

TOSHIBA Thyristor Silicon Planar Type

# SF5G41A, SF5J41A

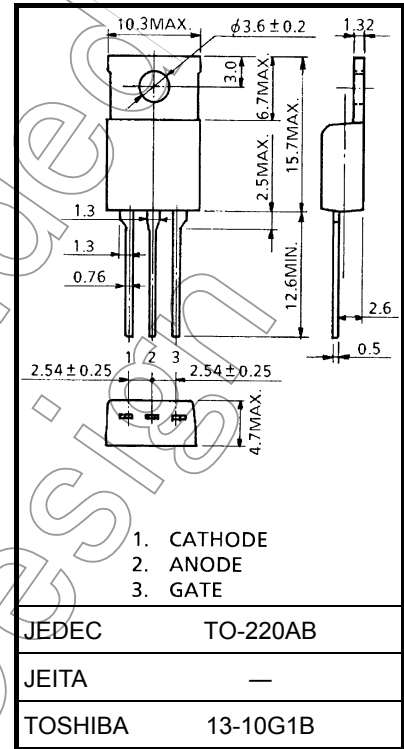
Medium-power control applications

- Repetitive peak off-state voltage:  $V_{DRM} = 400\text{ V}, 600\text{ V}$   
 Repetitive peak reverse voltage:  $V_{RRM} = 400\text{ V}, 600\text{ V}$
- Average on-state current:  $I_T(AV) = 5\text{ A}$
- Gate trigger current:  $I_{GT} = 15\text{ mA (max)}$

## Maximum Ratings

Characteristic	Symbol	Rating	Unit
Repetitive peak off-state voltage and peak repetitive peak reverse voltage	SF5G41A	400	V
	SF5J41A	600	
Non-repetitive peak reverse voltage (non-repetitive < 5 ms, $T_j = 0\sim 125^\circ\text{C}$ )	SF5G41A	500	V
	SF5J41A	720	
Average on-state current (half-sine waveform $T_c = 91^\circ\text{C}$ )	$I_T(AV)$	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 (50 Hz)	A
		88 (60 Hz)	
$I^2t$ limit value	$I^2t$	32	$\text{A}^2\text{s}$
Critical rate of rise of on-state current	$di/dt$	100	$\text{A}/\mu\text{s}$
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	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-40~125	$^\circ\text{C}$

Unit: mm

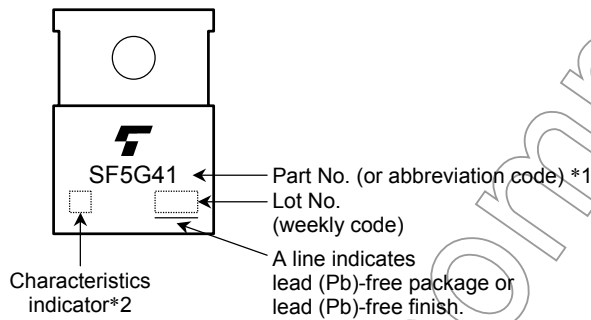


Weight: 2.0 g (typ.)

## Electrical Characteristics (Ta = 25°C)

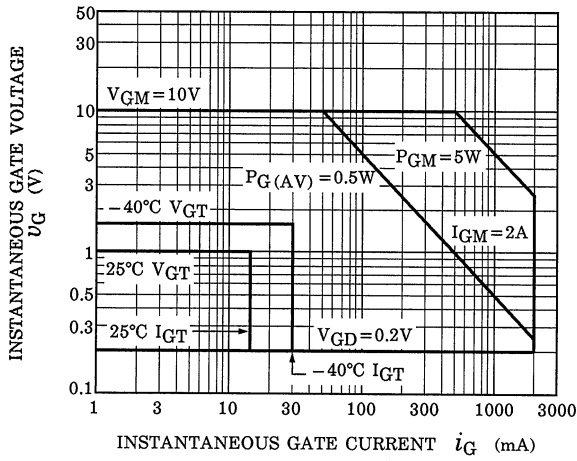
Characteristic	Symbol	Test Condition	Min	Max	Unit
Repetitive peak off-state current and repetitive peak reverse current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = \text{Rated}$	—	10	$\mu\text{A}$
Peak on-state voltage	$V_{TM}$	$I_{TM} = 15 \text{ A}$	—	1.6	V
Gate trigger voltage	$V_{GT}$	$V_D = 6 \text{ V}, R_L = 10 \Omega$	—	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

