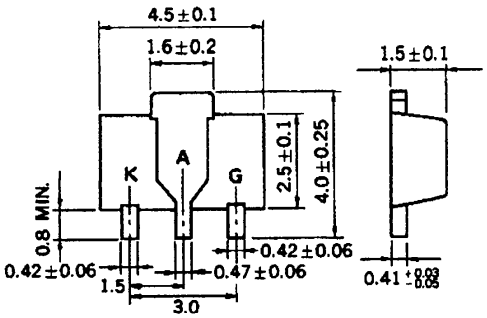
THYRISTORS

03P2J, 03P4J, 03P5J

0.47 $A_{r.m.s.}$ ALL DIFFUSED TYPE SCR
POWER MINI MOLD

PACKAGE DIMENSIONS
in millimeters



K: Cathode
A: Anode
G: Gate SOT-89

DESCRIPTION

The 03P2J, 03P4J and 03P5J are designed for many switching applications, especially in Hybrid Integrated Circuits.

FEATURES

- World Standard Miniature Package: SOT-89
- High Anode to Cathode Voltage
  : V_{DRM}, V_{RRM} = 200 V (03P2J)
  : V_{DRM}, V_{RRM} = 400 V (03P4J)
  : V_{DRM}, V_{RRM} = 500 V (03P5J)

APPLICATIONS

- Cassette tape recorder
- Solid-state relay
- Strobo flasher
- Ground fault detector
- Automobile equipment

MAXIMUM RATINGS (R_{GK} = 1 kΩ)

ITEM	SYMBOL	03P2J	03P4J	03P5J	UNIT
Non-Repetitive Peak Reverse Voltage	V_{RSM}	300	500	600	V
Non-Repetitive Peak Off-State Voltage	V_{DSM}	300	500	600	V
Repetitive Peak Reverse Voltage	V_{RRM}	200	400	500	V
Repetitive Peak Off-State Voltage	V_{DRM}	200	400	500	V
Average On-State Current	$I_{T(AV)}$	0.3 (T_a = 77 °C, Single phase half wave)			A
RMS On-State Current	$I_{T(RMS)}$	0.47			A
Surge On-State Current	I_{TSM}	6 (f = 50 Hz, 1 cycle)			A
Fusing Current	$\int i_T^2 dt$	0.15 (1 ms ≦ t ≦ 10 ms)			A^2s
Peak Gate Power Dissipation	P_{GM}	0.1 (f ≧ 50 Hz, duty ≦ 10 %)			W
Average Gate Power Dissipation	$P_{G(AV)}$	0.01			W
Peak Gate Forward Current	I_{FGM}	0.1 (f ≧ 50 Hz, duty ≦ 10 %)			A
Peak Gate Reverse Voltage	V_{RGM}	6			V
Junction Temperature	T_j	−55 to +125			°C
Storage Temperature	T_{stg}	−55 to +150			°C

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ELECTRICAL CHARACTERISTICS (T_j = 25 °C, R_{GK} = 1 kΩ)

ITEM	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT
Repetitive Peak Reverse Current	I_{RRM}	$V_{RM} = V_{RRM}$	T_j = 25 °C	–	–	10	μA
			T_j = 125 °C	–	–	100	
Repetitive Peak Off-State Current	I_{DRM}	$V_{DM} = V_{DRM}$	T_j = 25 °C	–	–	10	μA
			T_j = 125 °C	–	–	100	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DM} = \frac{2}{3}V_{DRM}$, T_j = 125 °C		–	40	–	V/μs
On-State Voltage	V_{TM}	I_{TM} = 1 A		–	–	1.6	V
Gate Trigger Current	I_{GT}	V_{DM} = 6 V, R_L = 100 Ω		–	–	200	μA
Gate Trigger Voltage	V_{GT}	V_{DM} = 6 V, R_L = 100 Ω		–	–	0.8	V
Gate Non-Trigger Voltage	V_{GD}	$V_{DM} = \frac{1}{2}V_{DRM}$, T_j = 125 °C		0.1	–	–	V
Holding Current	I_H	V_{DM} = 24 V, I_{TM} = 1 A		–	–	5	mA
Commutating Turn-Off Time	t_q	I_{TM} = 200 mA, di_T/dt = 15 A/μs $V_{RM} \geq$ 25 V, $V_{DM} = \frac{2}{3}V_{DRM}$ dv/dt = 20 V/μs, T_j = 125 °C		–	25	–	μs
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient*		–	–	65	°C/W

