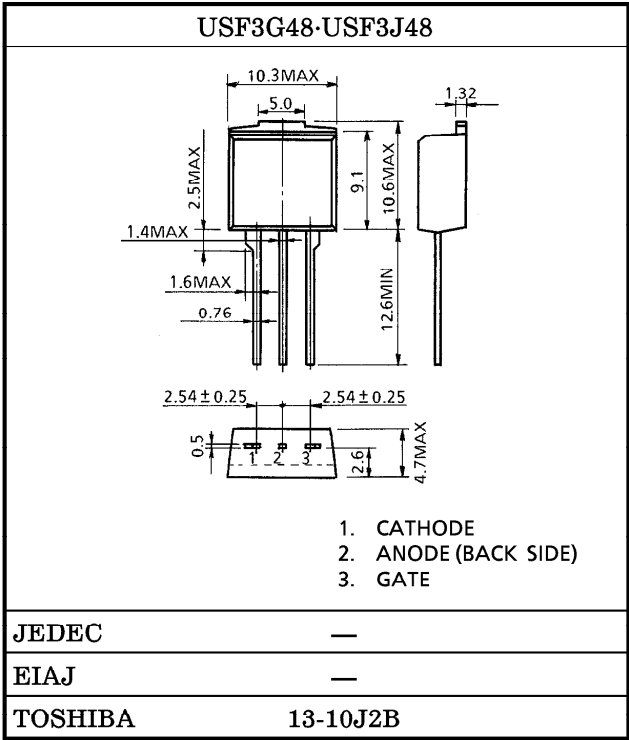
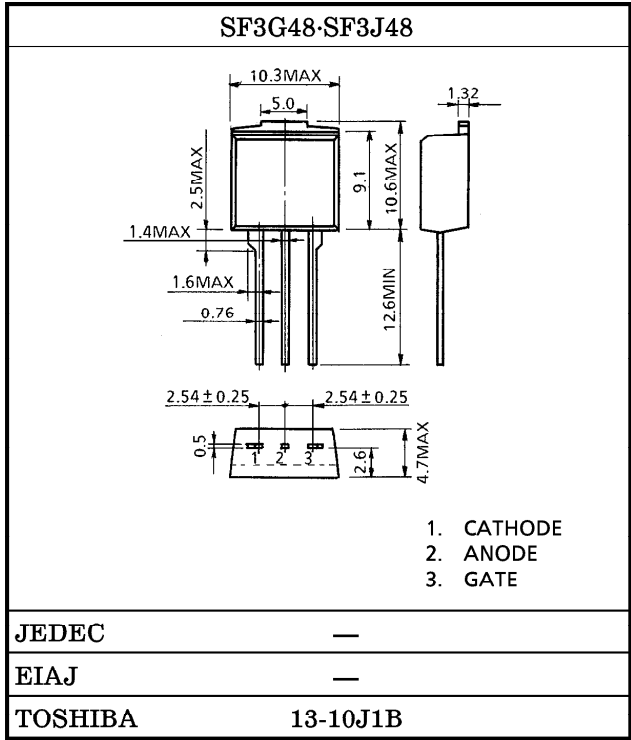


TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF3G48, SF3J48, USF3G48, USF3J48

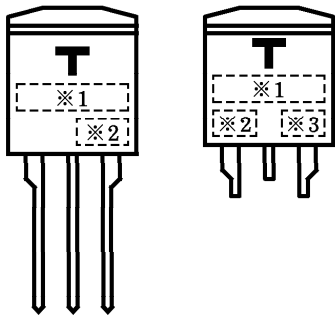
MEDIUM POWER CONTROL APPLICATIONS.

- Repetitive Peak Off-State Voltage : V_{DRM}
Repetitive Peak Reverse Voltage : V_{RRM} } =400, 600V
- Average On-State Current : $I_{T(AV)}=3A$
- Gate Trigger Current : $I_{GT}=10mA$ MAX.



Weight : 1.7 g

MARK



※ 1	MARK	F3G48	TYPE NAME	SF3G48, USF3G48
		F3J48		SF3J48, USF3J48
※ 2	Lot Number			
	□ □ ←Month (Starting from Alphabet A) ↑ —Year (Last Number of the Christian Era)			

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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

MAXIMUM RATINGS

CHARACTERISTICS		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF3G48	V_{DRM} V_{RRM}	400	V
	USF3G48			
	SF3J48		600	
	USF3J48			
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ\text{C}$)	SF3G48	V_{RSM}	500	V
	USF3G48			
	SF3J48		720	
	USF3J48			
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 (50Hz)	A
			55 (60Hz)	
I^2t Limit Value (t = 1~10ms)		I^2t	18	A ² s
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	°C
Storage Temperature Range		T_{stg}	-40~125	°C

