

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM8LZ47

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM}=800V$
- R.M.S. On-State Current : $I_T(RMS)=8A$
- High Commutation (dv/dt) : $(dv/dt)_c=10V/\mu s$ (Min.)
- Isolation Voltage : $V_{ISOL}=1500V$ AC

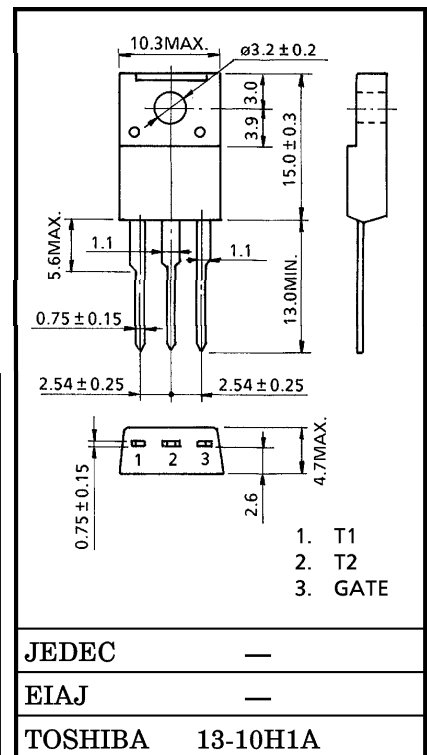
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	800	V
R.M.S. On-State Current (Full Sine Waveform)	$I_T(RMS)$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	70 (50Hz)	A
		80 (60Hz)	
I^2t Limit Value	I^2t	24.5	A^2s
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

$$V_{DRM}=400V, I_{TM} \leq 12A, t_{gw} \geq 10\mu s, t_{gr} \leq 250ns, i_{gp} = I_{GT} \times 2.0$$

Unit in mm



Weight : 1.7g

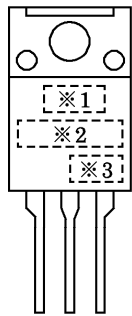
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

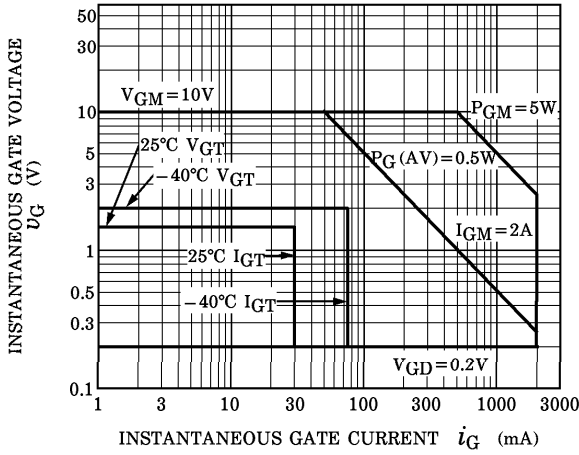
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM} = 800V$	—	—	20	μA	
Gate Trigger Voltage	I II III V_{GT}	$V_D = 12V,$ $R_L = 20\Omega$	T2 (+), GATE (+)	—	—	1.5	V
			T2 (+), GATE (-)	—	—	1.5	
			T2 (-), GATE (-)	—	—	1.5	
Gate Trigger Current	I II III I_{GT}	$V_D = 12V,$ $R_L = 20\Omega$	T2 (+), GATE (+)	—	—	30	mA
			T2 (+), GATE (-)	—	—	30	
			T2 (-), GATE (-)	—	—	30	
Peak On-State Voltage	V_{TM}	$I_{TM} = 12A$	—	—	1.5	V	
Gate Non-Trigger Voltage	V_{GD}	$V_D = 800V, T_c = 125^\circ C$	0.2	—	—	V	
Holding Current	I_H	$V_D = 12V, I_{TM} = 1A$	—	—	50	mA	
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, AC	—	—	3.6	$^\circ C / W$	
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{DRM} = 800V, T_j = 125^\circ C$ Exponential Rise	—	300	—	$V / \mu s$	
Critical Rate of Rise of Off-State Voltage at Communication	$(dv/dt)_c$	$V_{DRM} = 400V, T_j = 125^\circ C$ $(dv/dt)_c = -4.5A/ms$	10	—	—	$V / \mu s$	

