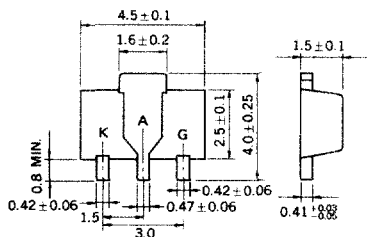


THYRISTORS

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

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 ($T_a = 77^\circ\text{C}$, 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	I_{T^2dt}	0.15 ($1 \text{ ms} \leq t \leq 10 \text{ ms}$)			A ² s
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}	$V_{RM} = V_{ARM}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	—	—	10 100	μA
Repetitive Peak Off-State Current	I_{DRM}	$V_{DM} = V_{DRM}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$	—	—	10 100	μA
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	μA
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	mA
Commutating Turn-Off Time	t_q	$I_{TM} = 200\text{ mA}$, $di/dt = 15\text{ A}/\mu\text{s}$ $V_{RM} \geq 25\text{ V}$, $V_{DM} = \frac{2}{3}V_{DRM}$ $dv/dt = 20\text{ V}/\mu\text{s}$, $T_j = 125^\circ\text{C}$	—	25	—	μs
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient*	—	—	65	$^\circ\text{C}/\text{W}$

*Mounted on 0.7 mm x 2.5 cm² ceramic substrate

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

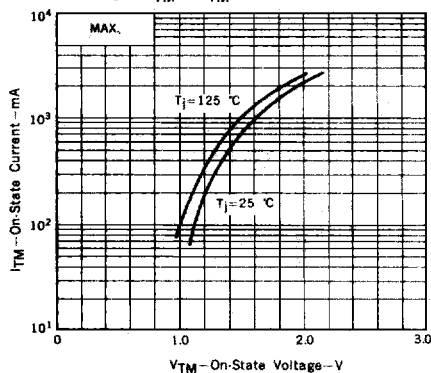


Fig. 2 I_{TSM} RATING

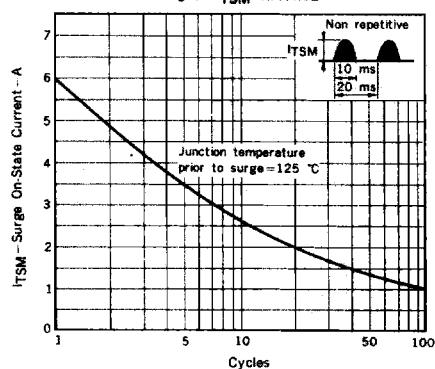


Fig. 3 GATE POWER RATINGS

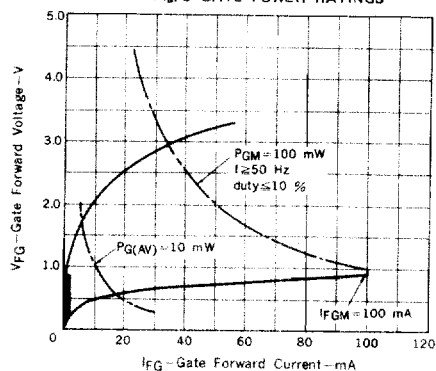
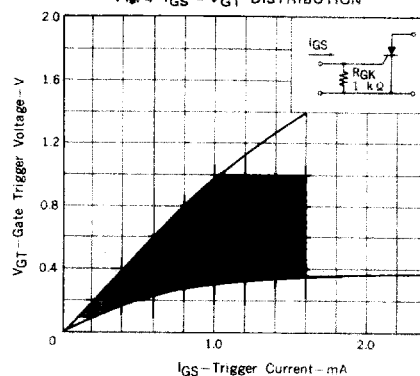
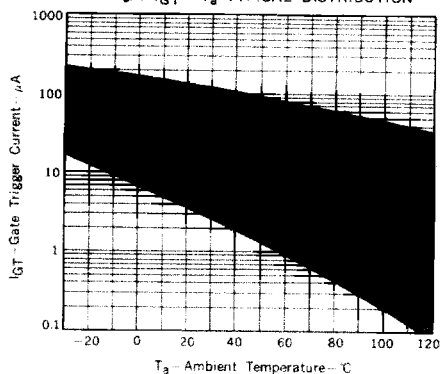
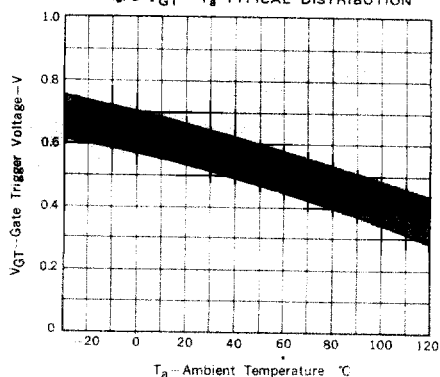
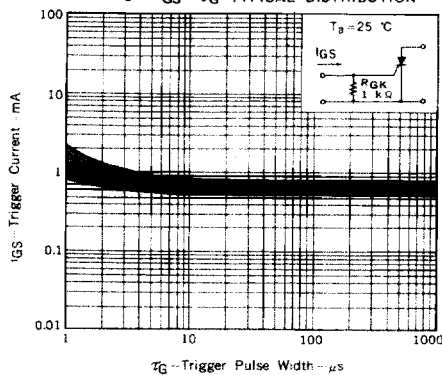
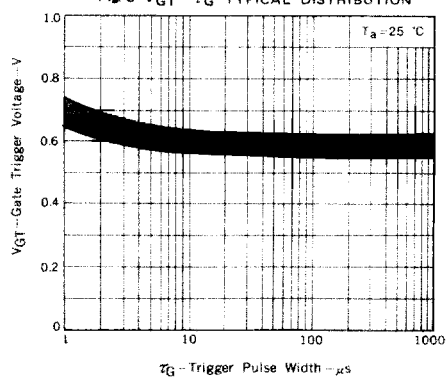
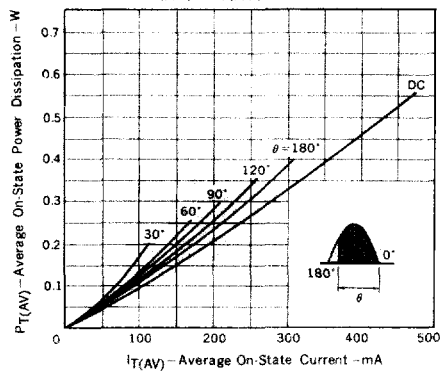
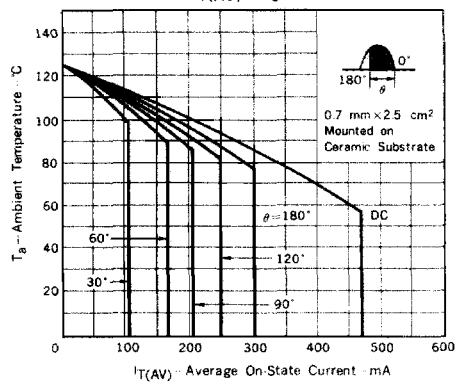
Fig. 4 $I_{GS} - V_{GT}$ DISTRIBUTIONFig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTIONFig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTIONFig. 7 $I_{GS} - \tau_G$ TYPICAL DISTRIBUTIONFig. 8 $V_{GT} - \tau_G$ TYPICAL DISTRIBUTION

Fig. 9 $P_{T(AV)} - I_{T(AV)}$ CHARACTERISTICSFig. 10 $I_{T(AV)} - T_a$ RATINGSFig. 11 $I_H - T_a$ TYPICAL DISTRIBUTION