

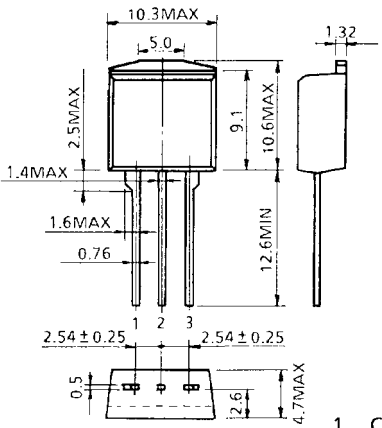
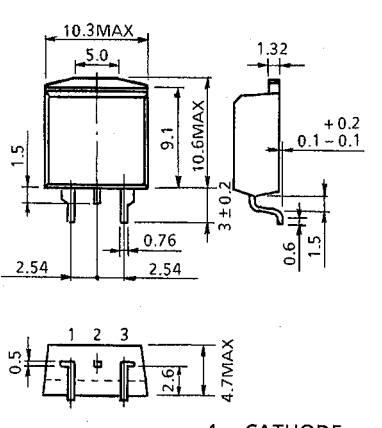
TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF5G48,SF5J48,USF5G48,USF5J48

MEDIUM POWER CONTROL APPLICATIONS

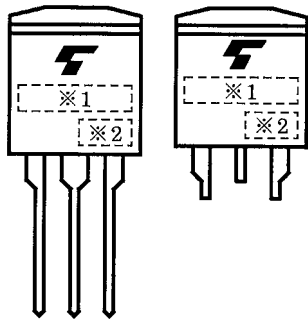
- Repetitive Peak Off-State Voltage : $V_{DRM} = 400, 600V$
Repetitive Peak Reverse Voltage : $V_{RRM} = 400, 600V$
- Average On-State Current : $I_T (AV) = 5A$
- Gate Trigger Current : $I_{GT} = 10mA \text{ Max.}$

Unit: mm

SF5G48-SF5J48	USF5G48-USF5J48
 1. CATHODE 2. ANODE 3. GATE	 1. CATHODE 2. ANODE (BACK SIDE) 3. GATE
JEDEC —	JEDEC —
JEITA —	JEITA —
TOSHIBA 13-10J1B	TOSHIBA 13-10J2B

Weight: 1.7g

MARKING



*1	MARK	F5G48	TYPE NAME	SF5G48, USF5G48
		F5J48		SF5J48, USF5J48
*2	Lot Number			
	← ← Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)			

MAXIMUM RATINGS

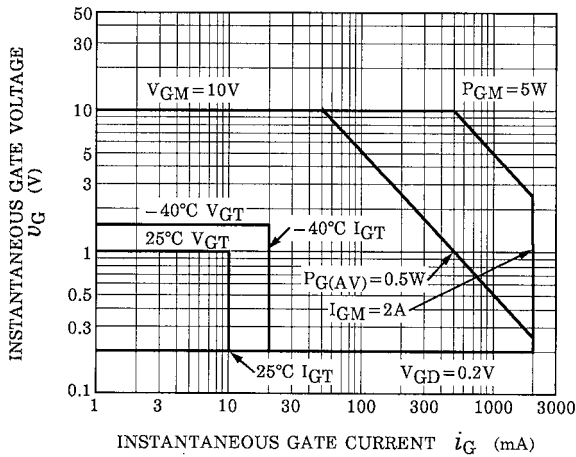
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF5G48	V_{DRM} V_{RRM}	400	V
	USF5G48			
	SF5J48		600	
	USF5J48			
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms $T_j = 0 \sim 125^\circ\text{C}$)	SF5G48	V_{RSM}	500	V
	USF5G48			
	SF5J48		720	
	USF5J48			
Average On-State Current		$I_T (AV)$	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^2t Limit Value		I^2t	32	A^2s
Critical Rate of Rise of On-State Current (Note 1)		di/dt	100	A / μs
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	$^\circ\text{C}$

Note 1: $V_{DRM} = 0.5 \times \text{Rated}$
 $I_{TM} \leq 15A$
 $t_{gw} \geq 10\mu s$
 $t_{gr} \leq 250ns$
 $i_{gp} = I_{GT} \times 2.0$

