

TOSHIBA Thyristor Silicon Planar Type

SF8G41A, SF8J41A

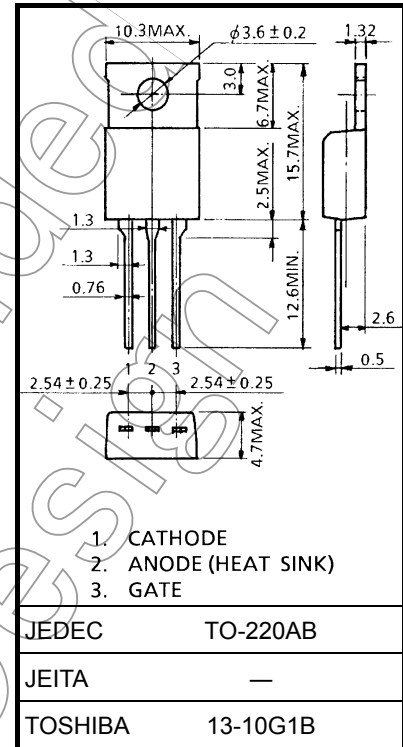
Medium Power Control Applications

- 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: $I_T(\text{AV}) = 8\text{ A}$
- Gate trigger current: $I_{GT} = 15\text{ mA (max)}$

Maximum Ratings

Characteristic	Symbol	Rating	Unit
Repetitive peak off-state voltage and repetitive peak reverse voltage	SF8G41A	V_{DRM}	V
	SF8J41A	V_{RRM}	
Non-repetitive peak reverse voltage (non-repetitive < 5 ms, $T_j = 0\sim 125^\circ\text{C}$)	SF8G41A	V_{RSM}	V
	SF8J41A	V_{RSM}	
Average on-state current (half-sine waveform $T_c = 83^\circ\text{C}$)	$I_T(\text{AV})$	8	A
R.M.S on-state current	$I_T(\text{RMS})$	12.6	A
Peak one cycle surge on-state current (non-repetitive)	I_{TSM}	120 (50Hz)	A
		132 (60Hz)	
I^2t limit value	I^2t	72	A^2s
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	$P_G(\text{AV})$	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

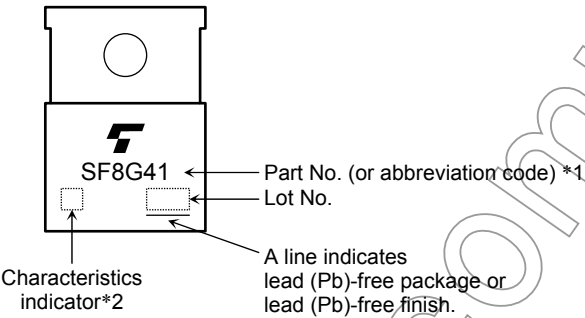


Weight: 2.0 g (typ.)

Electrical Characteristics (Ta = 25°C)

