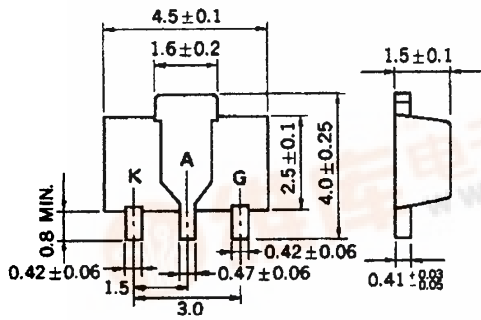


# THYRISTORS

## 03P2J, 03P4J, 03P5J

0.47 A<sub>r.m.s.</sub> 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
  - :  $V_{DRM}, V_{RRM} = 200\text{ V}$  (03P2J)
  - :  $V_{DRM}, V_{RRM} = 400\text{ V}$  (03P4J)
  - :  $V_{DRM}, V_{RRM} = 500\text{ V}$  (03P5J)

### APPLICATIONS

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

### MAXIMUM RATINGS ( $R_{GK} = 1\text{ k}\Omega$ )

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 ( $T_g = 77^\circ\text{C}$ , Single phase half wave)			A
RMS On-State Current	$I_T(RMS)$	0.47			A
Surge On-State Current	$I_{TSM}$	6 ( $f = 50\text{ Hz}$ , 1 cycle)			A
Fusing Current	$\int I_T^2 dt$	0.15 ( $1\text{ ms} \leq t \leq 10\text{ ms}$ )			$A^2s$
Peak Gate Power Dissipation	$P_{GM}$	0.1 ( $f \geq 50\text{ Hz}$ , duty $\leq 10\%$ )			W
Average Gate Power Dissipation	$P_{G(AV)}$	0.01			W
Peak Gate Forward Current	$I_{FGM}$	0.1 ( $f \geq 50\text{ Hz}$ , duty $\leq 10\%$ )			A
Peak Gate Reverse Voltage	$V_{RGM}$	6			V
Junction Temperature	$T_j$	-55 to +125			$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150			$^\circ\text{C}$



**ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ ,  $R_{GK} = 1\text{ k}\Omega$ )**

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

\*Mounted on  $0.7\text{ mm} \times 2.5\text{ cm}^2$  ceramic substrate

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

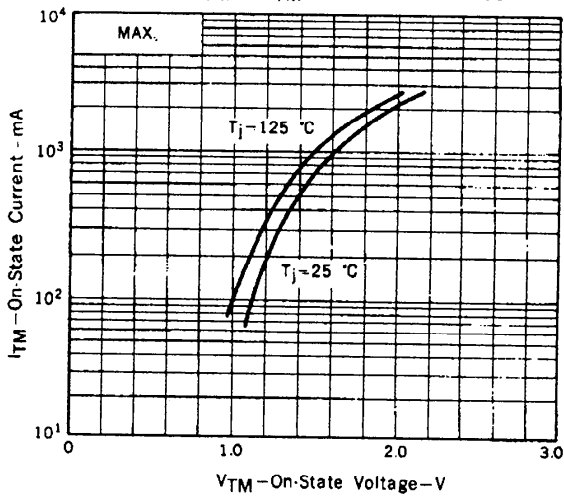


Fig. 2  $I_{TSM}$  RATING

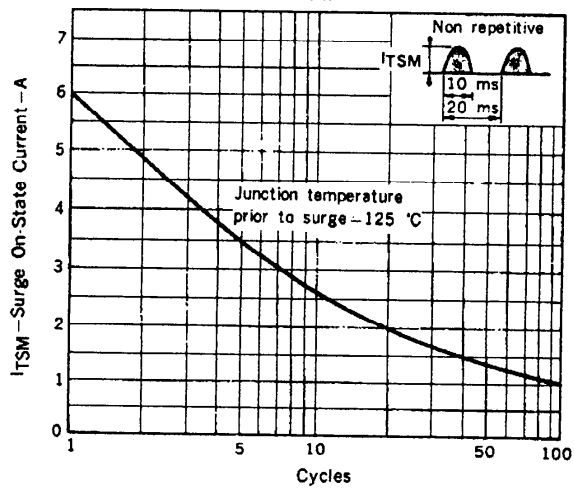


Fig. 3 GATE POWER RATINGS

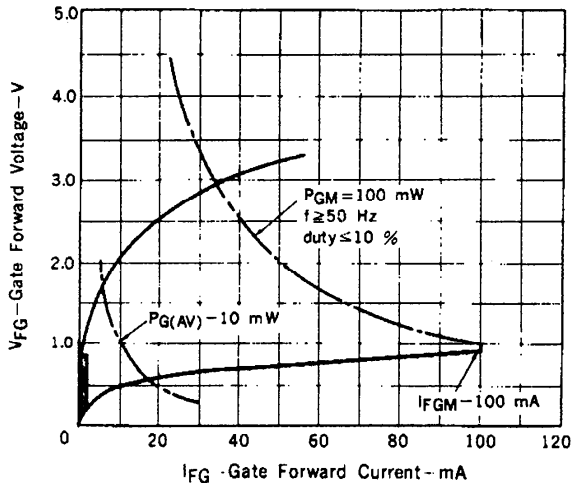


Fig. 4  $I_{GS} - V_{GT}$  DISTRIBUTION

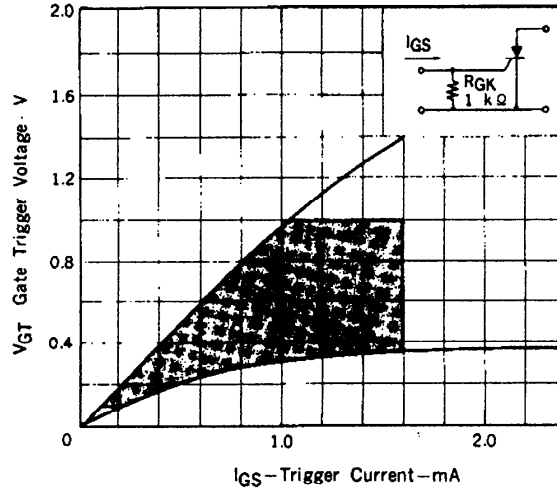


Fig. 5  $I_{GT} - T_a$  TYPICAL DISTRIBUTION