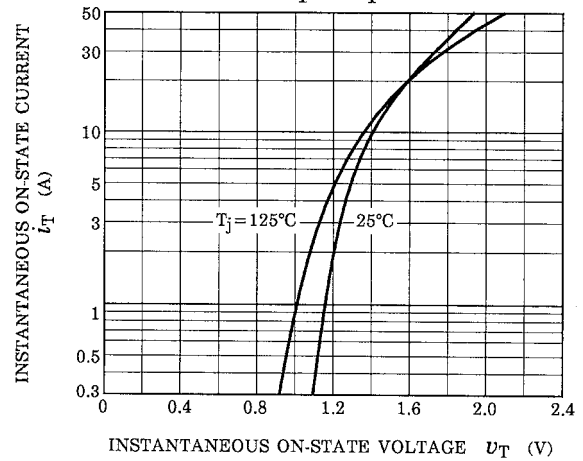
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse	I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	μA
Peak On-State Voltage	V_{TM}	$I_{TM} = 15A$	—	—	1.5	V
Gate Trigger Voltage	V_{GT}	$V_D = 6V, R_L = 10\Omega$	—	—	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	—	V / μs
Holding Current	I_H	$V_D = 6V, I_{TM} = 1A$	—	—	40	mA
Latching Current	I_L	$V_D = 6V, f = 50Hz$ $t_{gw} = 50\mu s, i_G = 30mA$	—	—	50	mA
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, DC	—	—	3.2	$^\circ\text{C} / W$

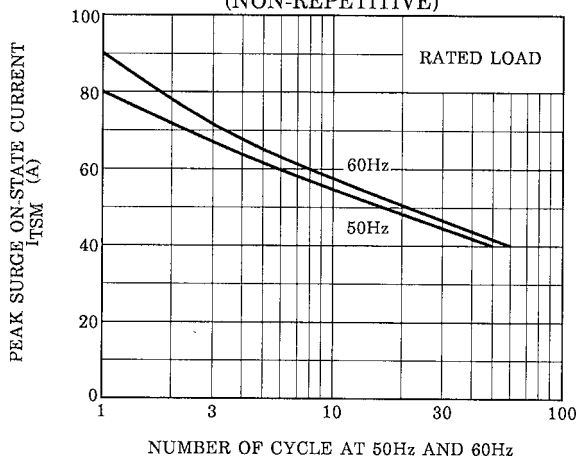
GATE TRIGGER CHARACTERISTIC



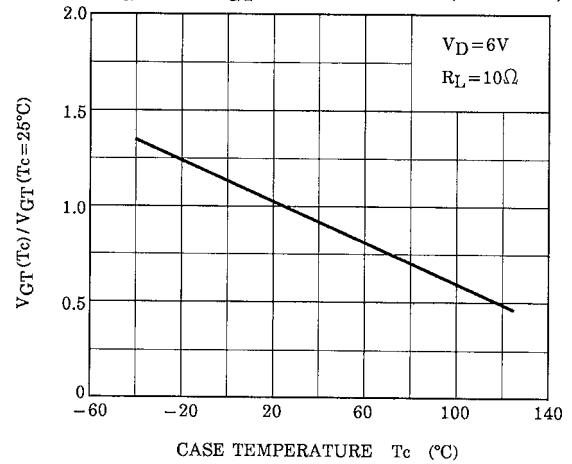
$i_T - v_T$



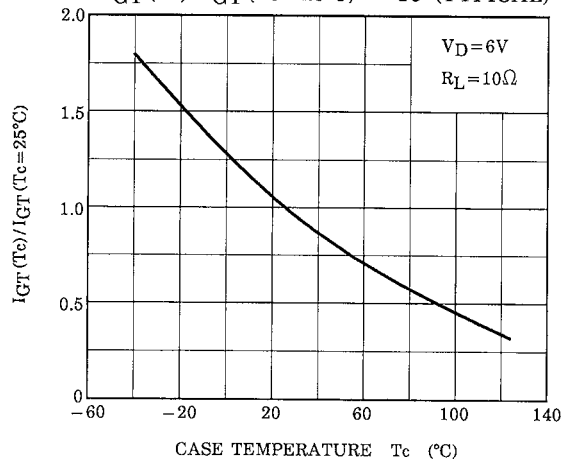
SURGE ON-STATE CURRENT (NON-REPETITIVE)



