

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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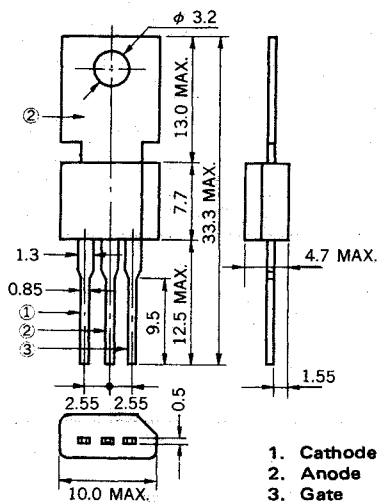
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2.5 A(4 A_{r.m.s.}) PLASTIC MOLDED THYRISTOR

PACKAGE DIMENSIONS

in millimeters



DESCRIPTION

The 2V5P4M is P-gate all diffused plastic molded type SCR granted average on-state current 2.5 Amps ($T_C = 86^\circ\text{C}$), 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 ($T_C = 86^\circ\text{C}$, $\theta = 180$ 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 ($f \geq 50$ Hz, Duty ≤ 10 %)	W	
Gate Power Dissipation	$P_{G(AV)}$	0.2	W	
Gate Forward Current	I_{FGM}	0.5 ($f \geq 50$ Hz, Duty ≤ 10 %)	A	
Gate Reverse Voltage	V_{RGM}	6	V	
Junction Temperature	T_j	-40 to +125	$^\circ\text{C}$	
Storage Temperature	T_{stg}	-40 to +150	$^\circ\text{C}$	

