

TOSHIBA THYRISTOR SILICON PLANAR TYPE

# SF0R3G42

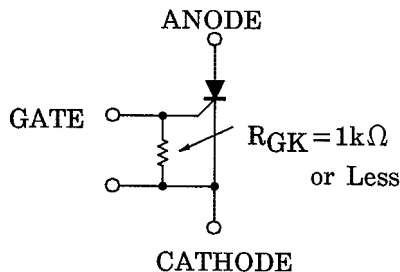
## LOW POWER SWITCHING AND CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage :  $V_{DRM} = 400V$   
 Repetitive Peak Reverse Voltage :  $V_{RRM} = 400V$
- Average On-State Current :  $I_T (AV) = 300mA$
- Plastic Mold Type.

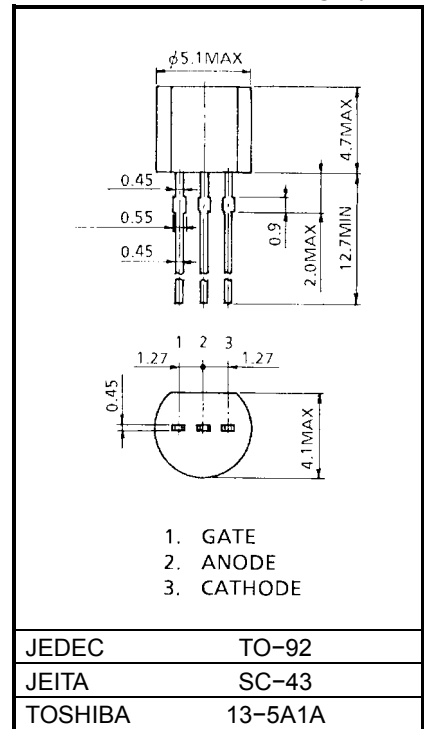
## MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage ( $R_{GK} = 1k\Omega$ )	$V_{DRM}$ $V_{RRM}$	400	V
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $R_{GK} = 1k\Omega$ , $T_j = 0 \sim 125^\circ C$ )	$V_{RSM}$	500	V
Average On-State Current (Half Sine Waveform $T_a = 45^\circ C$ )	$I_T (AV)$	300	mA
R.M.S On-State Current	$I_T (RMS)$	450	mA
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	9 (50Hz)	A
		9.9 (60Hz)	
$I^2t$ Limit Value	$I^2t$	0.4	$A^2s$
Peak Gate Power Dissipation	$P_{GM}$	0.1	W
Average Gate Power Dissipation	$P_G (AV)$	0.01	W
Peak Forward Gate Voltage	$V_{FGM}$	3.5	V
Peak Reverse Gate Voltage	$V_{RGM}$	-5	V
Peak Forward Gate Current	$I_{GM}$	125	mA
Junction Temperature	$T_j$	-40~125	$^\circ C$
Storage Temperature Range	$T_{stg}$	-40~125	$^\circ C$

Note: Should be used with gate resistance as follows.



Unit: mm

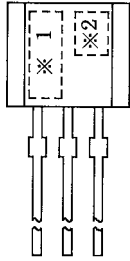


Weight: 0.2g

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

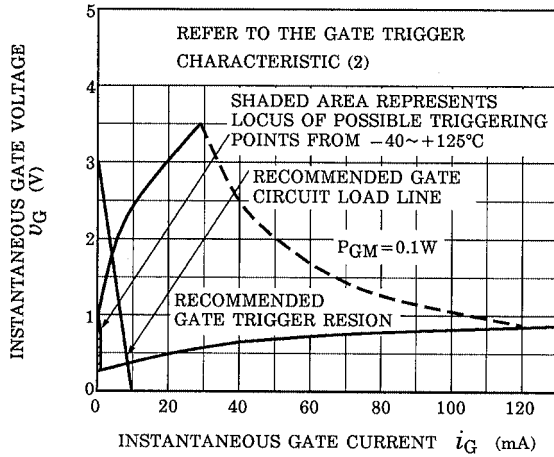
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = \text{Rated}$ $R_{GK} = 1k\Omega, T_j = 125^\circ\text{C}$	—	—	100	$\mu\text{A}$
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 2\text{A}$	—	—	2.0	V
Gate Trigger Voltage	$V_{GT}$	$V_D = 6\text{V}, R_L = 100\Omega, R_{GK} = 1k\Omega$	—	—	0.8	V
Gate Trigger Current	$I_{GT}$		—	—	200	$\mu\text{A}$
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = \text{Rated}, R_{GK} = 1k\Omega,$ $T_a = 125^\circ\text{C}$	0.2	—	—	V
Holding Current	$I_H$	$R_L = 100\Omega, R_{GK} = 1k\Omega$	—	4	—	mA
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient	—	—	250	$^\circ\text{C} / \text{W}$

