

**GLASS PASSIVATED
2A(4Arms)MOLD THYRISTOR**

2P05M, 2P1M, 2P2M, 2P4M, 2P5M, 2P6M

The 2P05M ~ 2P6M are P-gate all diffused mold type SCR granted average on-state current 2Amps ($T_c = 54^\circ\text{C}$). Being applied glassivation technique to pellets' surface, they feature a quite high reliability.

FEATURES

- The pellet surface is quite stable physically and electrically by applying glassivation technique.
- Easy installation by its miniature size and thin electrode leads.
- Less holding current distribution provides free application design.
- Low cost because of mass-production.

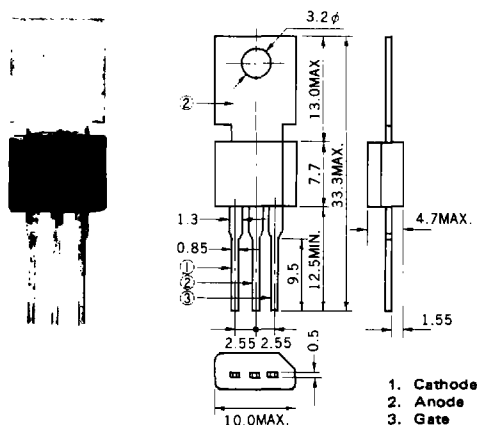
APPLICATIONS

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.

Outline Drawing (Unit: mm)



MAXIMUM RATINGS

Item	Symbol	2P05M	2P1M	2P2M	2P4M	2P5M	2P6M	Unit	Note
Non-Repetitive Peak Reverse Voltage*	V_{RSM}	75	150	300	500	600	700	V	$R_{GK} = 1k\Omega$
Non-Repetitive Peak Off-state Voltage*	V_{DSM}	75	150	300	500	600	700	V	$R_{GK} = 1k\Omega$
Repetitive Peak Reverse Voltage*	V_{RRM}	50	100	200	400	500	600	V	$R_{GK} = 1k\Omega$
Repetitive Peak Off-state Voltage*	V_{DRM}	50	100	200	400	500	600	V	$R_{GK} = 1k\Omega$
On-state Current	$I_T(AV)$	2 ($T_C = 54^\circ\text{C}$, $\theta = 180^\circ$ Single phase 1/2 wave)						A	See Fig. 3, Fig. 4
Surge Non-Repetitive On-state Current	I_{TSM}	20						A	See Fig. 10
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 ~ +110						$^\circ\text{C}$	
Storage Temperature	T_{stg}	-40 ~ +150						$^\circ\text{C}$	
Weight		1.4						g	

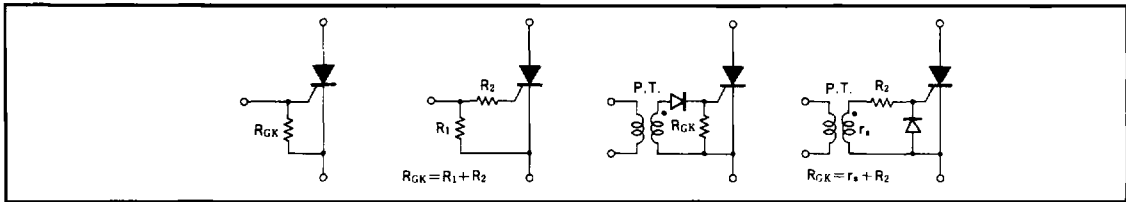
T_C : Case Temperature is measured at 1.5 mm from the neck of Tablet.

ELECTRICAL CHARACTERISTICS (T_j = 25°C)