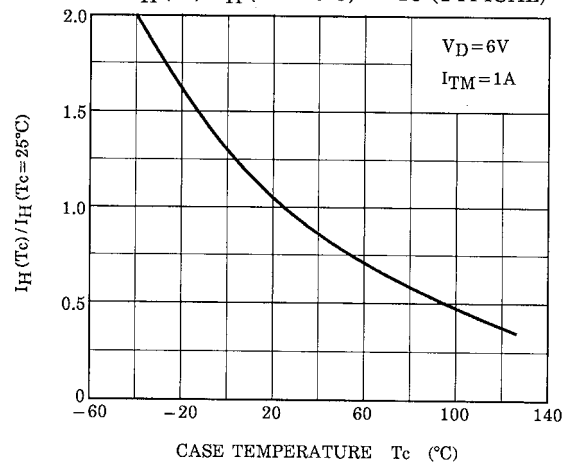
$V_{GT}(T_c)/V_{GT}(T_c=25^\circ C) - T_c$ (TYPICAL)

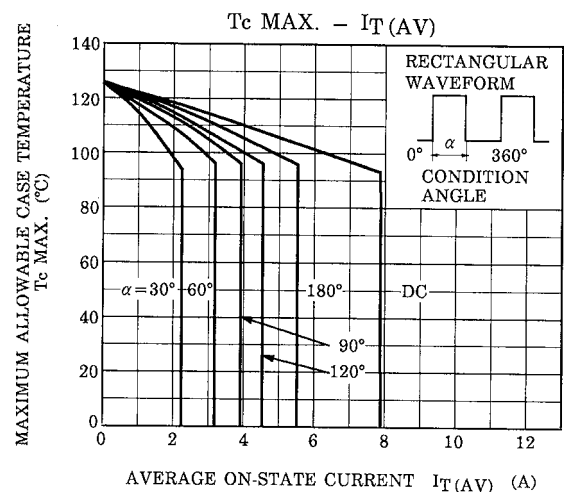
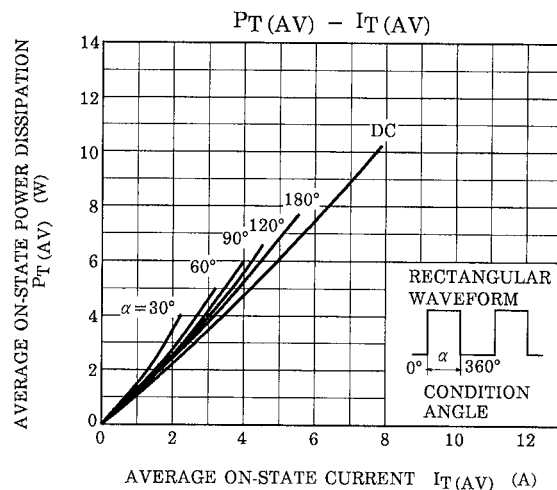
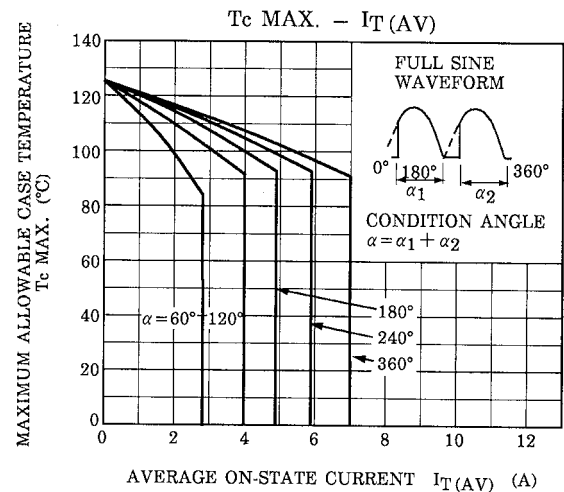
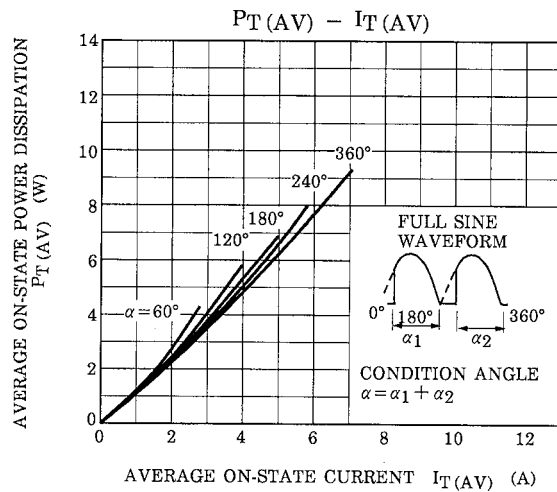
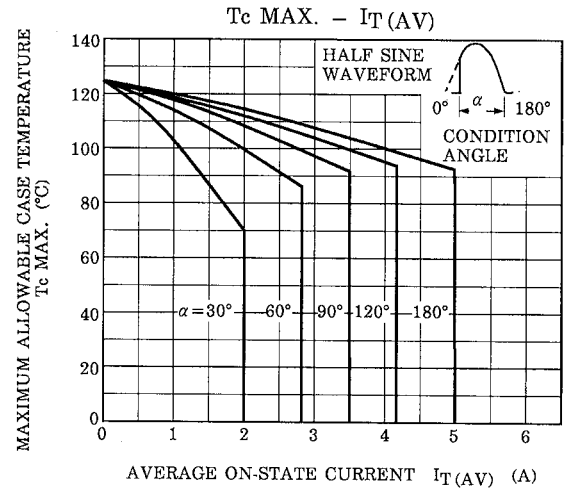
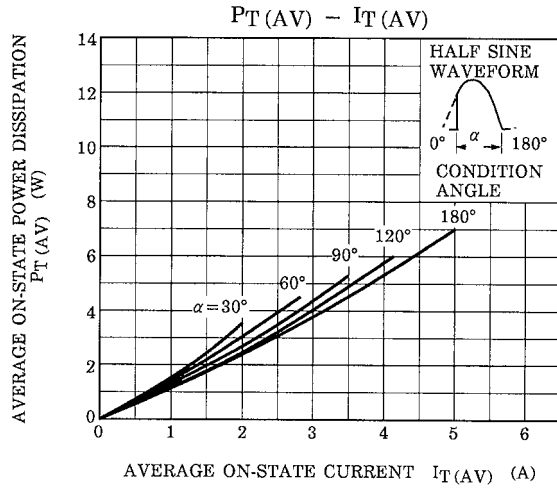