## MARKING

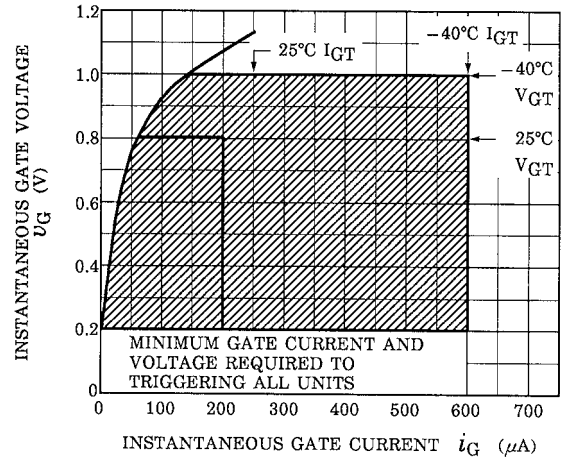


NUMBER	SYMBOL		MARK
*1	TYPE	SF0R3G42	F0R3G
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

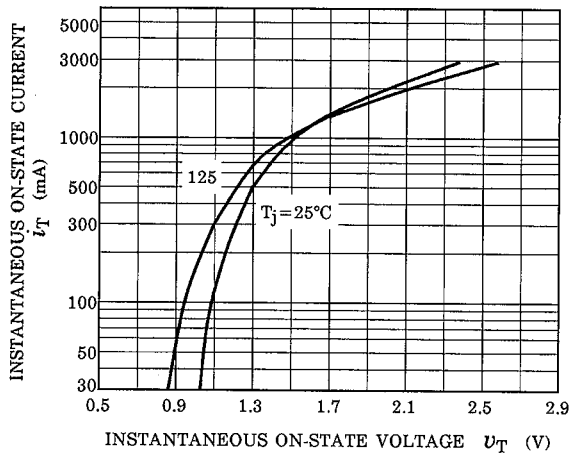
GATE TRIGGER CHARACTERISTIC (1)



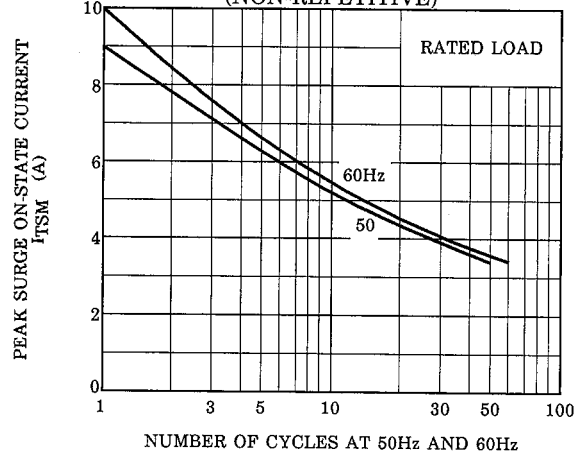
GATE TRIGGER CHARACTERISTIC (2)



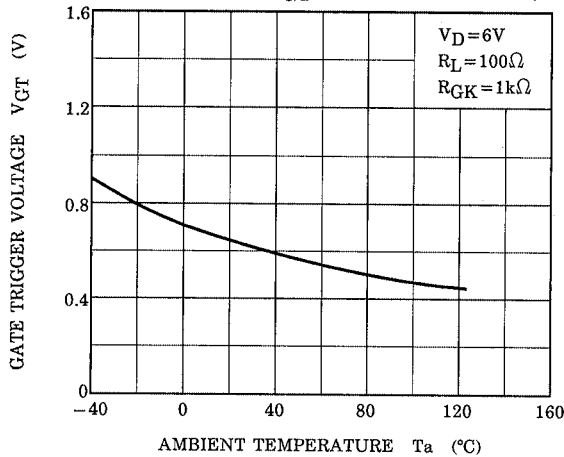
$i_T - v_T$



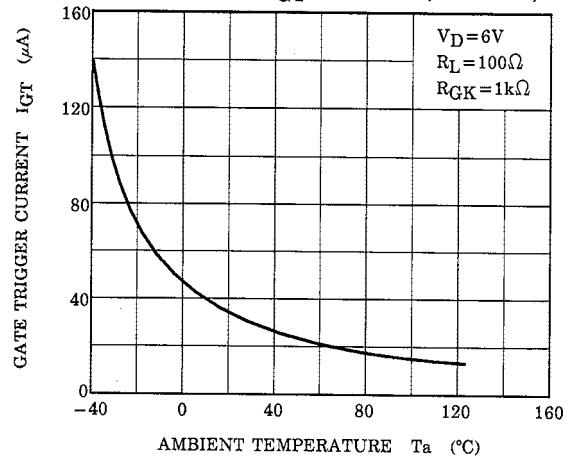
SURGE ON-STATE CURRENT (NON-REPETITIVE)