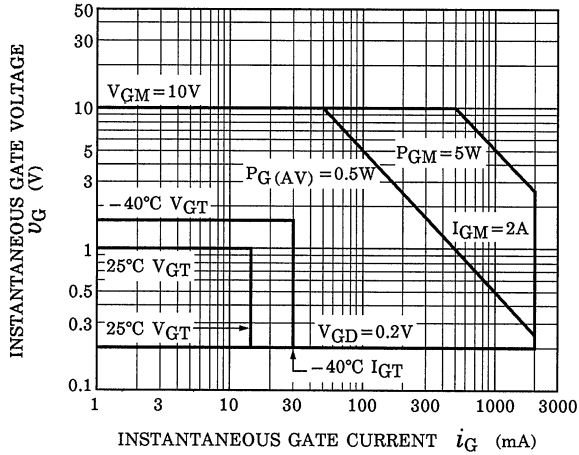
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Repetitive peak off-state current and repetitive peak reverse current	I_{DRM} I_{RRM}	$V_{\text{DRM}} = V_{\text{RRM}} = \text{Rated}$	—	—	10	μA
Peak on-state voltage	V_{TM}	$I_{\text{TM}} = 25 \text{ A}$	—	—	1.6	V
Gate trigger voltage	V_{GT}	$V_{\text{D}} = 6 \text{ V}, R_{\text{L}} = 10 \Omega$	—	—	1.0	V
Gate trigger current	I_{GT}		—	—	15	mA
Gate non-trigger voltage	V_{GD}	$V_{\text{D}} = \text{Rated} \times 2 / 3, T_{\text{c}} = 125^{\circ}\text{C}$	0.2	—	—	V
Critical rate of rise of off-state voltage	dv / dt	$V_{\text{DRM}} = \text{Rated} \times 2 / 3, T_{\text{c}} = 125^{\circ}\text{C}$ Exponential Rise	100	—	—	V / μs
Holding current	I_{H}	$V_{\text{D}} = 6 \text{ V}, I_{\text{TM}} = 1 \text{ A}$	—	—	40	mA
Latching current	I_{L}	$V_{\text{D}} = 6 \text{ V}, f = 50 \text{ Hz}, t_{\text{gw}} = 50 \mu\text{s}$ $i_{\text{G}} = 30 \text{ mA}$	—	—	60	mA
Thermal resistance	$R_{\text{th (j-c)}}$	Junction to case	—	—	3	$^{\circ}\text{C} / \text{W}$

Marking

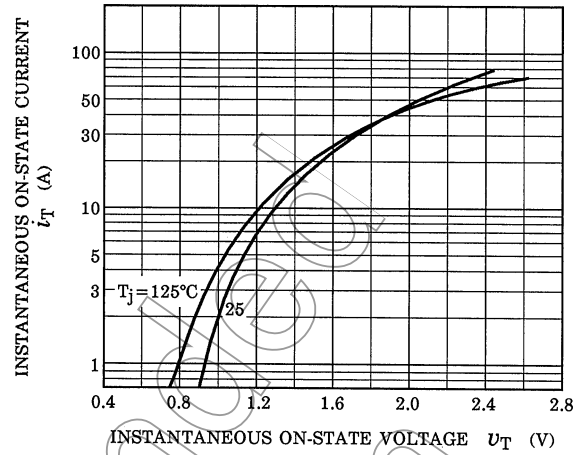


	Part No. (or abbreviation code)	Part No.
*1	SF8G41	SF8G41A
	SF8J41	SF8J41A
*2	A	SF8G41A, SF8J41A

