

TOSHIBA THYRISTOR SILICON PLANAR TYPE

# SF5G41A, SF5J41A

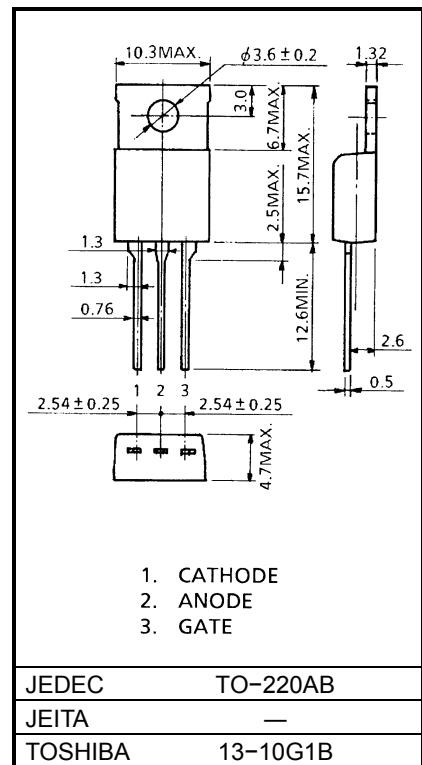
Unit: mm

## MEDIUM POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage :  $V_{DRM} = 400, 600V$   
 Repetitive Peak Reverse Voltage :  $V_{RRM} = 400, 600V$
- Average On-State Current :  $I_T (AV) = 5A$
- Gate Trigger Current :  $I_{GT} = 15mA (MAX.)$

## MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF5G41A	$V_{DRM}$ $V_{RRM}$	400	V
	SF5J41A		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$ )	SF5G41A	$V_{RSM}$	500	V
	SF5J41A		720	
Average On-State Current (Half Sine Waveform $T_c = 91^\circ C$ )		$I_T (AV)$	5	A
R.M.S On-State Current		$I_T (RMS)$	7.8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		$I_{TSM}$	80 (50Hz)	A
			88 (60Hz)	
$I^2 t$ Limit Value		$I^2 t$	32	$A^2 s$
Critical Rate of Rise of On-State Current		$di / dt$	100	A / $\mu s$
Peak Gate Power Dissipation		$P_{GM}$	5	W
Average Gate Power Dissipation		$P_G (AV)$	0.5	W
Peak Forward Gate Voltage		$V_{FGM}$	10	V
Peak Reverse Gate Voltage		$V_{RGM}$	-5	V
Peak Forward Gate Current		$I_{GM}$	2	A
Junction Temperature		$T_j$	-40~125	$^\circ C$
Storage Temperature Range		$T_{stg}$	-40~125	$^\circ C$