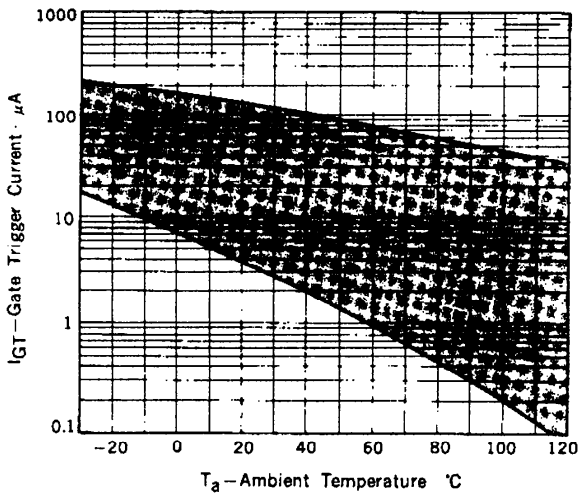


Fig. 6  $V_{GT} - T_a$  TYPICAL DISTRIBUTION

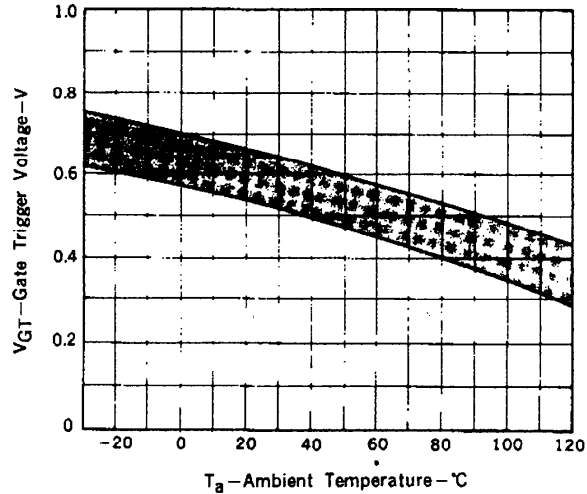


Fig. 7  $I_{GS} - \tau_G$  TYPICAL DISTRIBUTION

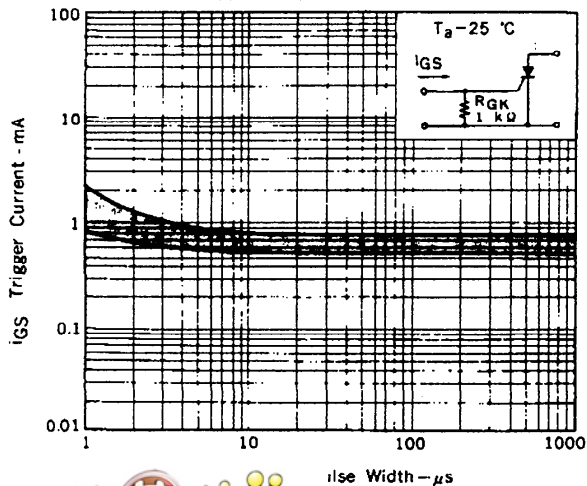


Fig. 8  $V_{GT} - \tau_G$  TYPICAL DISTRIBUTION

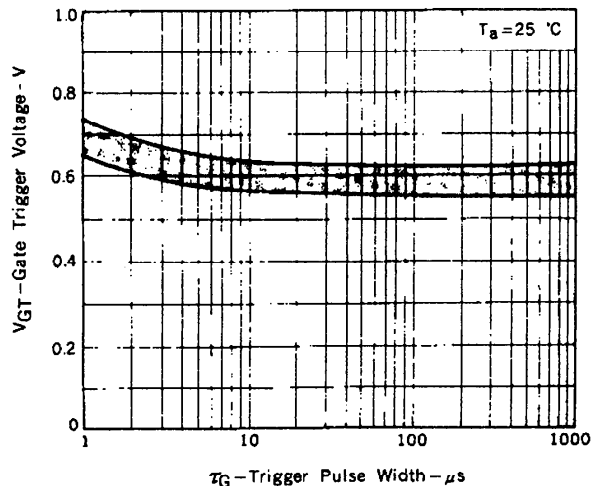


Fig. 9  $P_{T(AV)} - I_{T(AV)}$  CHARACTERISTICS

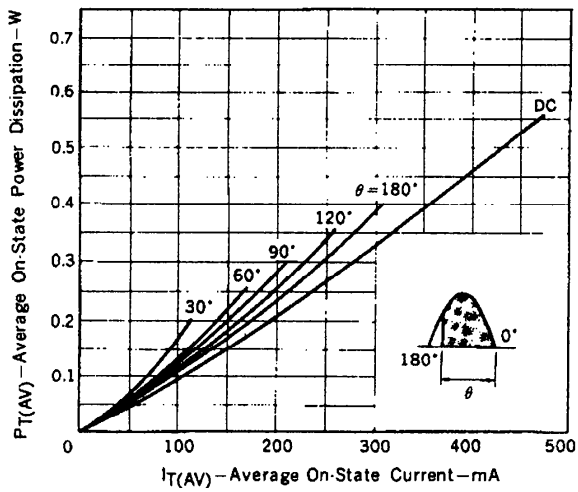


Fig. 10  $I_{T(AV)} - T_a$  RATINGS

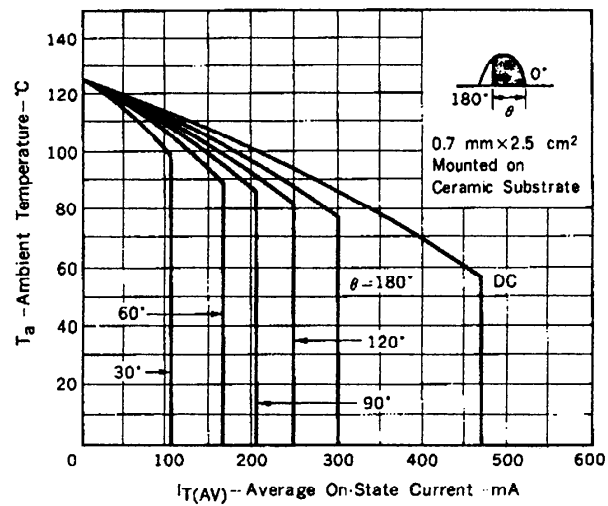
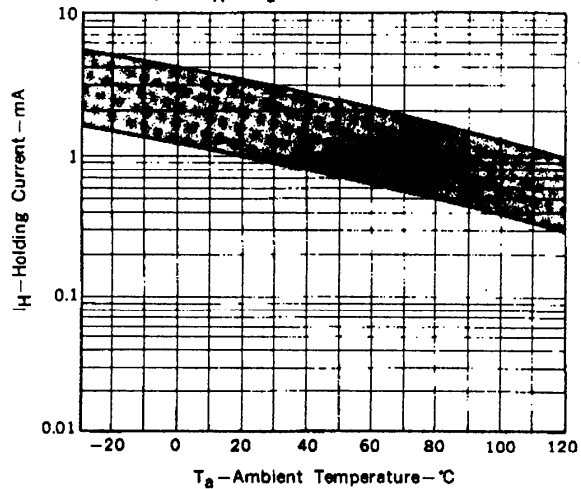


Fig. 11  $I_H - T_a$  TYPICAL DISTRIBUTION



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