Note 1: $V_{DRM} = 0.5 \times \text{Rated}$
 $I_{TM} \leq 12\text{A}$
 $t_{gw} \leq 10\mu\text{s}$
 $t_{gr} \leq 250\text{ns}$
 $i_{gp} = I_{GT} \times 2.0$

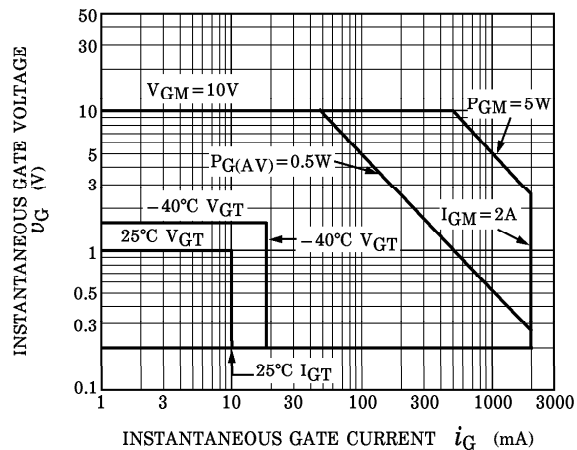
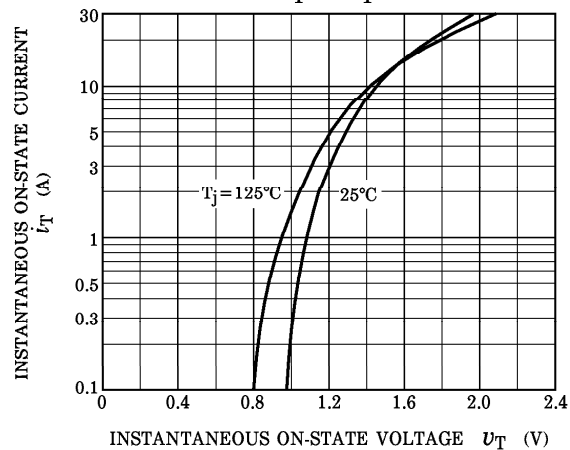
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	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	—	V / μs
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	°C / W

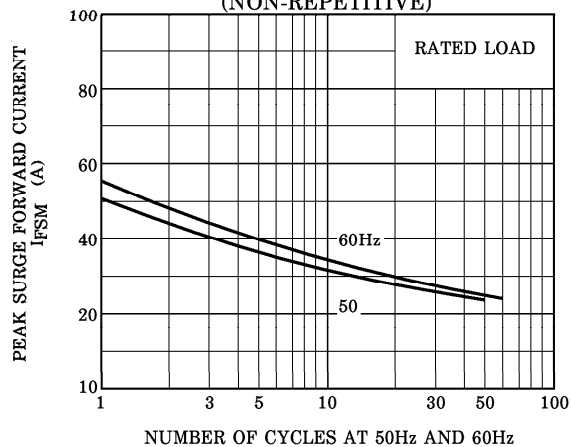
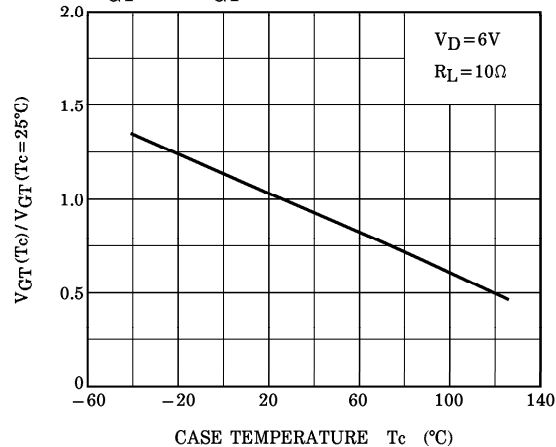
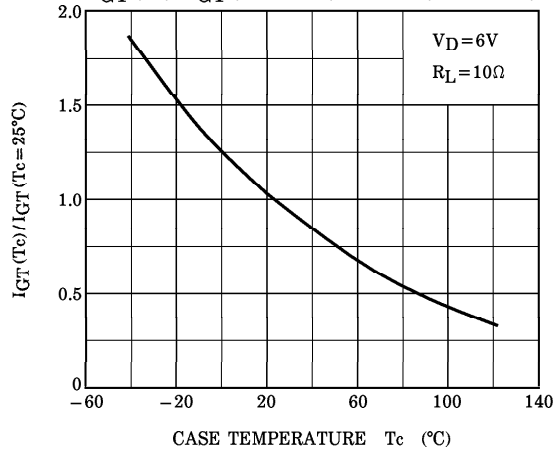
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GATE TRIGGER CHARACTERISTIC

 $i_T - v_T$ 

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)