*Mounted on 0.7 mm x 2.5 cm² ceramic substrate

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

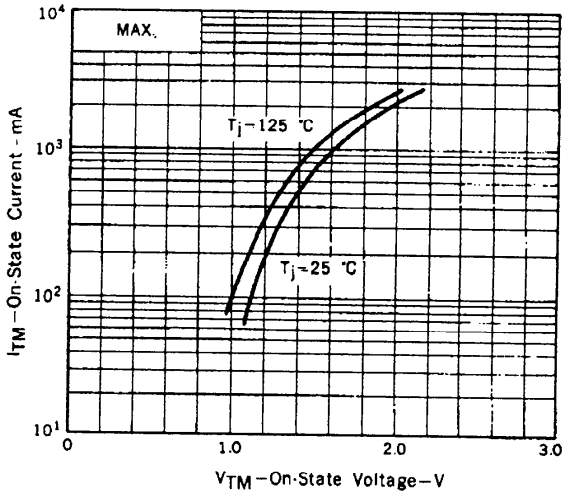


Fig. 2 I_{TSM} RATING

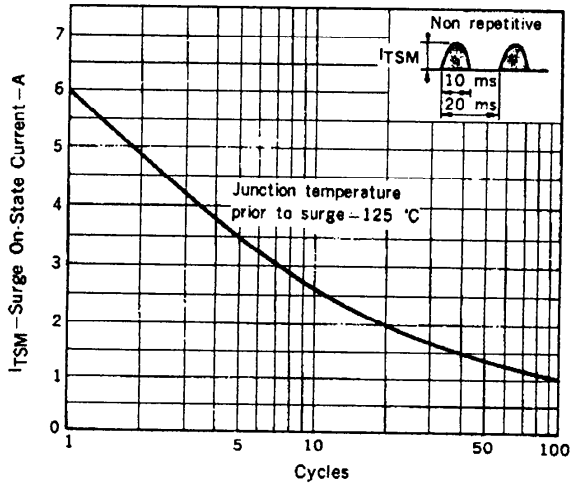


Fig. 3 GATE POWER RATINGS

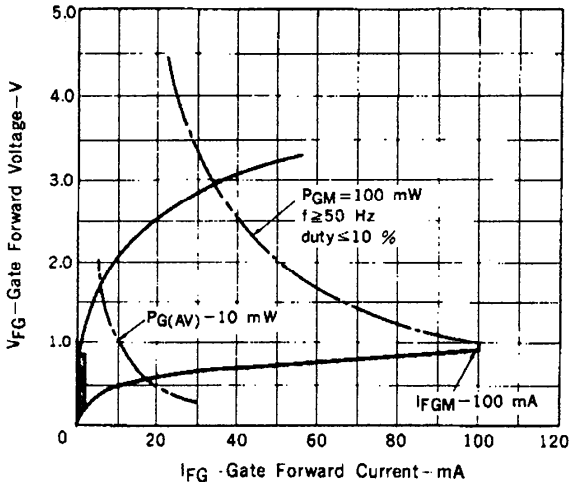


Fig. 4 $I_{GS} - V_{GT}$ DISTRIBUTION

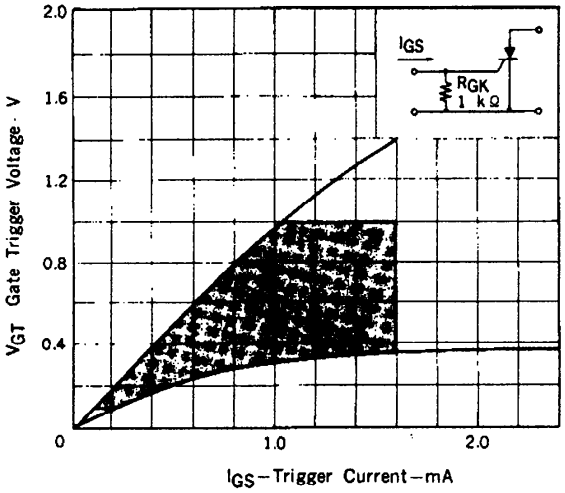