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

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

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

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

EXAMPLE OF R_{GK} INSERTION

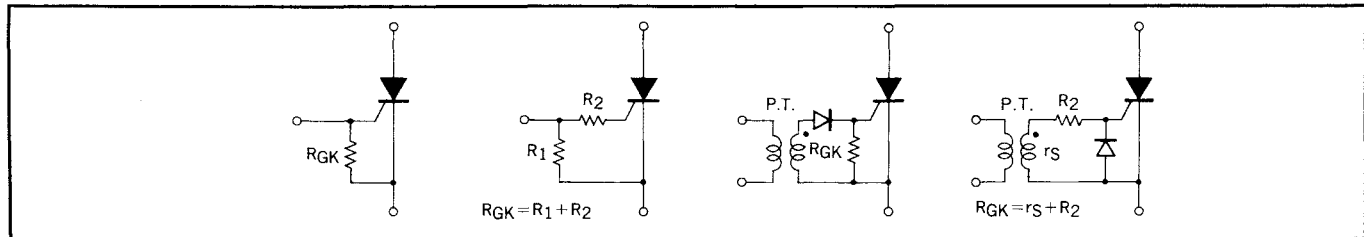


Fig. 1 I_{TM} - V_{TM} CHARACTERISTICS

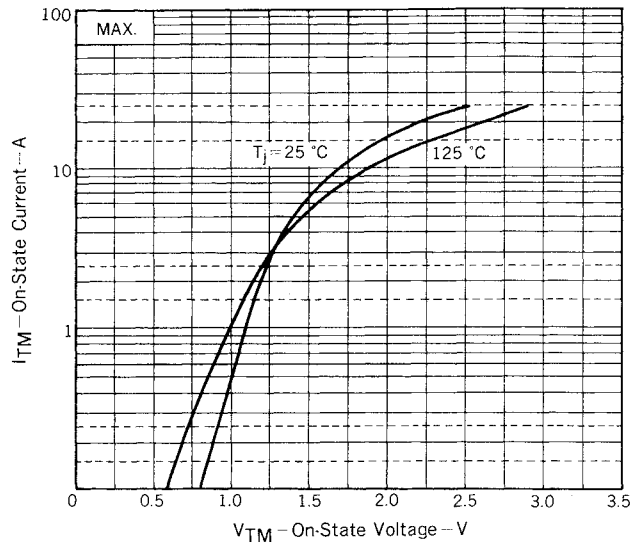


Fig. 2 I_{TSM} RATING

