

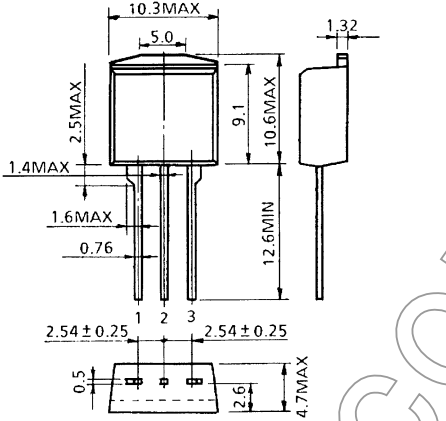
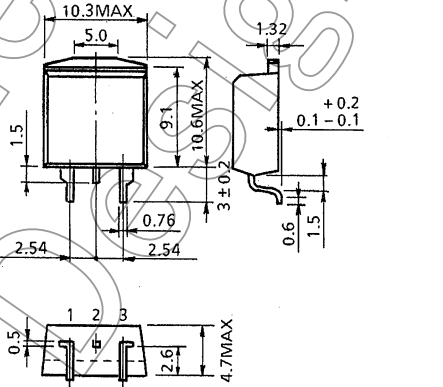
TOSHIBA Thyristor Silicon Planar Type

SF3G48, SF3J48, USF3G48, USF3J48

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: $I_T (AV) = 3\text{ A}$
- Gate trigger current: $I_{GT} = 10\text{ mA max.}$

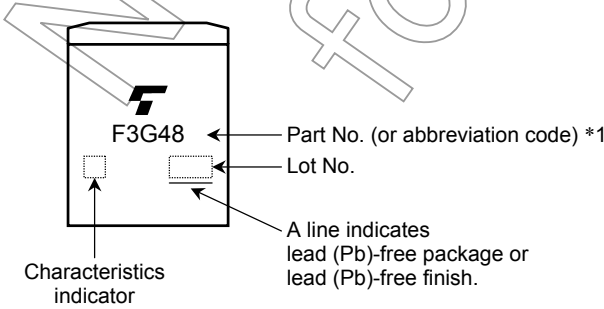
Unit: mm

SF3G48-SF3J48	USF3G48-USF3J48
 <p>1. CATHODE 2. ANODE 3. GATE</p>	 <p>1. CATHODE 2. ANODE (BACK SIDE) 3. GATE</p>
JEDEC —	JEDEC —
JEITA —	JEITA —
TOSHIBA 13-10J1B	TOSHIBA 13-10J2B