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

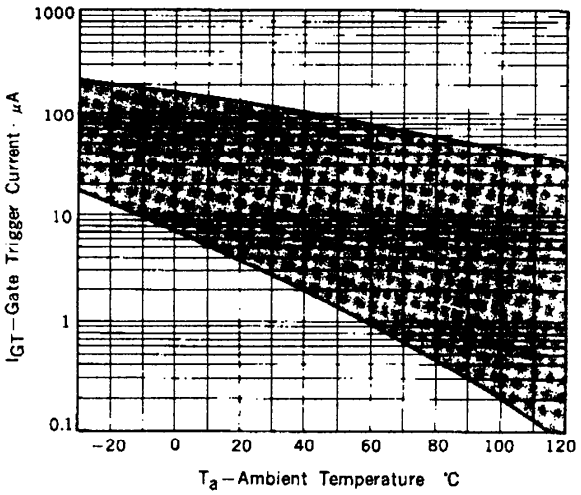


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION

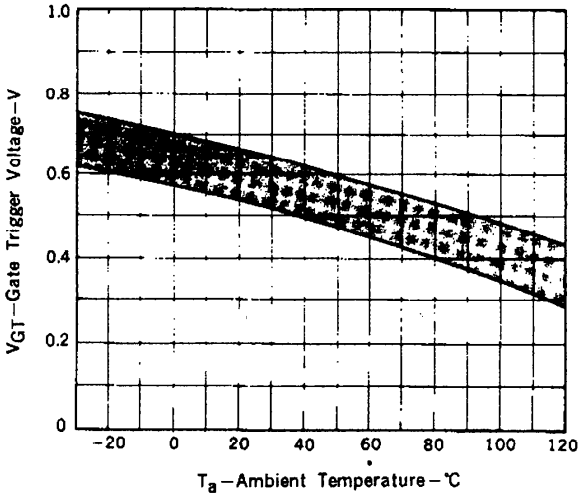


Fig. 7 $I_{GS} - \tau_G$ TYPICAL DISTRIBUTION

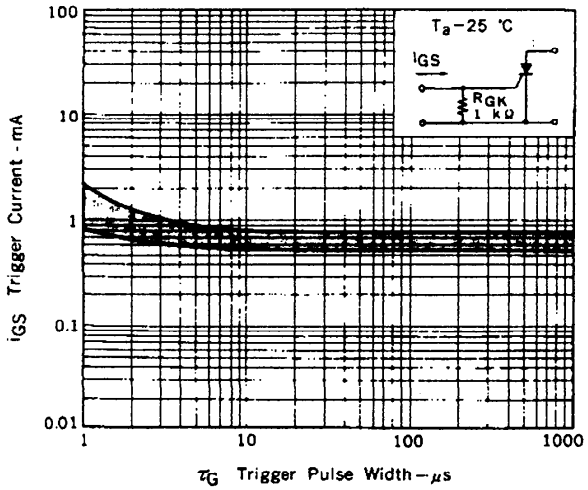


Fig. 8 $V_{GT} - \tau_G$ TYPICAL DISTRIBUTION