MARKING

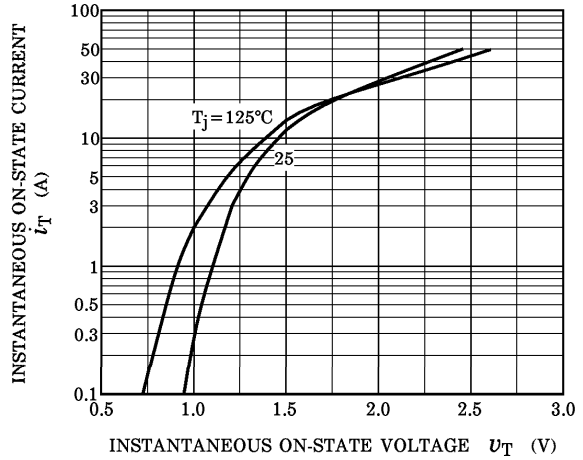


NUMBER	SYMBOL	MARK
※1	TOSHIBA PRODUCT MARK	
※2	TYPE SM8LZ47	M8LZ47
※3	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)	Example 8A : January 1998 8B : February 1998 8L : December 1998

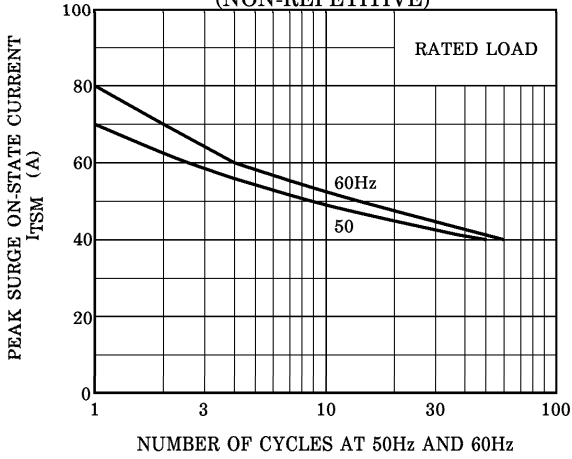
GATE TRIGGER CHARACTERISTIC



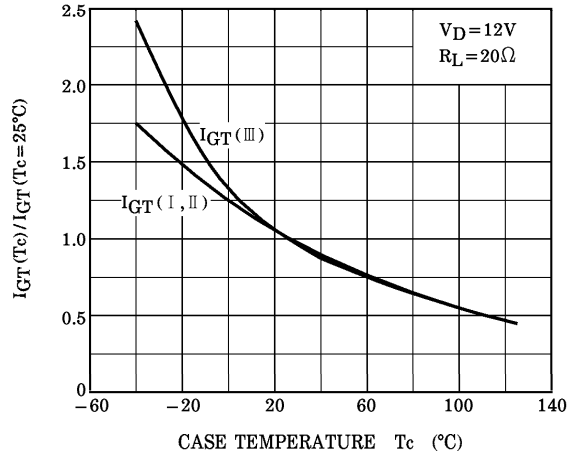
$i_T - v_T$



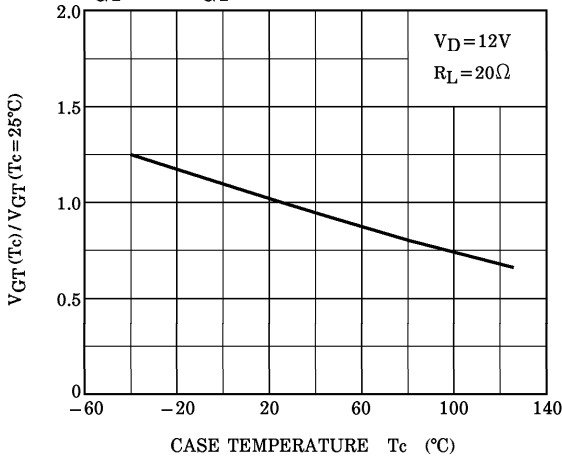
SURGE ON-STATE CURRENT (NON-REPETITIVE)



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



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



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

