

TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF10GZ47, SF10JZ47

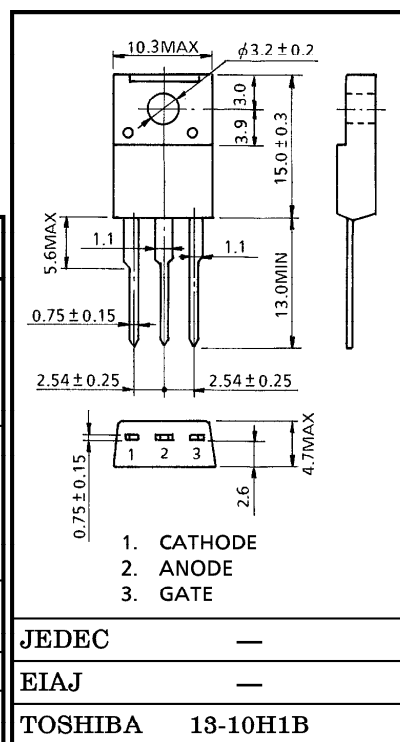
MEDIUM POWER CONTROL APPLICATIONS

Unit in mm

- Repetitive Peak Off-State Voltage : V_{DRM}
- Repetitive Peak Reverse Voltage : V_{RRM}
- Average On-State Current : $I_T(AV) = 10A$
- Isolation Voltage : $V_{ISOL} = 1500V AC$

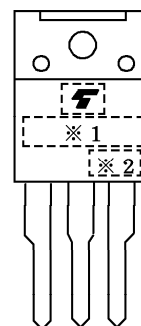
MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF10GZ47	V_{DRM}	400	V
	SF10JZ47	V_{RRM}	600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$)	SF10GZ47	V_{RSM}	500	V
	SF10JZ47		720	
Average On-State Current (Half Sine Waveform $T_c = 66^\circ C$)		$I_T(AV)$	10	A
R.M.S. On-State Current		$I_T(RMS)$	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	160 (50Hz)	A
			176 (60Hz)	
I^2t Limit Value ($t = 1 \sim 10ms$)		I^2t	125	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	$-40 \sim 125$	$^\circ C$
Storage Temperature Range		T_{stg}	$-40 \sim 150$	$^\circ C$
Isolation Voltage (AC, $t = 1min.$)		V_{ISOL}	1500	V



Weight : 1.7g

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Note 1 : di/dt test condition

$$V_{DRM} = 0.5 \times \text{Rated}$$

$$I_{TM} \leq 30A$$

$$t_{gw} \geq 10\mu s$$

$$t_{gr} \leq 250ns$$

$$i_{gp} = I_{GT} \times 2.0$$

※1	MARK	F10GZ47	TYPE	SF10GZ47
		F10JZ47	NAME	SF10JZ47
※2	Lot Number		Example	
	□ □ Month (Starting from Alphabet A) Year (Last Number of the Christian Era)		9A : January 1989 9B : February 1989 9L : December 1989	

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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.

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}	$I_{\text{TM}} = 30\text{A}$	—	—	1.5	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}		—	—	10	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	—	50	—	$\text{V} / \mu\text{s}$
Holding Current	I_{H}	$V_{\text{D}} = 6\text{V}, I_{\text{TM}} = 1\text{A}$	—	—	40	mA
Latching current	I_{L}	$V_{\text{D}} = 6\text{V}, f = 50\text{Hz}, t_{\text{gw}} = 50\mu\text{s}$ $i_{\text{G}} = 30\text{mA}$	—	—	50	mA
Thermal Resistance	$R_{\text{th(j-c)}}$	Junction to Case	—	—	3.4	$^{\circ}\text{C} / \text{W}$

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