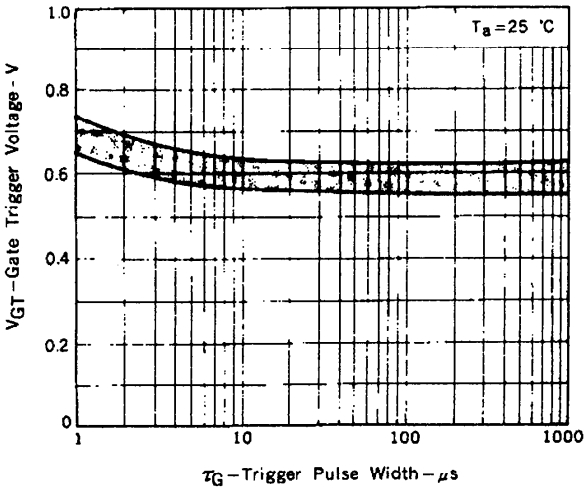


Fig. 9 $P_{T(AV)} - I_{T(AV)}$ CHARACTERISTICS

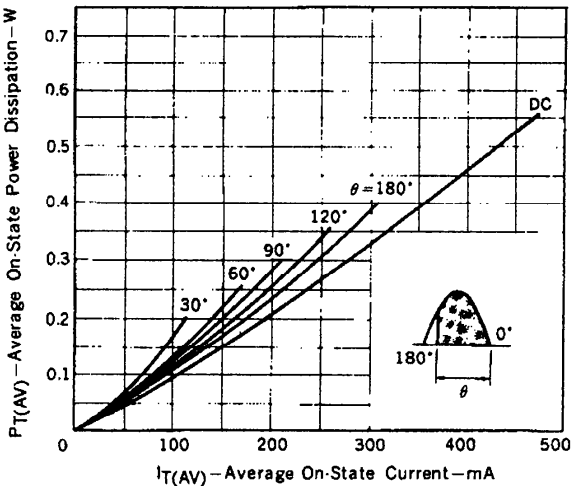


Fig. 10 $I_{T(AV)} - T_a$ RATINGS

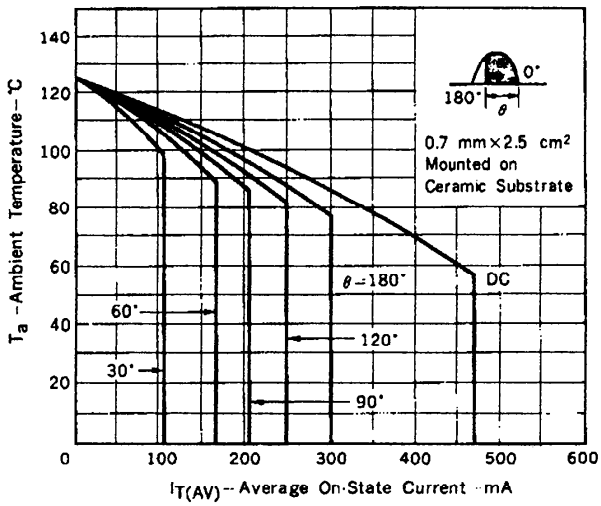
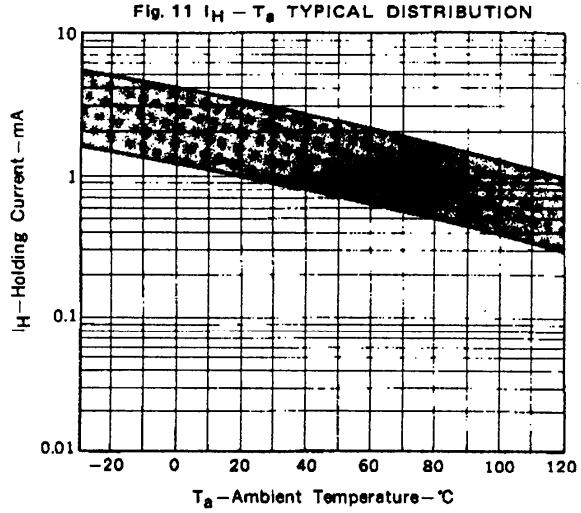


Fig. 11 $I_H - T_a$ TYPICAL DISTRIBUTION



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