

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

# SM10LZ47

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage :  $V_{DRM}=800V$
- R.M.S. On-State Current :  $I_T(RMS)=10A$
- High Commutation (dv/dt)
- Isolation Voltage :  $V_{ISOL}=1500V AC$

**MAXIMUM RATINGS**

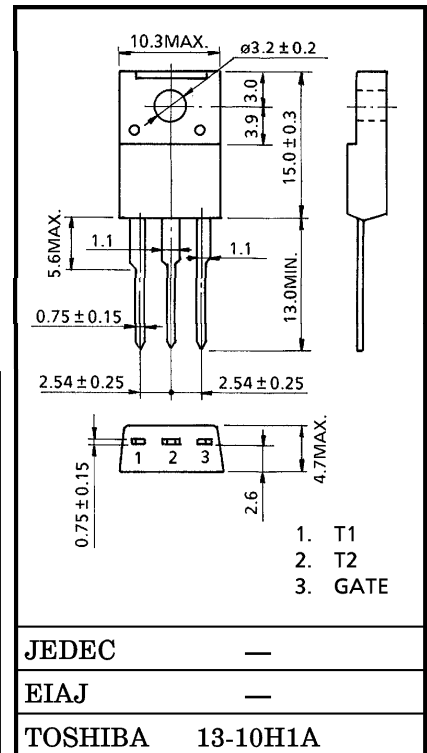
CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	$V_{DRM}$	800	V
R.M.S On-State Current (Full Sine Waveform)	$I_T(RMS)$	10	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	100 (50Hz) 110 (60Hz)	A
$I^2t$ Limit Value	$I^2t$	50	A <sup>2</sup> s
Critical Rate of Rise of On-State Current (Note)	di / dt	50	A / $\mu s$
Peak Gate Power Dissipation	$P_{GM}$	5	W
Average Gate Power Dissipation	$P_{G(AV)}$	0.5	W
Peak Gate Voltage	$V_{FGM}$	10	V
Peak Gate Current	$I_{GM}$	2	A
Junction Temperature	$T_j$	-40~125	°C
Storage Temperature Range	$T_{stg}$	-40~125	°C
Isolation Voltage (AC, t=1min.)	$V_{ISOL}$	1500	V

(Note) di / dt test condition

$$V_{DRM}=0.5 \times \text{Rated}, I_{TM} \leq 15A, t_{gw} \geq 10\mu s,$$

$$t_{gr} \leq 250ns, i_{gp} = I_{GT} \times 2.0$$

Unit in mm



Weight : 1.7g

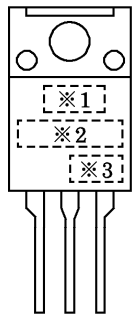
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM} = \text{Rated}$	—	—	20	$\mu\text{A}$	
Gate Trigger Voltage	I II III $V_{GT}$	$V_D = 12\text{V}$ , $R_L = 20\Omega$	T2 (+), GATE (+)	—	—	1.5	V
			T2 (+), GATE (-)	—	—	1.5	
			T2 (-), GATE (-)	—	—	1.5	
Gate Trigger Current	I II III $I_{GT}$	$V_D = 12\text{V}$ , $R_L = 20\Omega$	T2 (+), GATE (+)	—	—	30	mA
			T2 (+), GATE (-)	—	—	30	
			T2 (-), GATE (-)	—	—	30	
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 15\text{A}$	—	—	1.5	V	
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = \text{Rated}$ , $T_c = 125^\circ\text{C}$	0.2	—	—	V	
Holding Current	$I_H$	$V_D = 12\text{V}$ , $I_{TM} = 1\text{A}$	—	—	50	mA	
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, AC	—	—	3.4	$^\circ\text{C} / \text{W}$	
Critical Rate of Rise of Off-State Voltage	$dv/dt$	$V_{DRM} = 600\text{V}$ , $T_j = 125^\circ\text{C}$ Exponential Rise	—	300	—	$\text{V} / \mu\text{s}$	
Critical Rate of Rise of Off-State Voltage at Commutation	$(dv/dt)_c$	$V_{DRM} = 400\text{V}$ , $T_j = 125^\circ\text{C}$ $(dv/dt)_c = -5.5\text{A/ms}$	10	—	—	$\text{V} / \mu\text{s}$	

MARKING



NUMBER	SYMBOL	MARK
※1	TOSHIBA PRODUCT MARK	
※2	TYPE SM10LZ47	M10LZ47
※3	Lot Number 	Example 8A : January 1998 8B : February 1998 8L : December 1998