

TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

# SF3GZ47, SF3JZ47

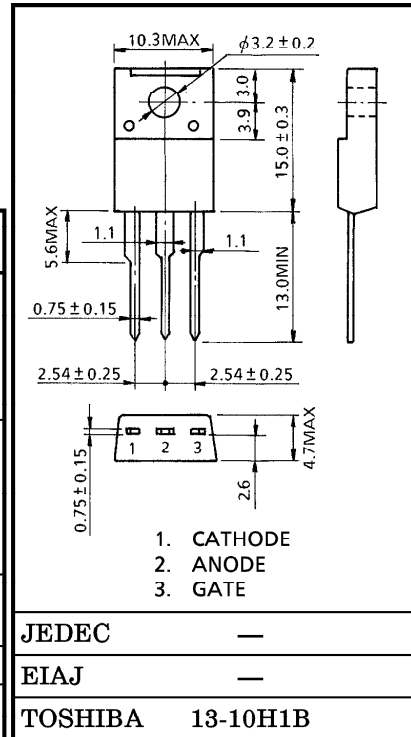
MEDIUM POWER CONTROL APPLICATIONS

Unit in mm

- Repetitive Peak Off-State Voltage :  $V_{DRM}$
- Repetitive Peak Reverse Voltage :  $V_{RRM}$
- Average On-State Current :  $I_T(AV) = 3A$
- Isolation Voltage :  $V_{ISOL} = 1500V AC$

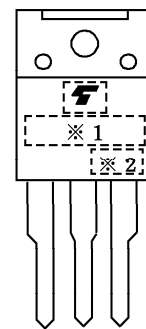
**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF3GZ47	400	V
	SF3JZ47		
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$ )	SF3GZ47	500	V
	SF3JZ47	720	
Average On-State Current (Half Sine Waveform $T_c = 98^\circ C$ )	$I_T(AV)$	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 ( $t = 1 \sim 10ms$ )	$I^2t$	18	$A^2s$
Critical Rate of Rise of On-State Current (Note 1)	$di/dt$	100	$A / \mu s$
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	$^\circ C$
Storage Temperature Range	$T_{stg}$	-40~150	$^\circ C$
Isolation Voltage (AC, $t = 1min.$ )	$V_{ISOL}$	1500	V



Weight : 1.7g

**MARK**



Note 1 :  $di/dt$  Test Condition

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

※1	MARK	F3GZ47	TYPE	SF3GZ47
		F3JZ47	NAME	SF3JZ47
※2	Lot Number		Example	
			9A : January 1989	9B : February 1989
			9L : December 1989	

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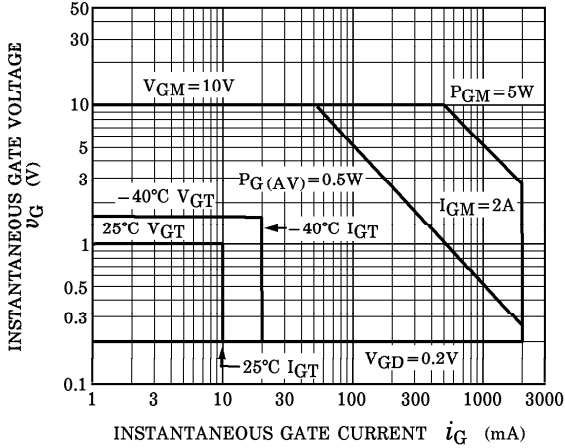
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	$\mu A$
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 12A$	—	—	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	$V_{GD}$	$V_D = \text{Rated} \times 2/3, T_c = 125^\circ C$	0.2	—	—	V
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM} = \text{Rated} \times 2/3, T_c = 125^\circ C$ Exponential Rise	—	50	—	V/ $\mu s$
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	—	—	4.5	$^\circ C/W$

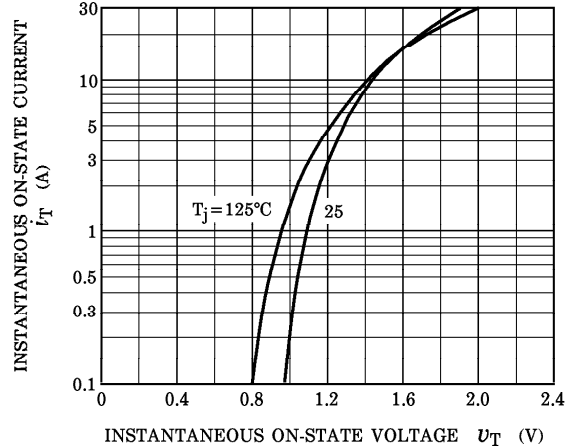
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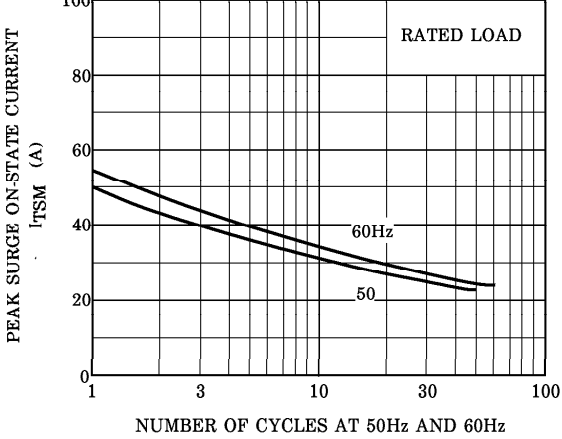
GATE TRIGGER CHARACTERISTIC



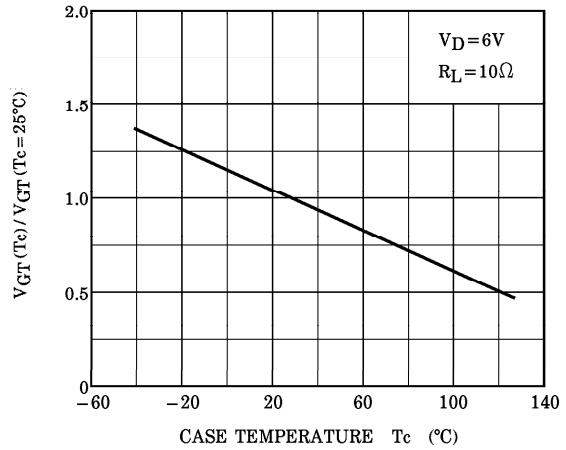
$i_T - v_T$



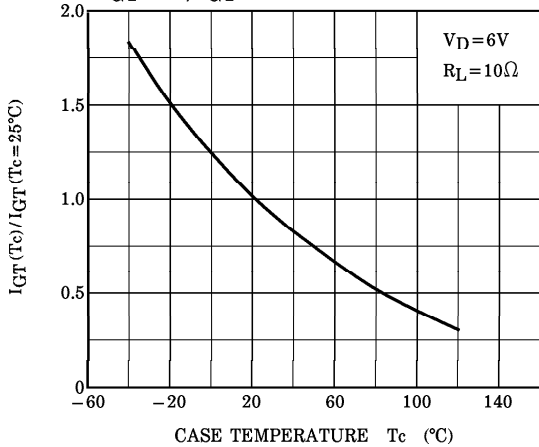
SURGE ON-STATE CURRENT (NON-REPETITIVE)



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