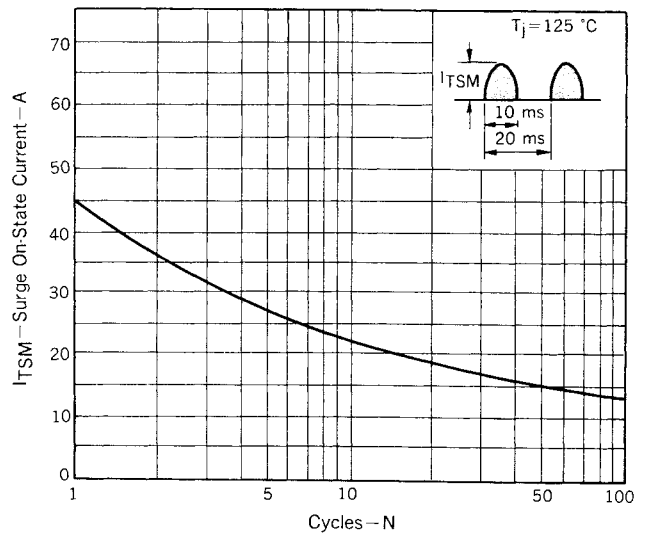


Fig. 3 GATE RATINGS, CHARACTERISTICS

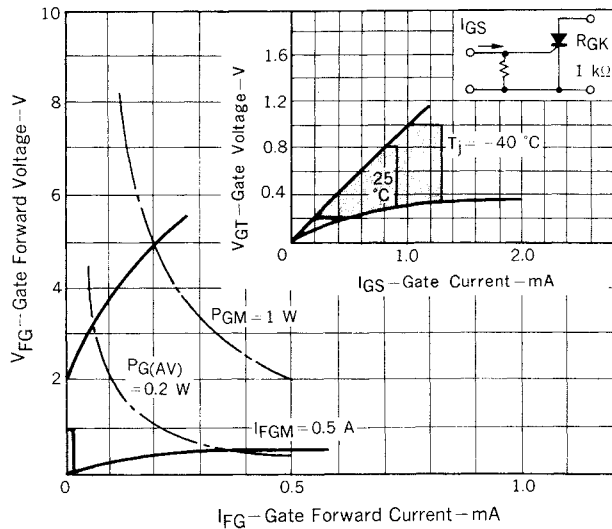


Fig. 4 I_{GT} - T_a TYPICAL DISTRIBUTION

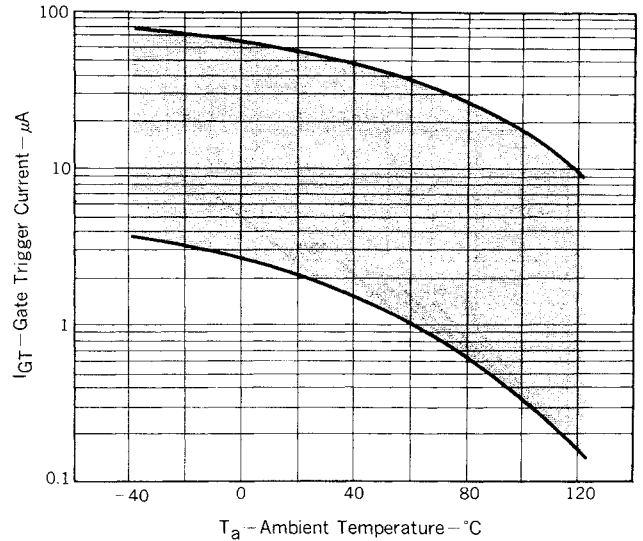


Fig. 5 V_{GT} - T_a TYPICAL DISTRIBUTION

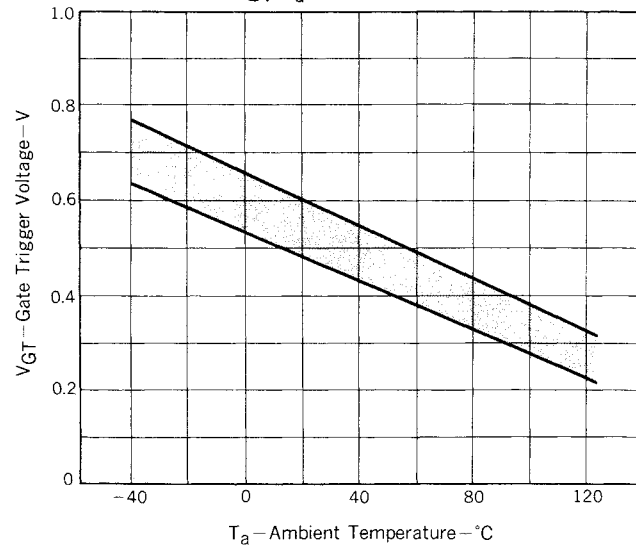


Fig. 6 I_{GT} - τ_G TYPICAL DISTRIBUTION

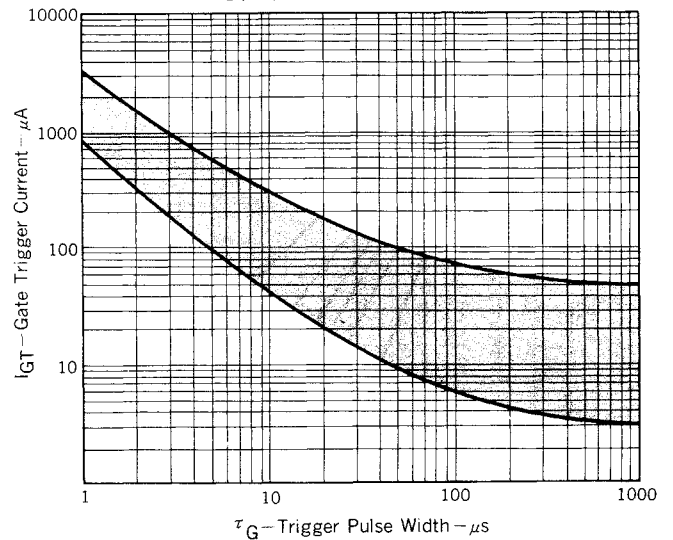


Fig. 7 $v_{GT}-\tau_G$ DISTRIBUTION