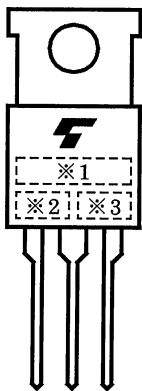


Weight: 2g

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

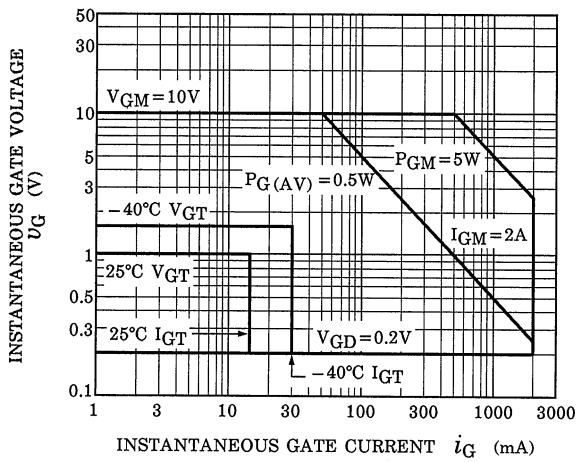
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = \text{Rated}$	—	10	$\mu\text{A}$
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 15\text{A}$	—	1.6	V
Gate Trigger Voltage	$V_{GT}$	$V_D = 6\text{V}, R_L = 10\Omega$	—	1.0	V
Gate Trigger Current	$I_{GT}$		—	15	mA
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = \text{Rated} \times 2 / 3, T_c = 125^\circ\text{C}$	0.2	—	V
Critical Rate of Rise of Off-State Voltage	$dv / dt$	$V_{DRM} = \text{Rated} \times 2 / 3, T_c = 125^\circ\text{C},$ Exponential Rise	100	—	V / $\mu\text{s}$
Holding Current	$I_H$	$V_D = 6\text{V}, I_{TM} = 1\text{A}$	—	40	mA
Latching Current	$I_L$	$V_D = 6\text{V}, f = 50\text{Hz}, t_{gw} = 50\mu\text{s}, i_G = 30\text{mA}$	—	60	mA
Thermal Resistance	$R_{th(j-c)}$	Junction to Case	—	3	$^\circ\text{C} / \text{W}$

## MARKING

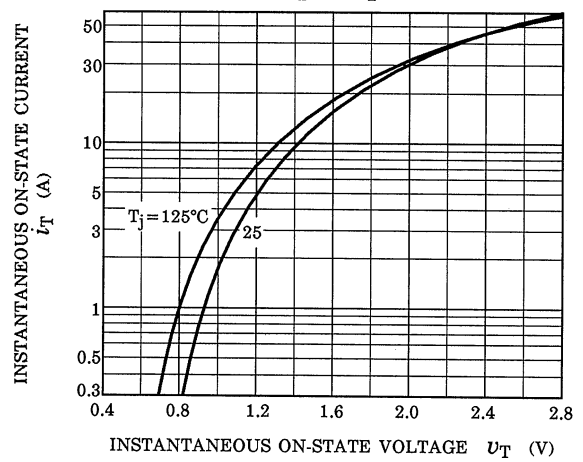


NUMBER	SYMBOL	MARK
*1	SF5G41A	SF5G41
	SF5J41A	SF5J41
*2	SF5G41A, SF5J41A	A
*3	Lot Number  Month (Starting from) (Alphabet A) Year (Last Decimal Digit) (of the Current Year)	Example 8A : January 1998 8B : February 1998 8L : December 1998