Weight: 1.5 g

Weight: 1.4 g

Marking



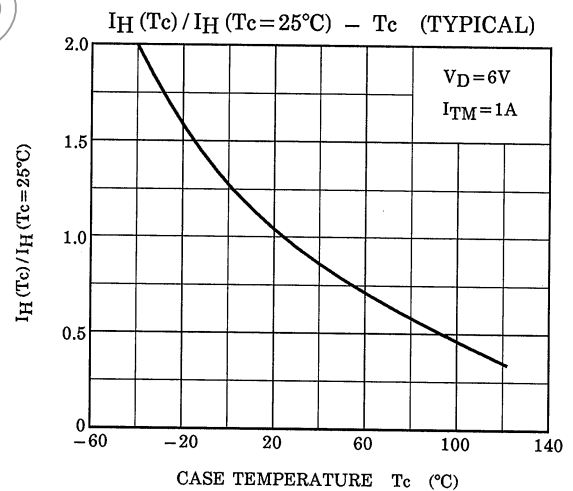
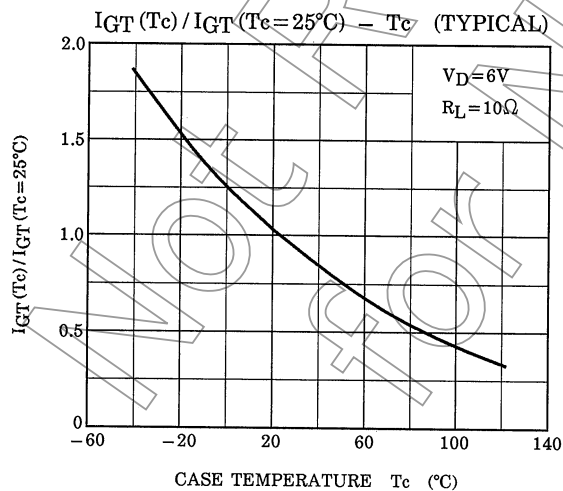
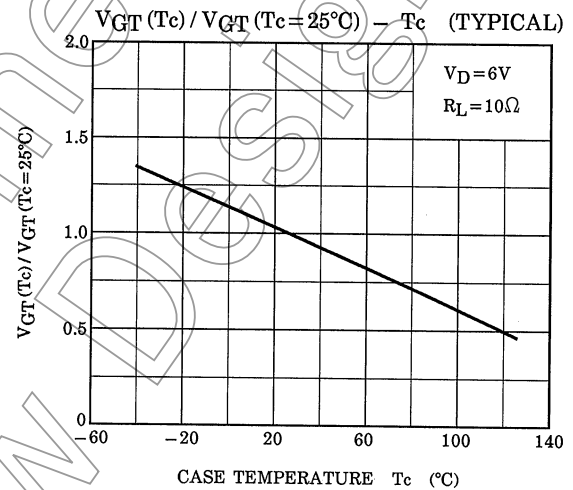
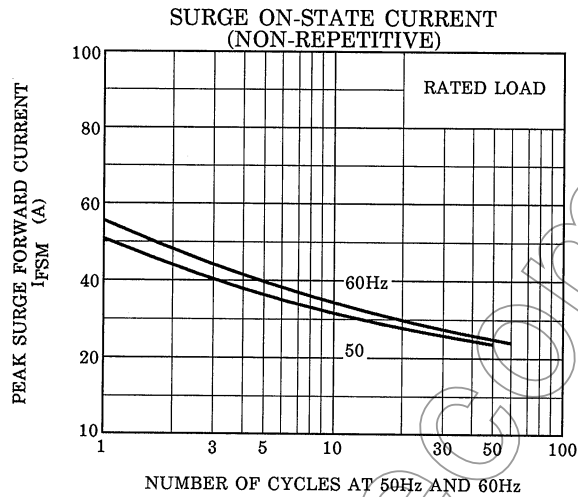
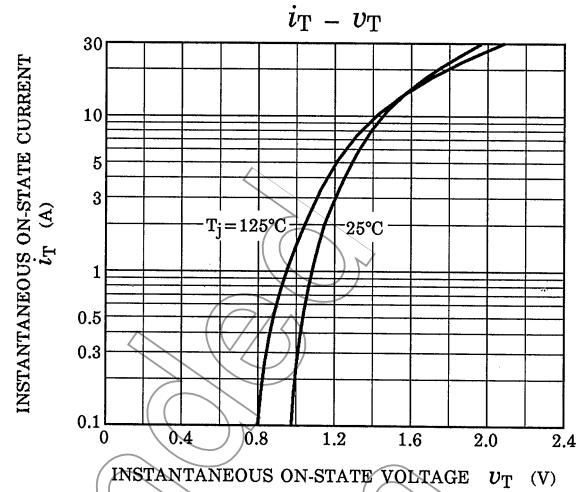
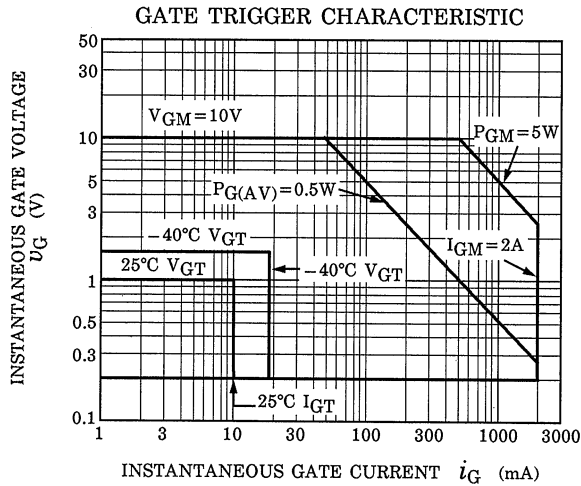
*1	Part No. (or Abbreviation Code)	Part No.
	F3G48	SF3G48, USF3G48
	F3J48	SF3J48, USF3J48