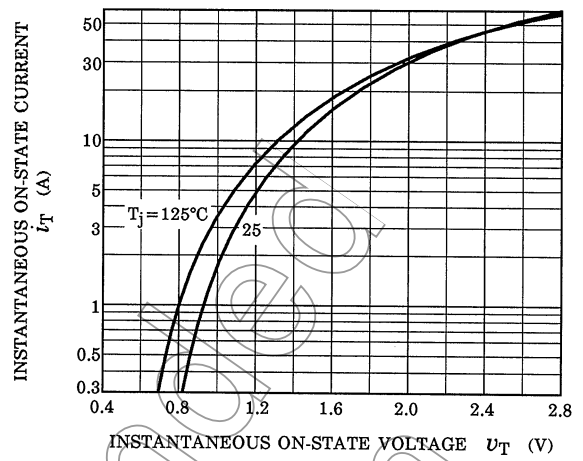


	Part No. (or Abbreviation Code)	Part No.
*1	SF5G41	SF5G41A
	SF5J41	SF5J41A
*2	A	SF5G41A, SF5J41A

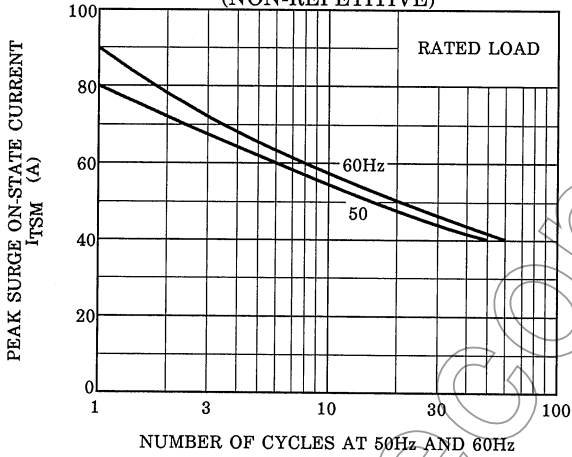
GATE TRIGGER CHARACTERISTIC



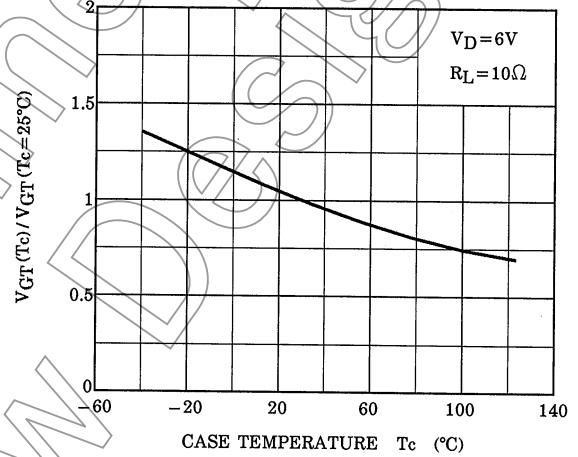
$i_T - v_T$



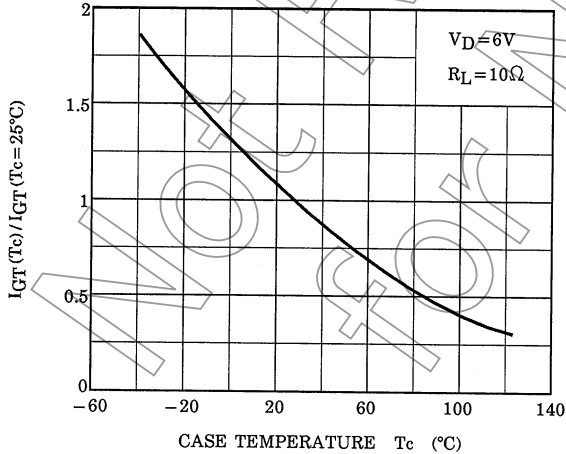
SURGE ON-STATE CURRENT (NON-REPETITIVE)



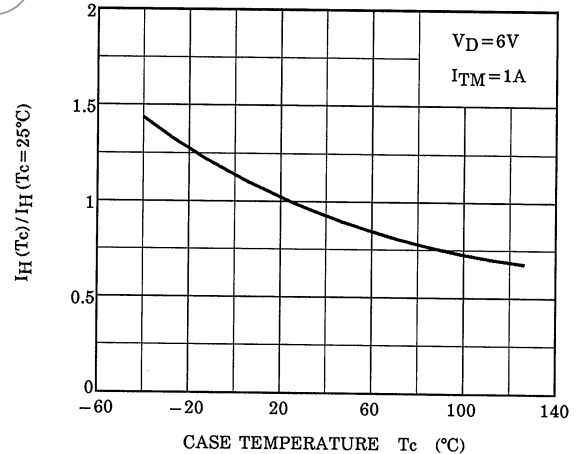
$V_{GT}(T_c) / V_{GT}(T_c=25^\circ C) - T_c$  (TYPICAL)