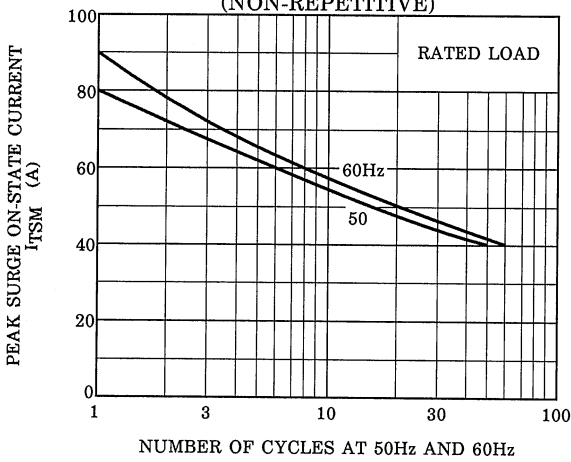
GATE TRIGGER CHARACTERISTIC



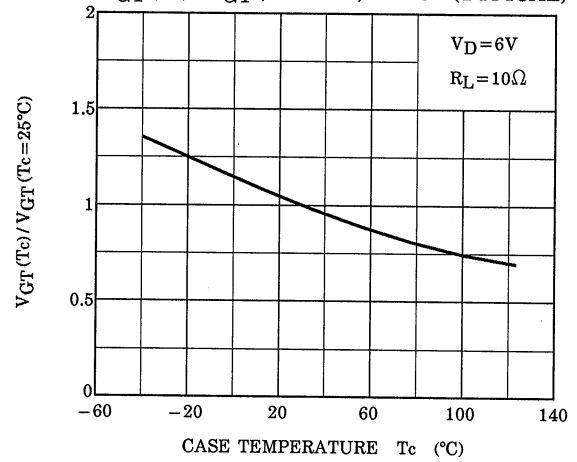
$i_T - v_T$



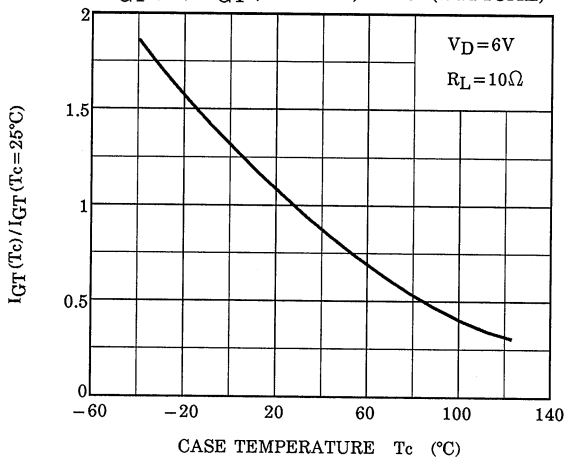
SURGE ON-STATE CURRENT (NON-REPETITIVE)



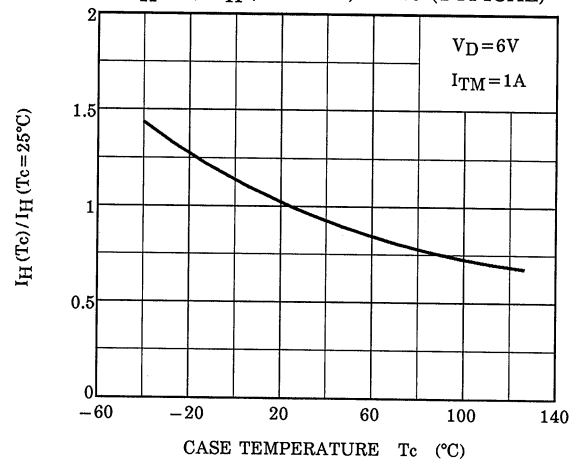
$V_{GT}(T_c) / V_{GT}(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)