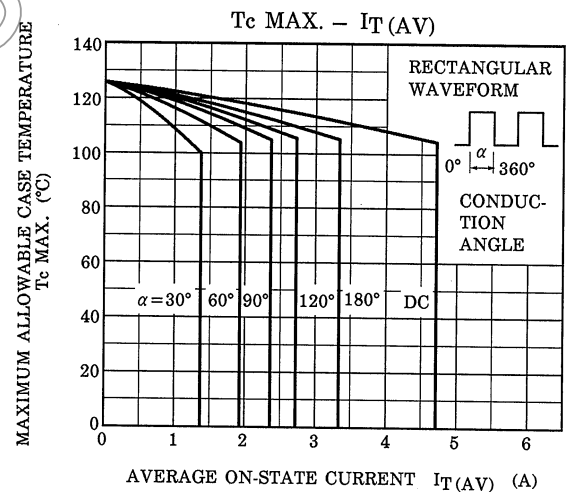
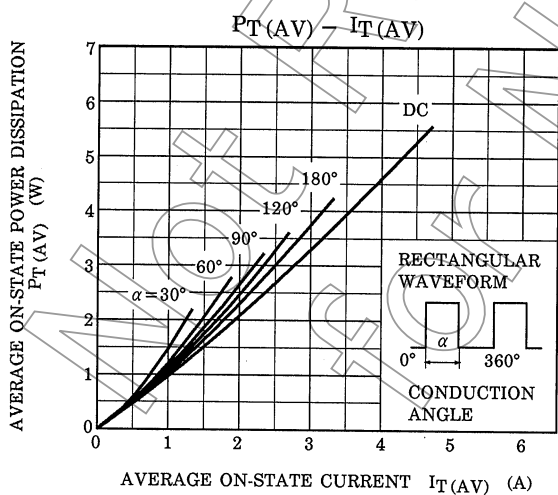
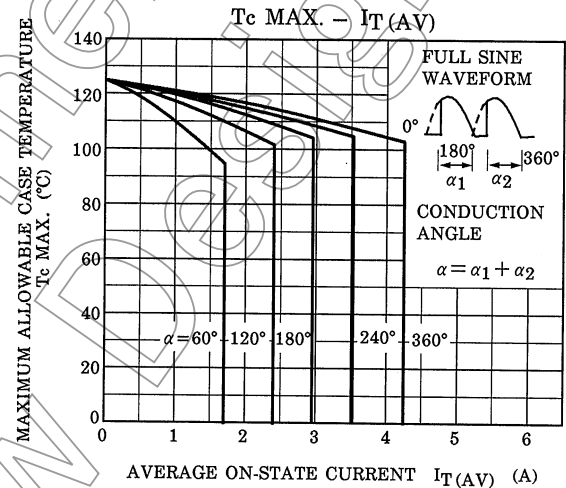
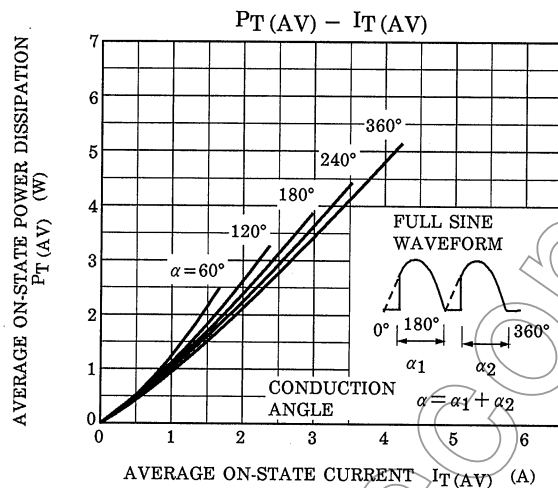
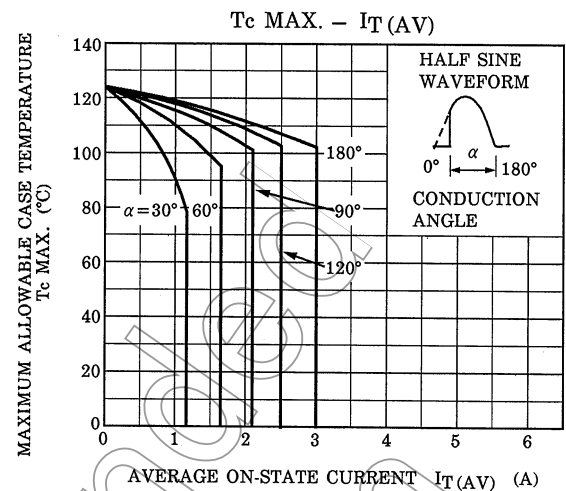
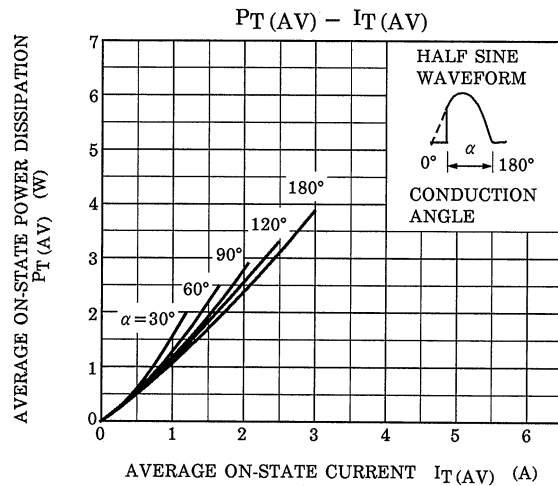
Maximum Ratings