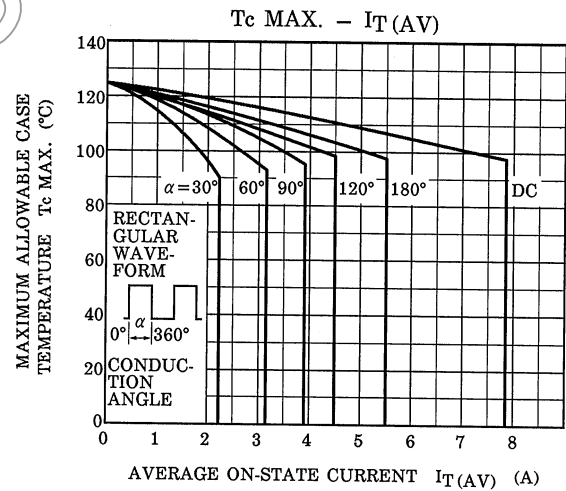
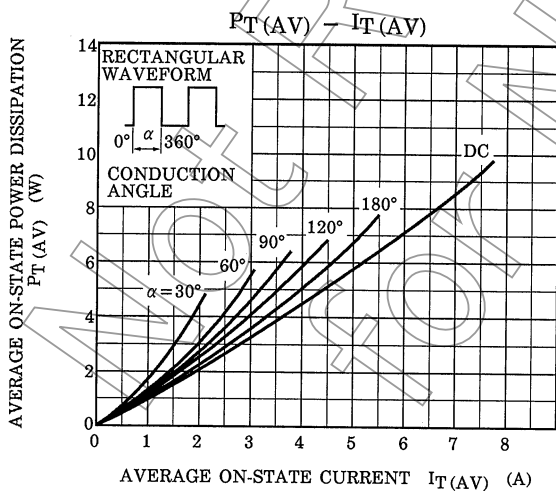
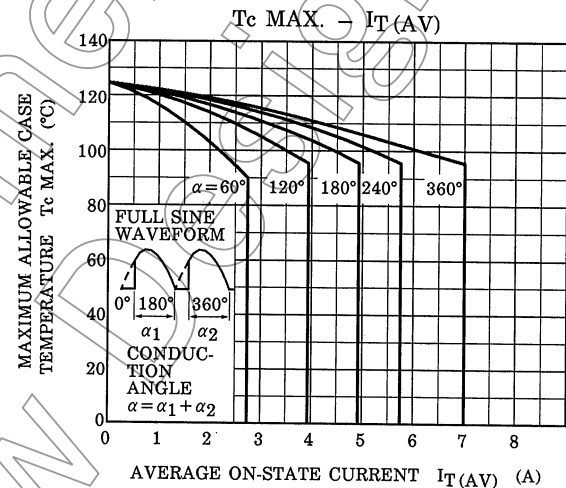
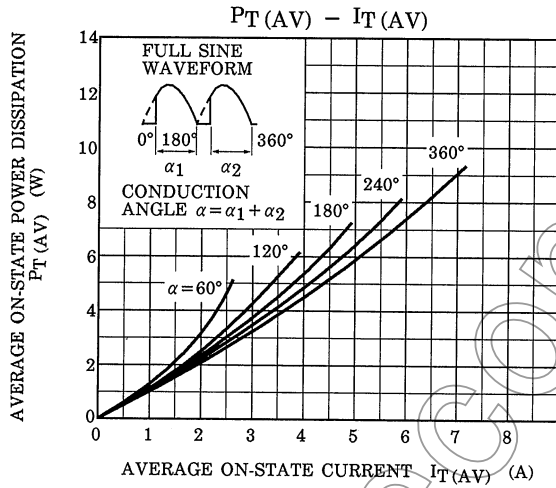
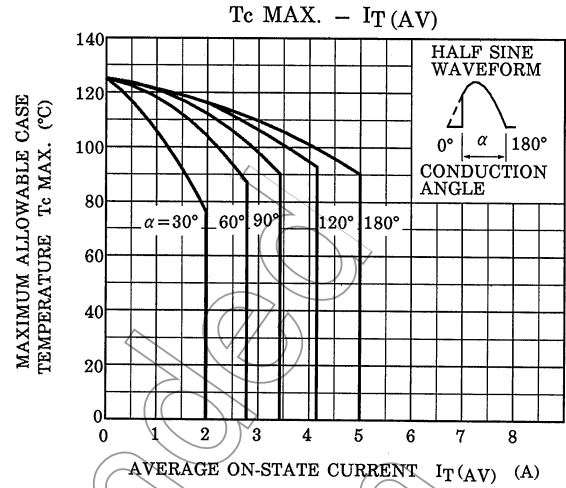
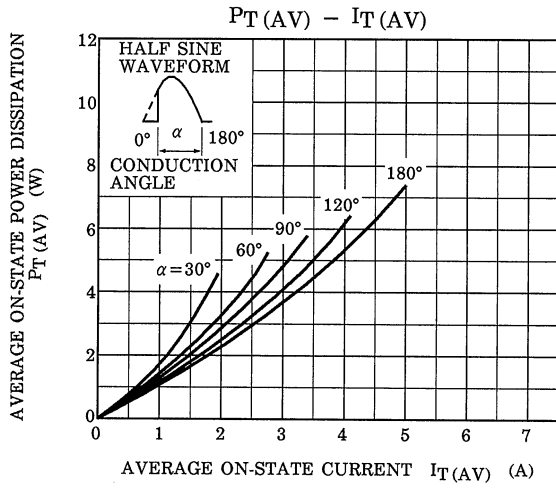