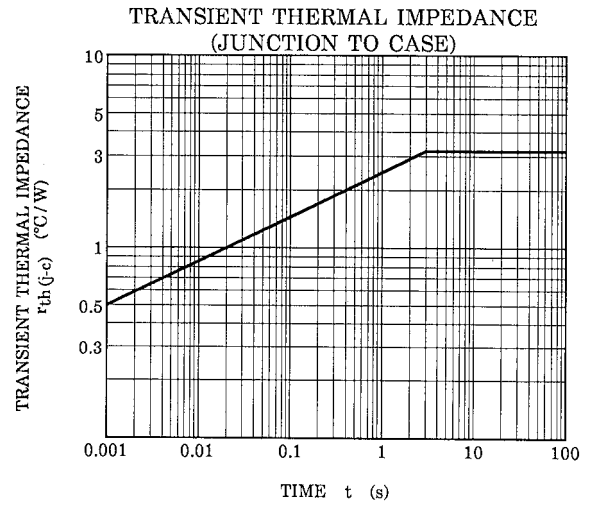
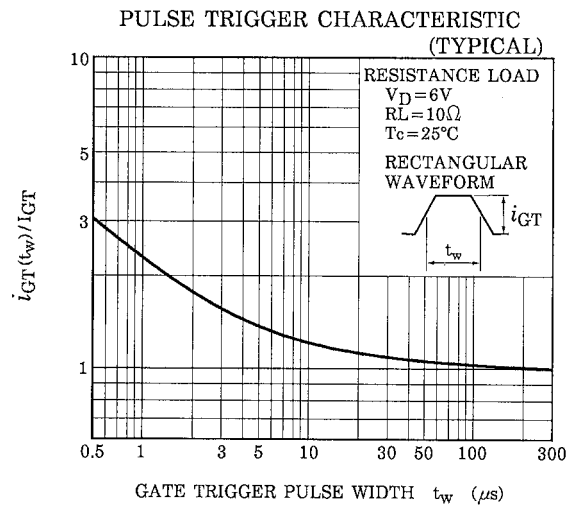
$I_{GT}(T_c)/I_{GT}(T_c=25^\circ C) - T_c$ (TYPICAL)



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







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