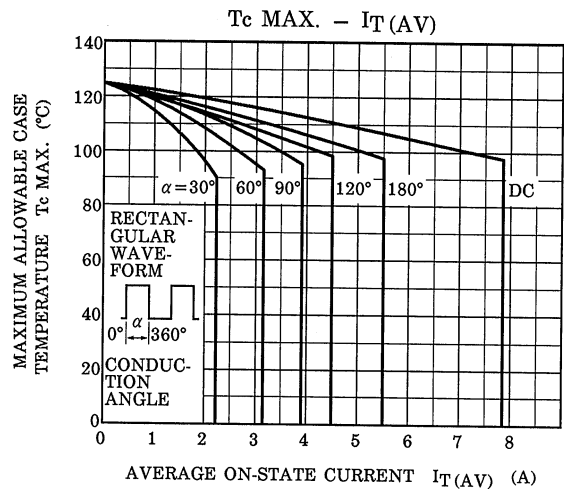
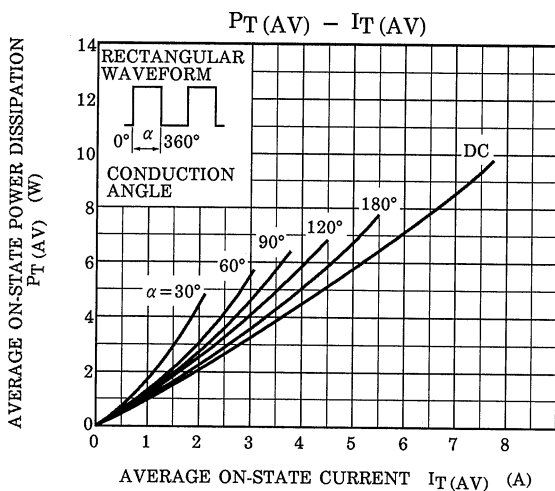
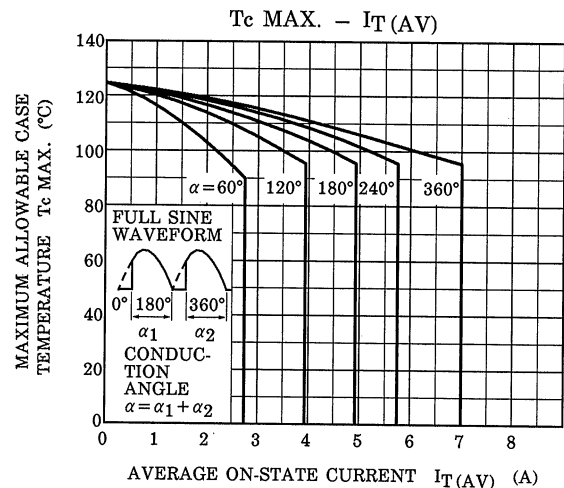
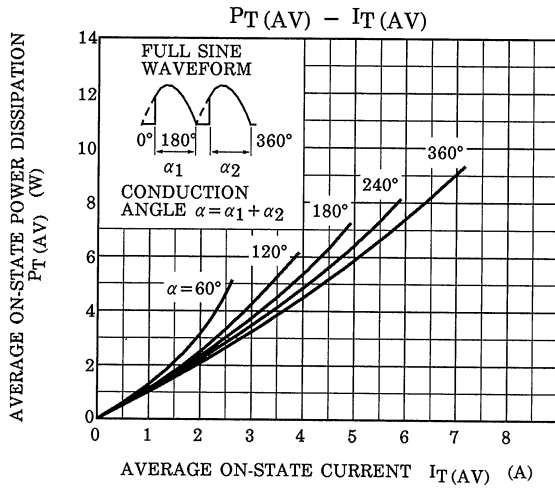
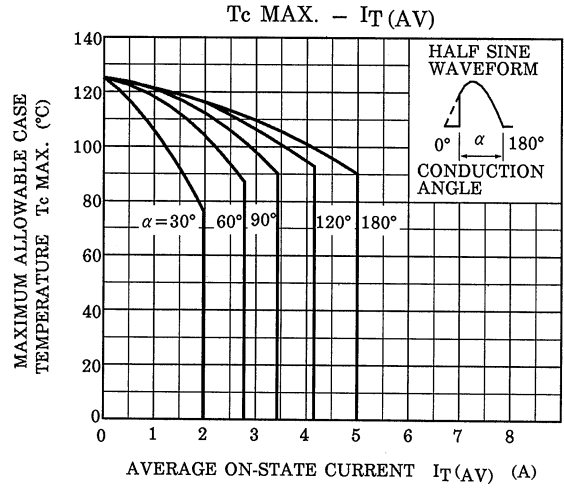
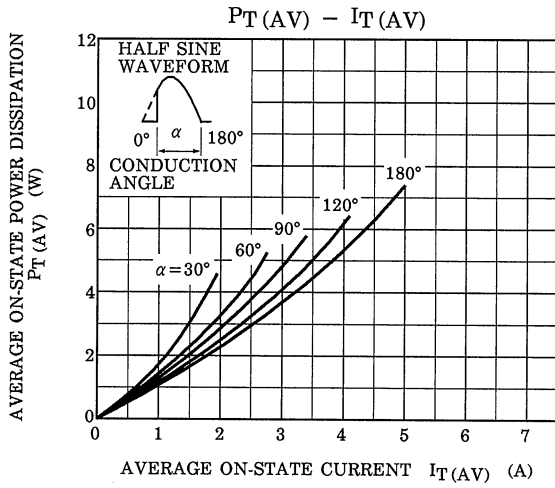