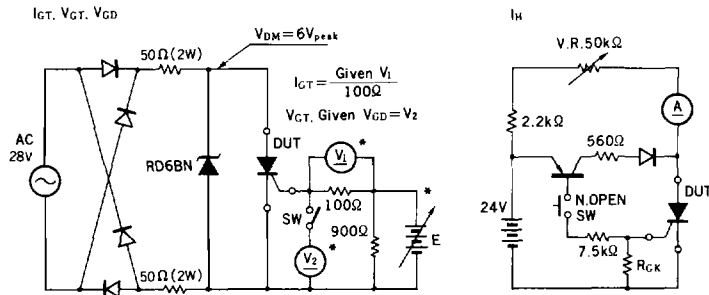
Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Repetitive Peak Reverse Current*	I _{RRM}	V _{RM} = V _{RRM} , T _j = 110°C R _{GK} = 1 kΩ	—	—	100	μA	
Repetitive Peak Off-state Current*	I _{DRM}	V _{DM} = V _{DRM} , T _j = 110°C R _{GK} = 1 kΩ	—	—	100	μA	
On-state Voltage	V _{TM}	I _{TM} = 4 A	—	—	2.2	V	See Fig. 1
Gate-Trigger Current*	I _{GT}	V _{DM} = 6V, R _L = 100Ω R _{GK} = 1 kΩ	—	—	200	μA	See Fig. 5, Fig. 7
Gate-Trigger Voltage*	V _{GT}	V _{DM} = 6V, R _L = 100Ω R _{GK} = 1 kΩ	—	—	0.8	V	See Fig. 6, Fig. 8
Gate Non-Trigger Voltage*	V _{GD}	V _{DM} = ½V _{DRM} , T _j = 110°C R _L = 100Ω, R _{GK} = 1 kΩ	0.2	—	—	V	
Critical Rate-of-Rise of Off-state Voltage	dv/dt	V _{DM} = V _{DRM} , T _j = 110°C R _{GK} = 1 kΩ	10	1**	—	V/μs	** 2P5M, 2P6M
Holding Current*	I _H	V _D = 24V, R _{GK} = 1 kΩ I _{ON} = 40 mA (τ = 10 ms)	—	1	3	mA	See Fig. 9
Thermal Resistance	R _{th} (j-c)	Junction to Case	—	—	10	°C/W	See Fig. 11
	R _{th} (j-a)	Junction to Ambient	—	—	75	°C/W	See Fig. 11

** 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 kΩ).

EXAMPLE OF R_{GK} INSERTION



MEASUREMENT CIRCUIT



V₁: more than 100 kΩ at I_{GT} ≤ 10 μA
 V₂: more than 1MΩ SW open
 E: more than 20 kΩ