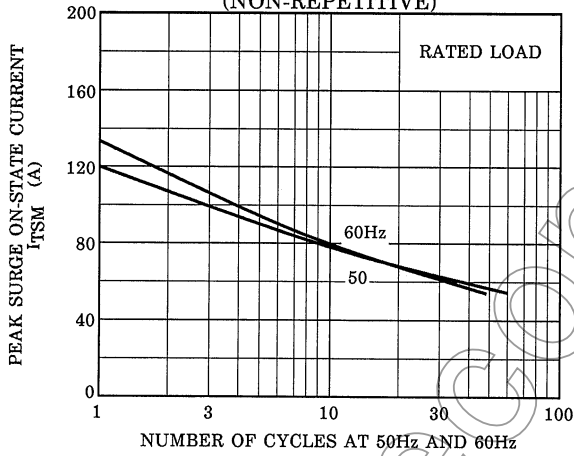
GATE TRIGGER CHARACTERISTIC



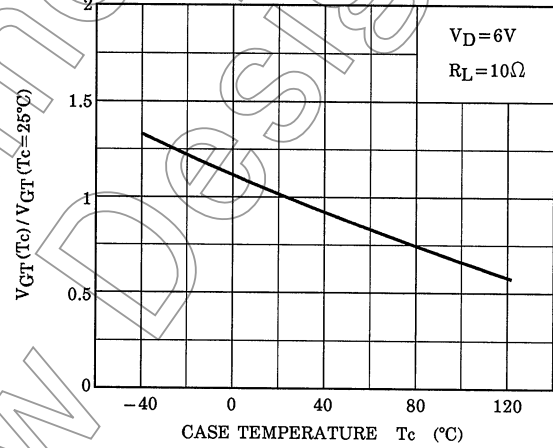
$i_T - v_T$



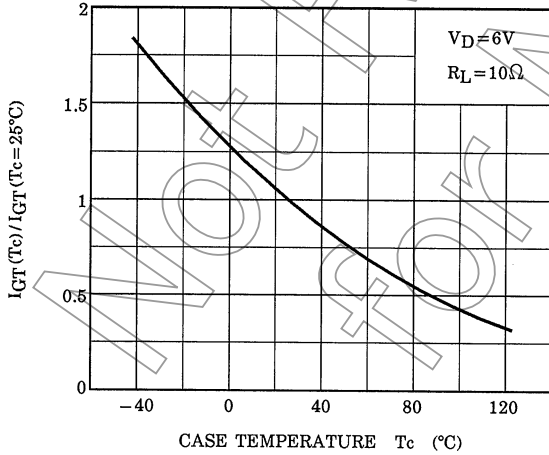
SURGE ON-STATE CURRENT (NON-REPETITIVE)



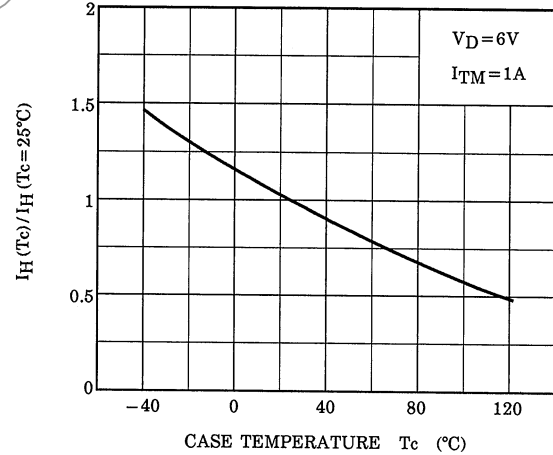
$V_{GT}(T_c) / V_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)