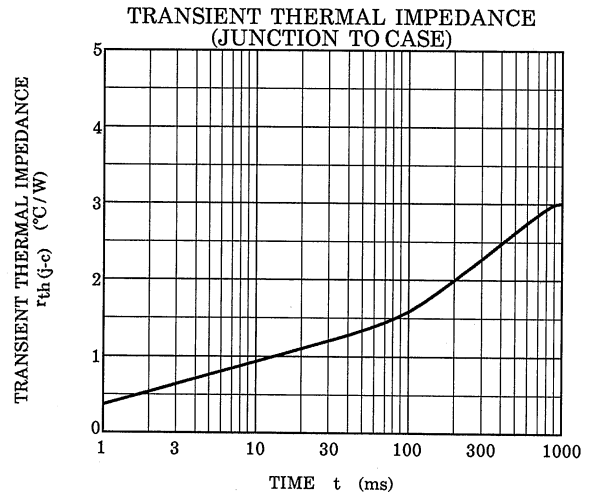
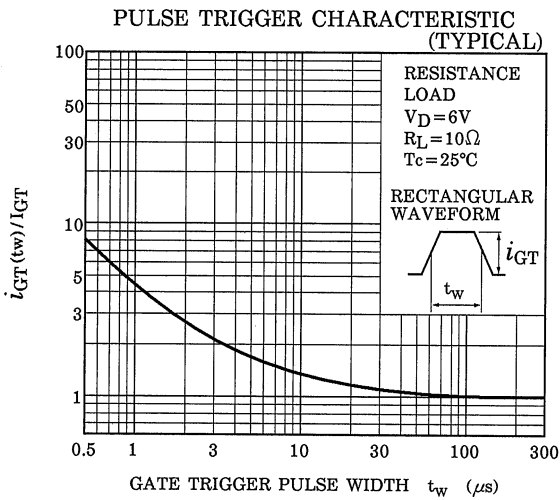
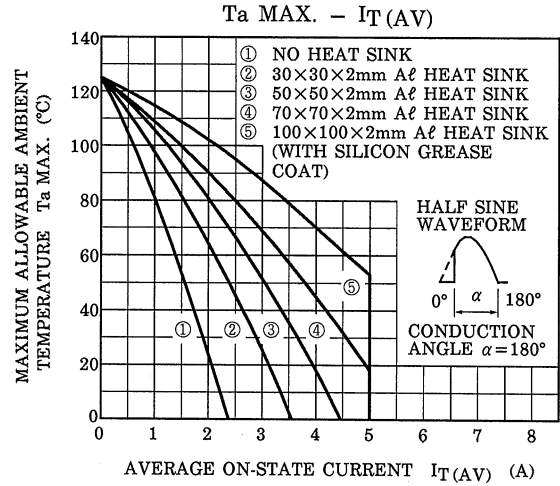
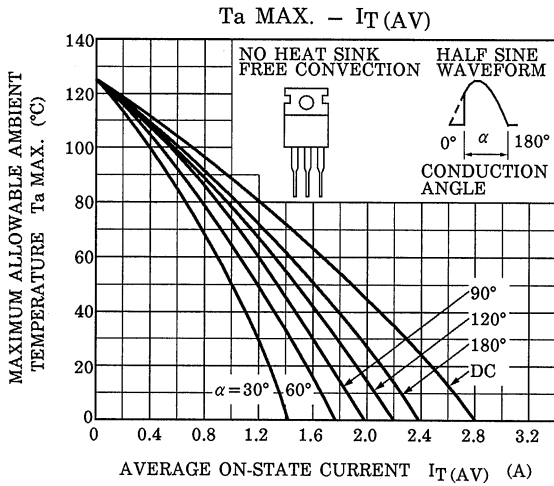
$I_{GT}(T_c) / I_{GT}(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)



$I_H(T_c) / I_H(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)







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