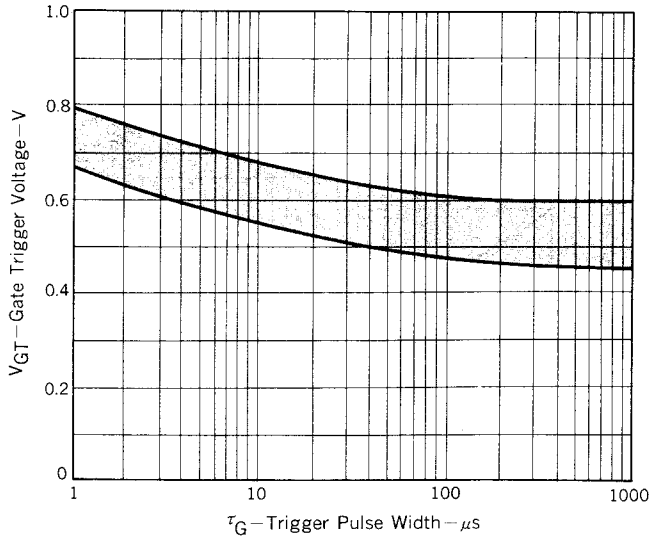


Fig. 8 I_H-T_a TYPICAL DISTRIBUTION

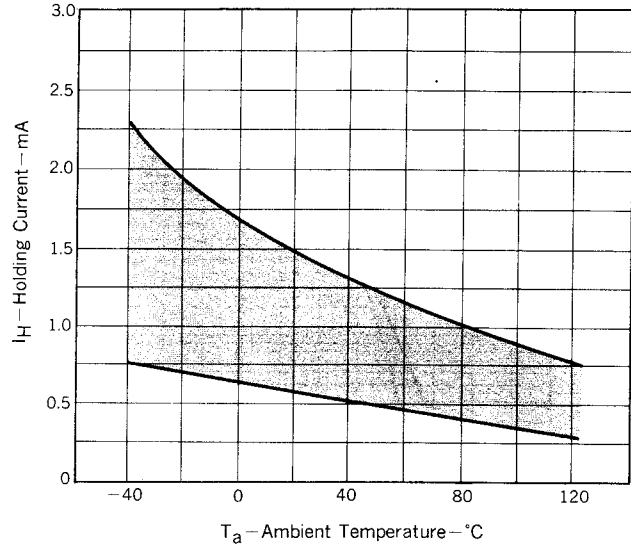


Fig. 9 $P_T(I_{T(AV)})$ CHARACTERISTIC

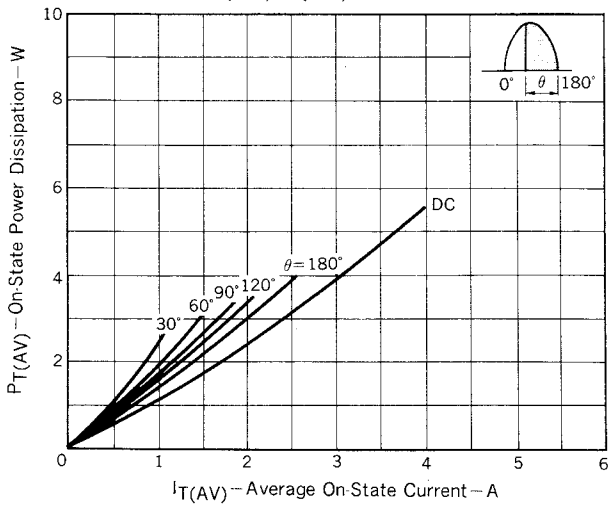


Fig. 10 $T_c-I_{T(AV)}$ RATING

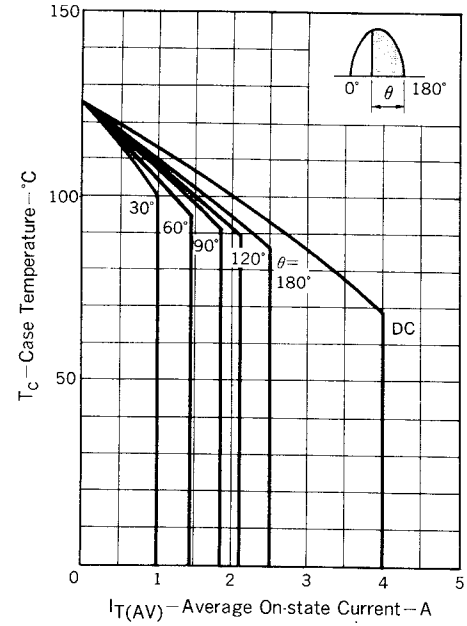


Fig. 11 $T_a-I_{T(AV)}$ RATING

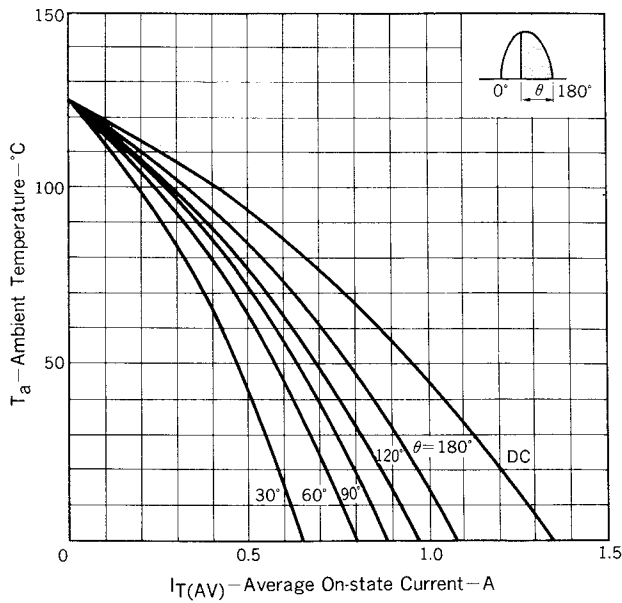


Fig. 12 Z_{th} CHARACTERISTIC