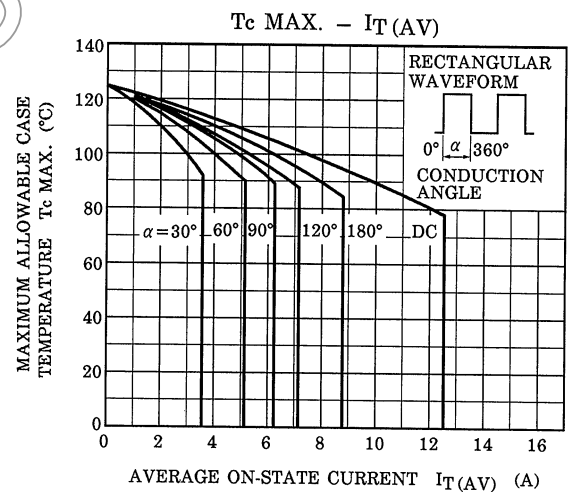
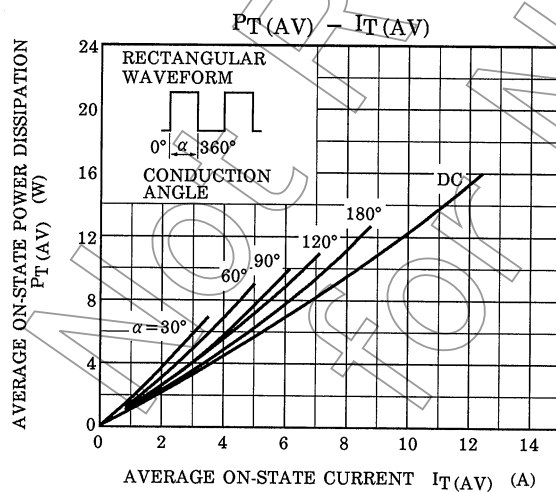
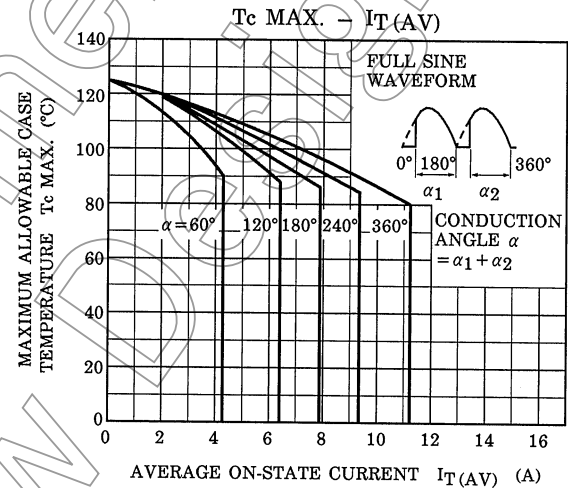
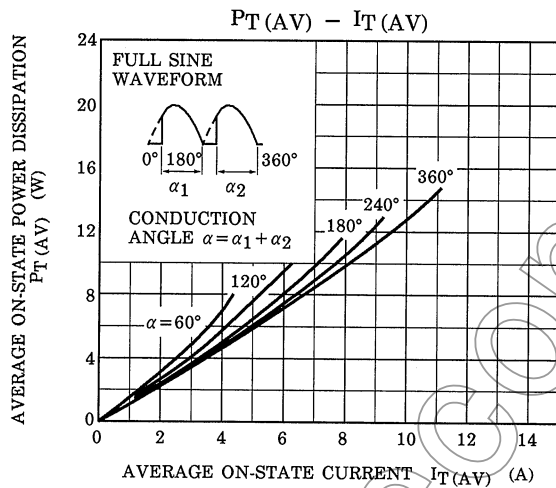
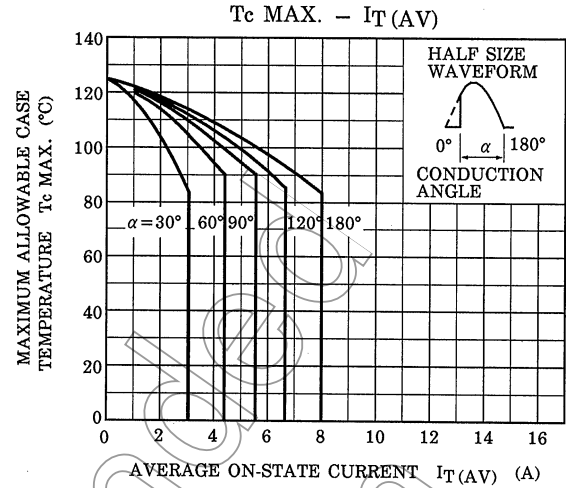
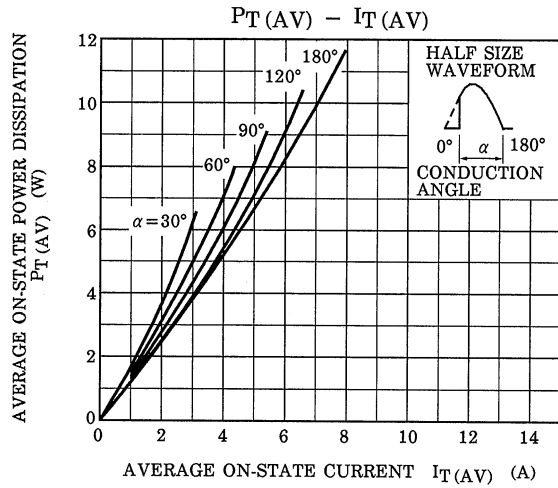