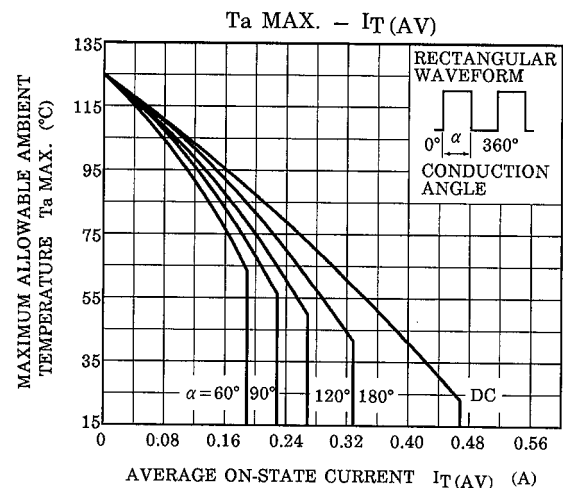
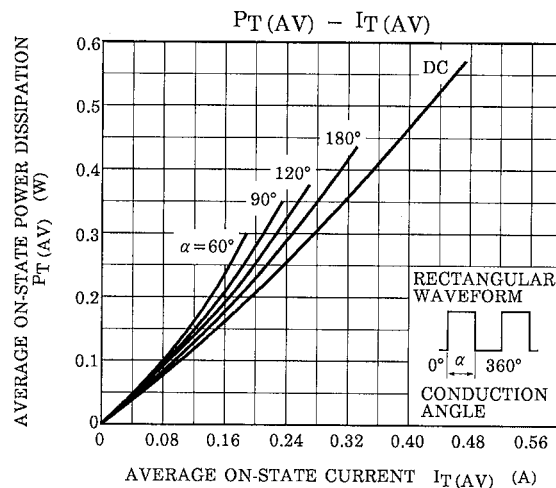
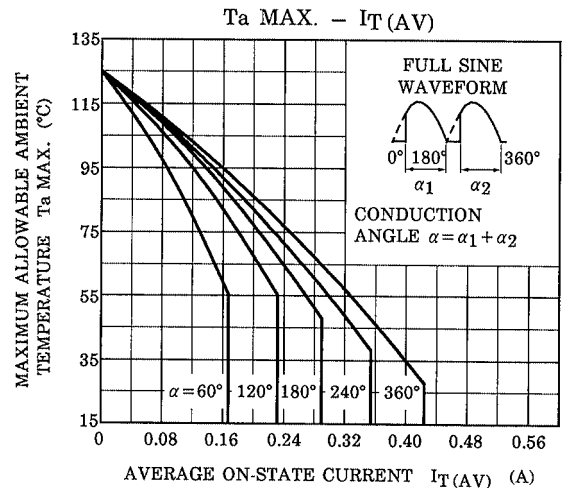
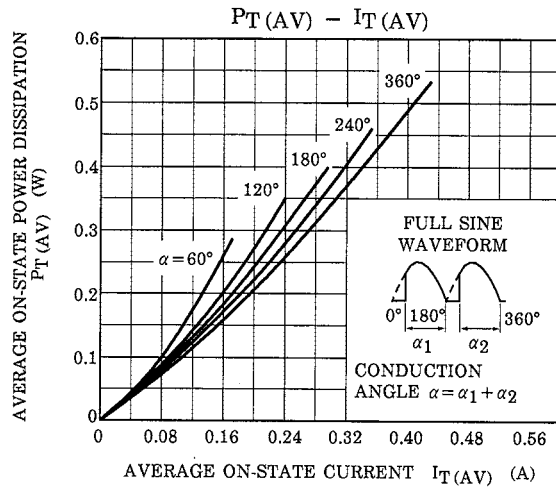
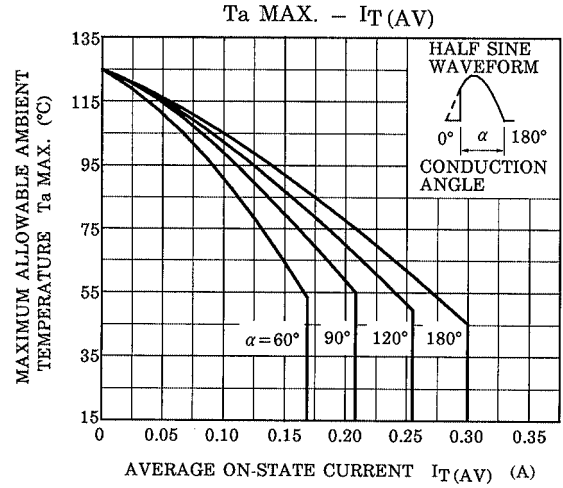
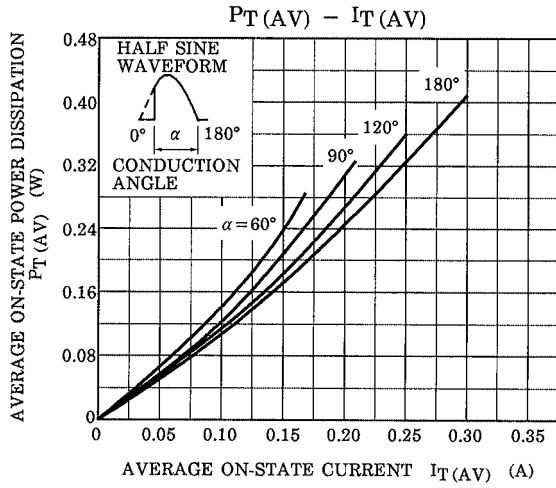