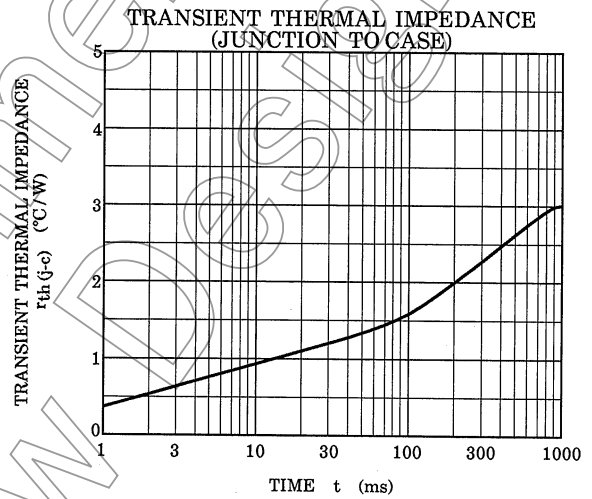
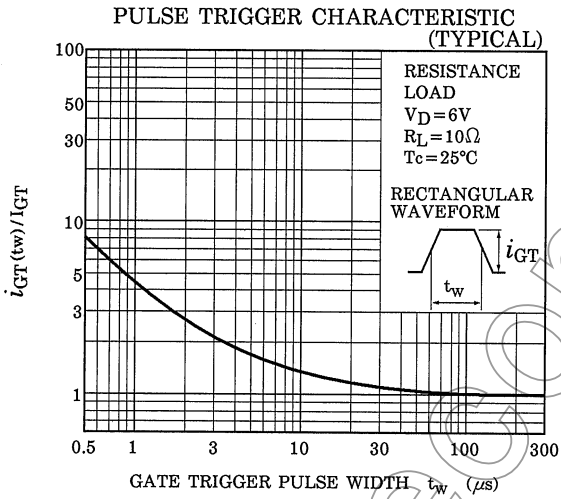
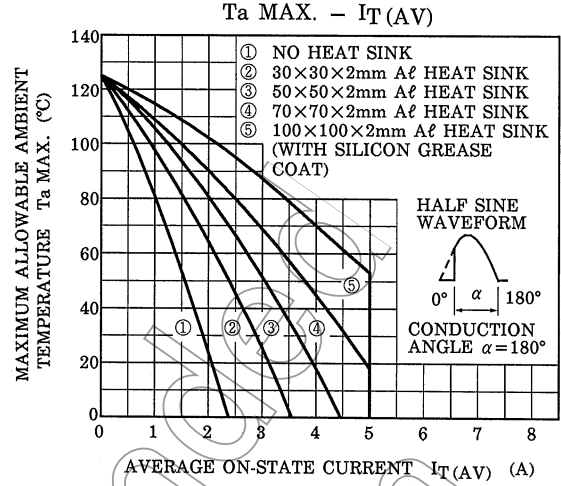
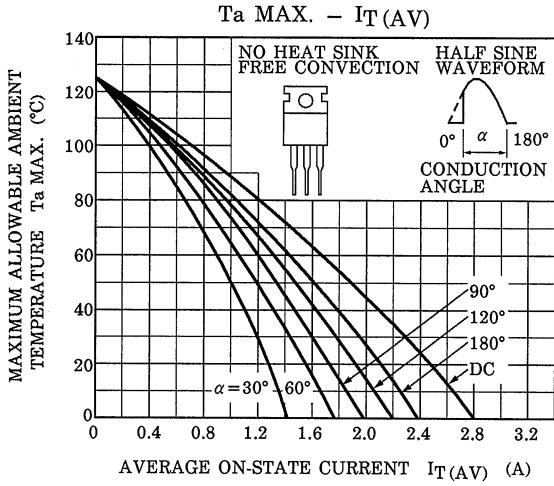
$I_{GT}(T_c) / I_{GT}(T_c=25^\circ C) - T_c$  (TYPICAL)



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







Not Recommended for New

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