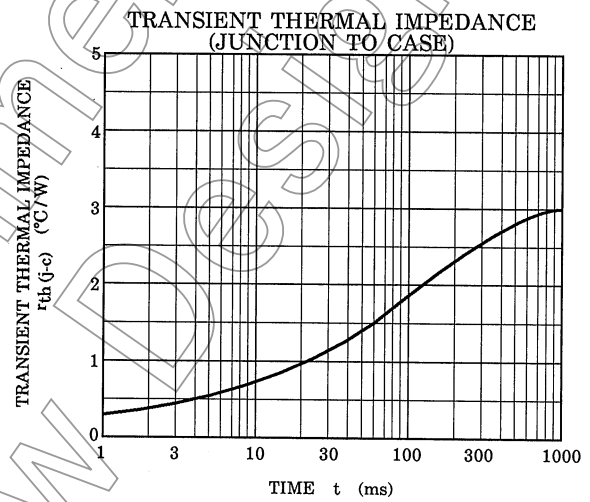
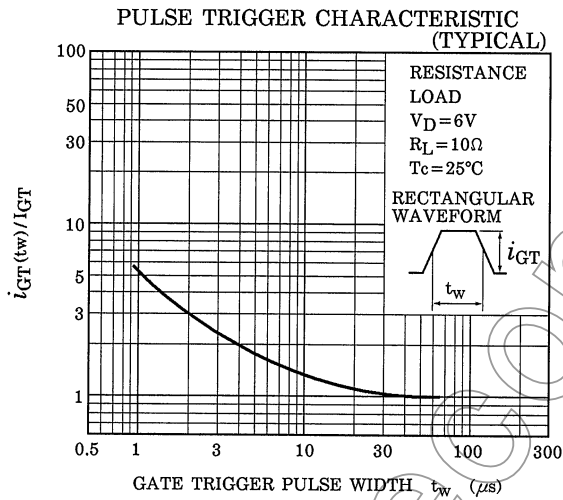
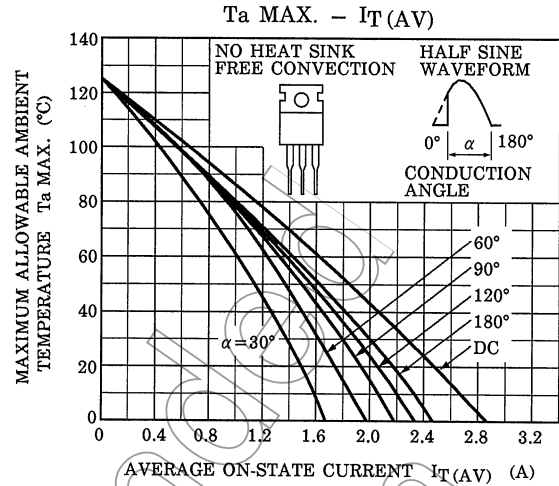
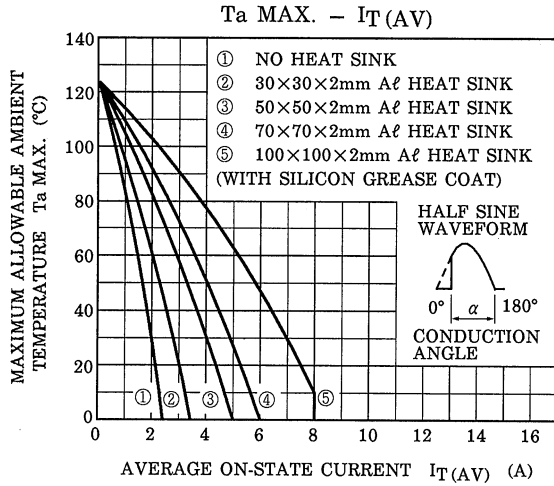
$I_{GT}(T_c) / I_{GT}(T_c = 25^\circ C) - T_c$ (TYPICAL)



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







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20070701-EN GENERAL

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