* Inner Resistance

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

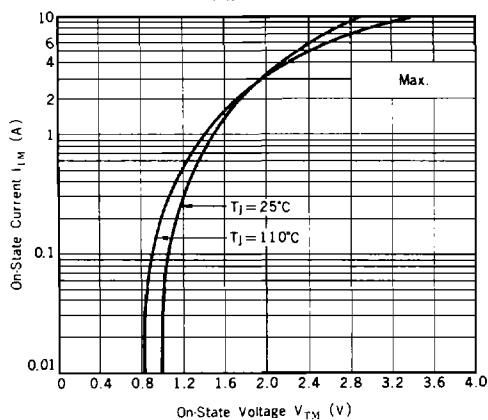


Fig. 2 $P_{T(AV)} - I_{T(AV)}$ Characteristics

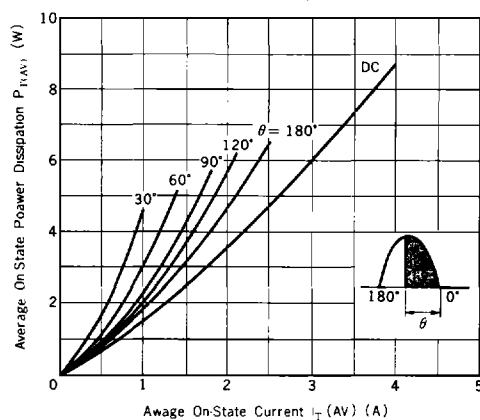


Fig. 3 $T_c - I_{T(AV)}$ Ratings

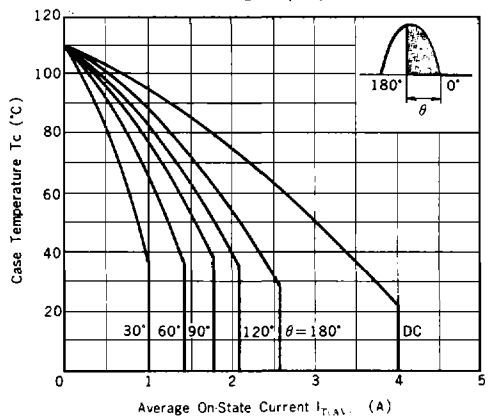


Fig. 4 $T_a - I_{T(AV)}$ Ratings

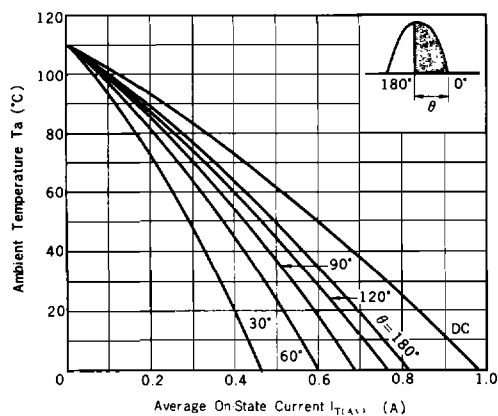


Fig. 5 $I_{GT} - T_a$ Typical Distribution

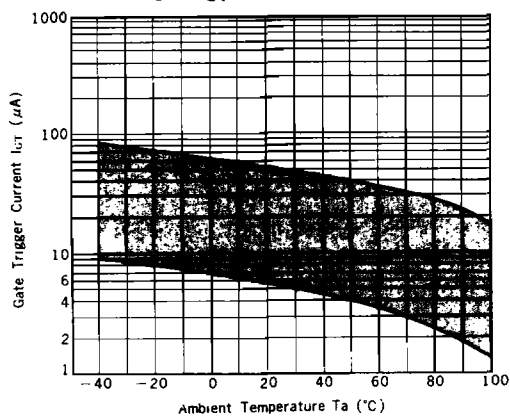


Fig. 6 $V_{GT} - T_a$ Typical Distribution

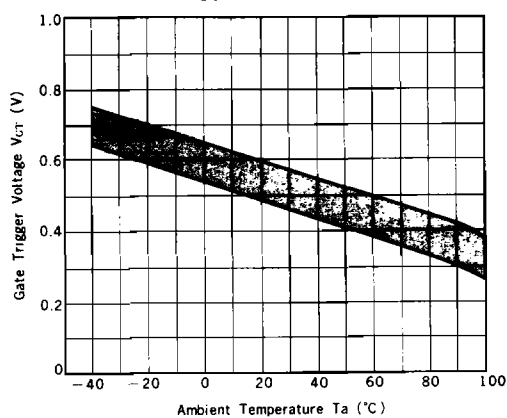


Fig. 7 $I_{GT} - \tau_G$ Typical Distribution

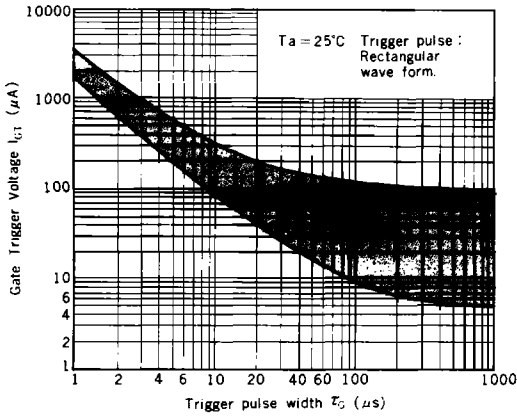


Fig. 8 $V_{GT} - \tau_G$ Typical Distribution

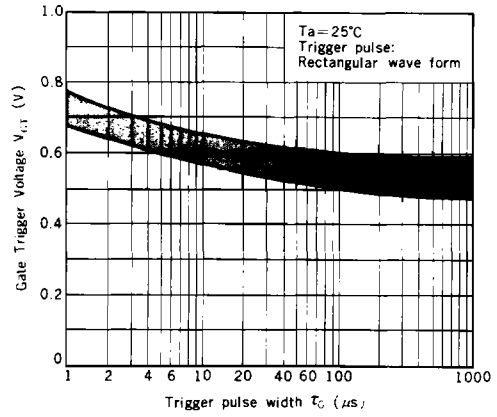


Fig. 9 $I_H - T_a$ Typical Distribution

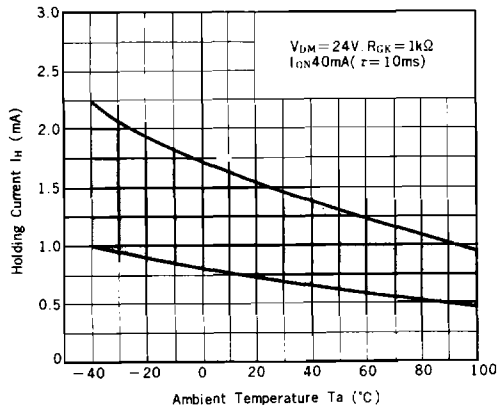


Fig. 10 I_{TSM} Ratings

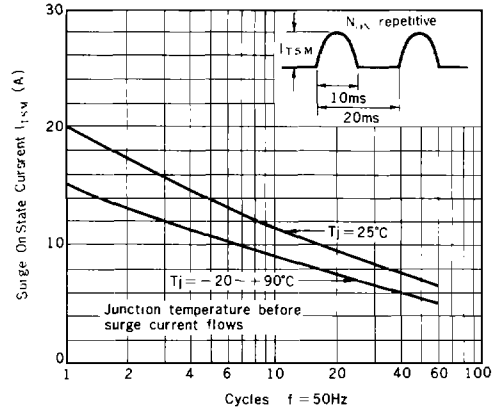
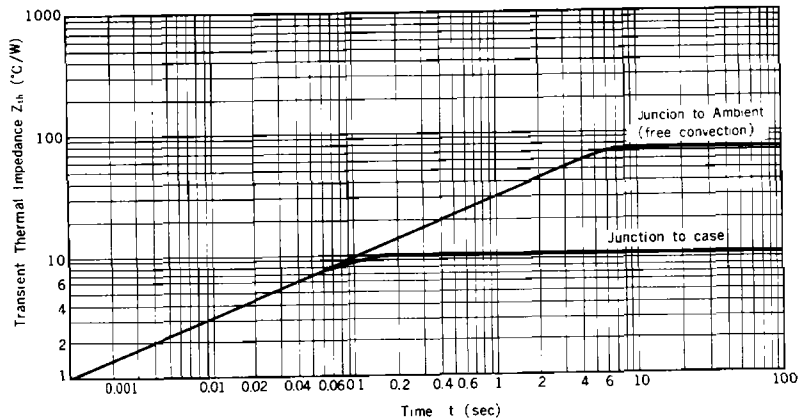
