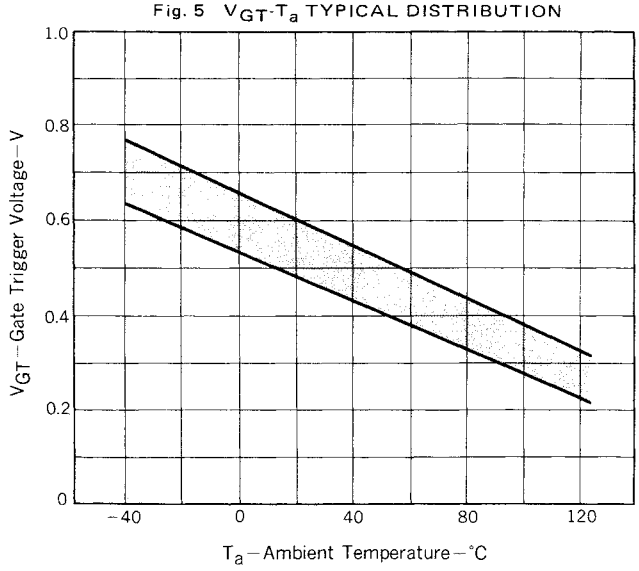


Fig. 6 I_{GT}-τ_G TYPICAL DISTRIBUTION

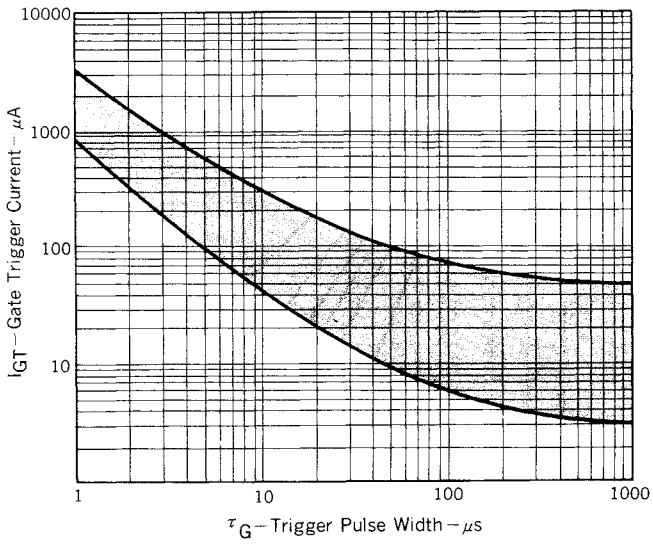


Fig. 7 v_{GT}-τ_G DISTRIBUTION

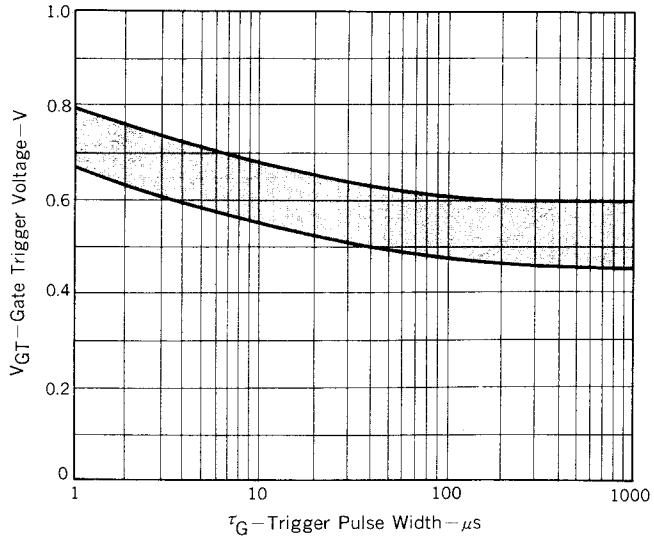


Fig. 8 I_H-T_a TYPICAL DISTRIBUTION

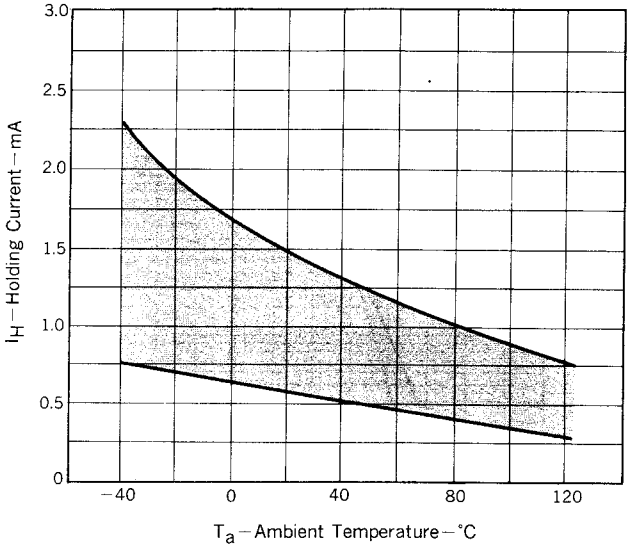


Fig. 9 $P_{T(AV)}$-$I_{T(AV)}$ CHARACTERISTIC