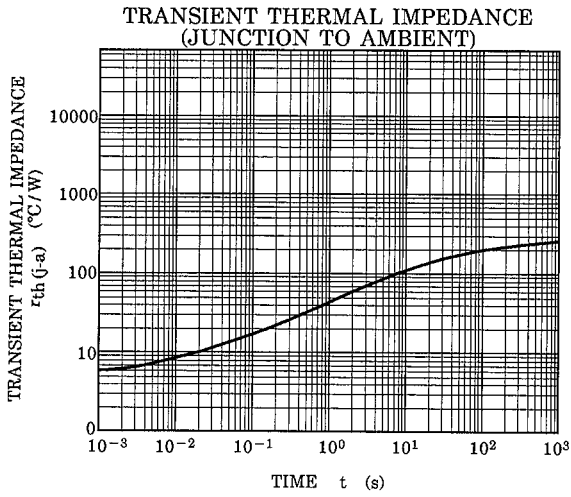
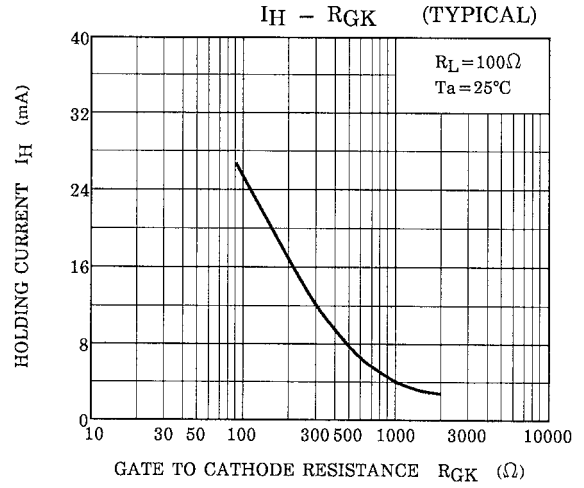
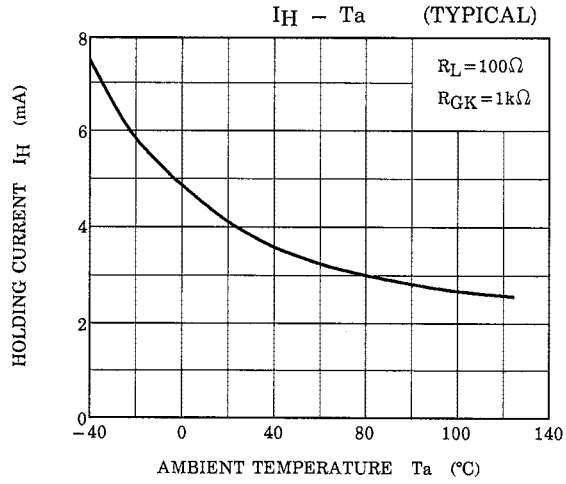
$V_{GT} - T_a$  (TYPICAL)



$I_{GT} - T_a$  (TYPICAL)







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