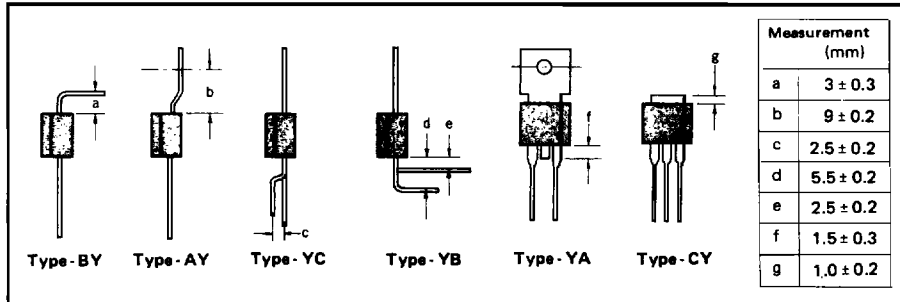


Fig. 11 Z_{th} Characteristics



NOTICE FOR INSTALLATION

1. Electrode leads (especially heat sink tablet) are not granted to be bent because of wet-proof. However in case it is required inevitably, a mechanical stress should not be put on mold. Fix tightly between the mold case and the area to be formed or bent.
2. Electrode leads should not to be bent more than twice over 90°. Avoid the bending within 1.5 mm from the neck of mold case.
3. Special lead and heat tab formings as indicated below are available at an additional cost.



4. The surface of heat sink for thermal radiator is to be smooth without any foreign matter.
5. Suitable torque value is 4 ~ 5 kg.cm.
6. Soldering
 - Recommended solder: PbSu (4 : 6)
Melting point 180°C
 - Dimension from the neck of leads to dipping points 4 ~ 6 mm
 - Soldering temperature and period
 - 250°C less than 5 μsec.
 - 230°C less than 10 μsec.