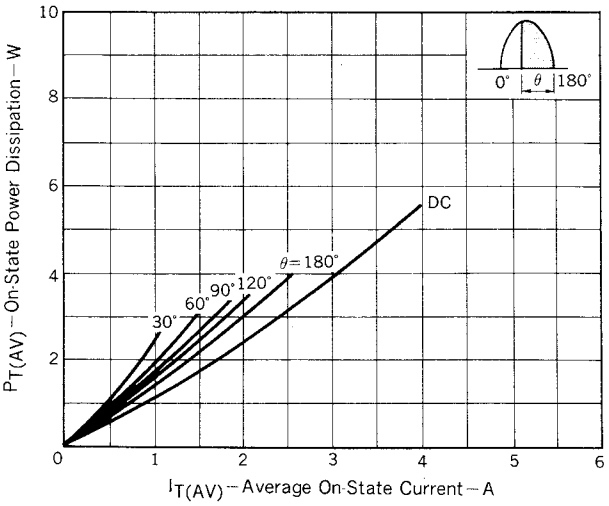


Fig. 10 T_c-$I_{T(AV)}$ RATING

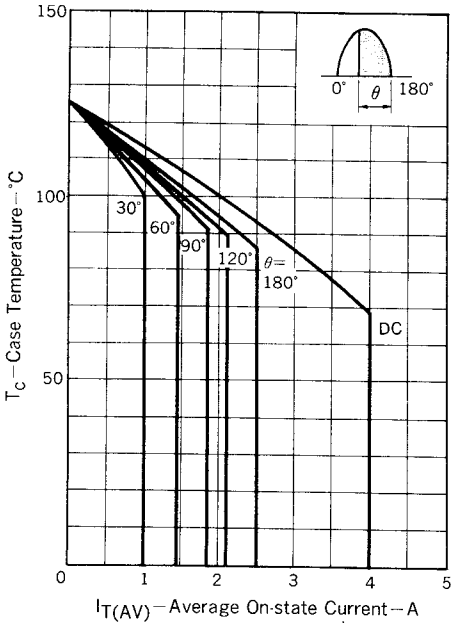


Fig. 11 T_a-$I_{T(AV)}$ RATING

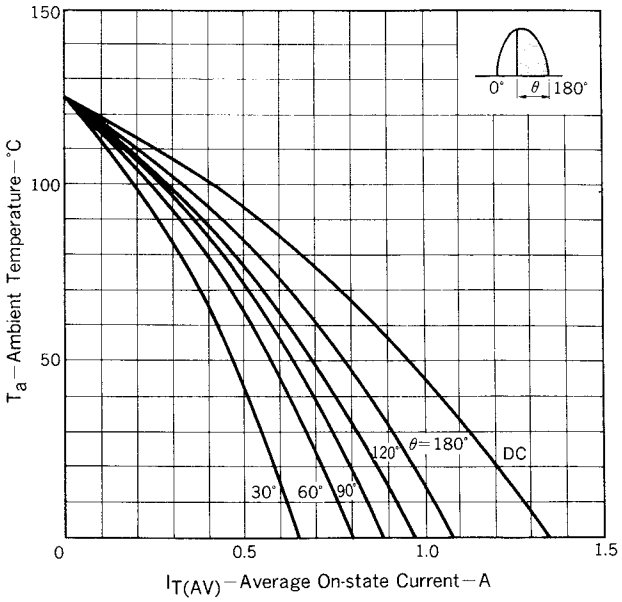
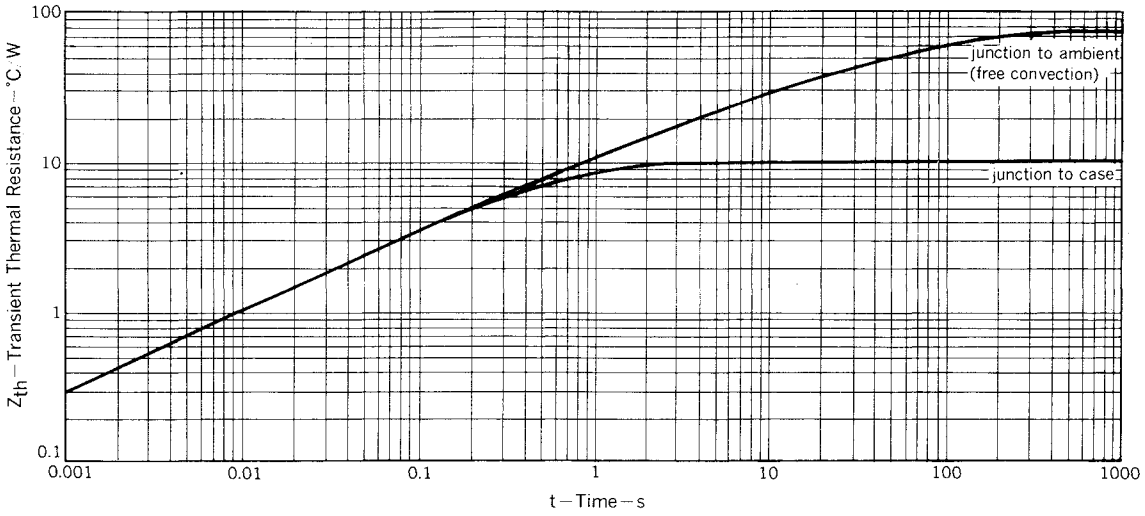


Fig. 12 Z_{th} CHARACTERISTIC



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