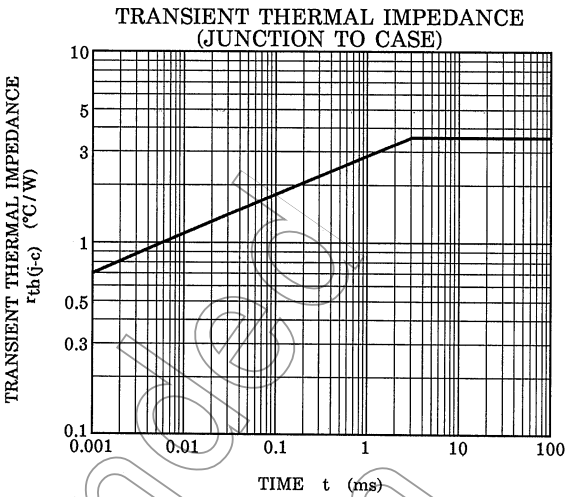
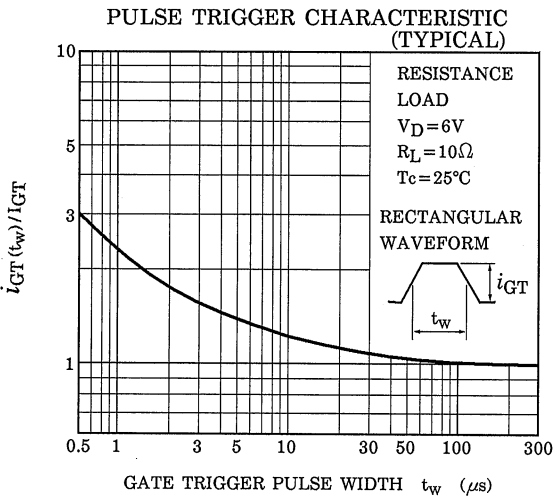
Characteristic	Symbol	Rating	Unit
Repetitive peak off-state voltage and repetitive peak reverse voltage	SF3G48 USF3G48	400	V
	SF3J48 USF3J48	600	
Non-repetitive peak reverse voltage (non-repetitive < 5 ms, $T_j = 0 \sim 125^\circ\text{C}$)	SF3G48 USF3G48	500	V
	SF3J48 USF3J48	720	
Average on-state current	I_T (AV)	3	A
R.M.S on-state current	I_T (RMS)	4.7	A
Peak one-cycle surge on-state current (non-repetitive)	I_{TSM}	50 (50 Hz)	A
		55 (60 Hz)	
I^2t limit value	I^2t	12.5	A^2s
Critical rate of rise of on-state current (Note 1)	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	$-40 \sim 125$	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-40 \sim 125$	$^\circ\text{C}$

Note 1: $V_{DRM} = 0.5 \times \text{Rated}$ $I_{TM} \leq 12\text{A}$ $t_{gw} \geq 10\mu\text{s}$ $t_{gr} \leq 250\text{ns}$ $i_{gp} = I_{GT} \times 2.0$ Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Repetitive peak off-state current and repetitive peak reverse current	I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	μA
Peak on-state voltage	V_{TM}	$I_{TM} = 12\text{A}$	—	—	1.5	V
Gate trigger voltage	V_{GT}	$V_D = 6\text{V}, R_L = 10\ \Omega$	—	—	1.0	V
Gate trigger current	I_{GT}		—	—	10	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	$V_{DRM} = \text{Rated}, T_c = 125^\circ\text{C}$ Exponential Rise	—	50	—	$\text{V}/\mu\text{s}$
Holding current	I_H	$V_D = 6\text{V}, I_{TM} = 1\text{A}$	—	—	40	mA
Latching current	I_L	$V_D = 6\text{V}, f = 50\text{Hz}$ $t_{gw} = 50\ \mu\text{s}, I_G = 30\text{mA}$	—	—	50	mA
Thermal resistance	$R_{th(j-c)}$	Junction to Case, DC	—	—	3.6	$^\circ\text{C}/\text{W}$







Not Recommended for New Design

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20070701-EN

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