

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM2LZ47

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM}=800V$
- R.M.S. On-State Current : $I_T(RMS)=2A$
- High Commutation (dv/dt) : $(dv/dt)_c=5V/\mu s$ (Min.)
- Isolation Voltage : $V_{ISOL}=1500V$ AC

MAXIMUM RATINGS

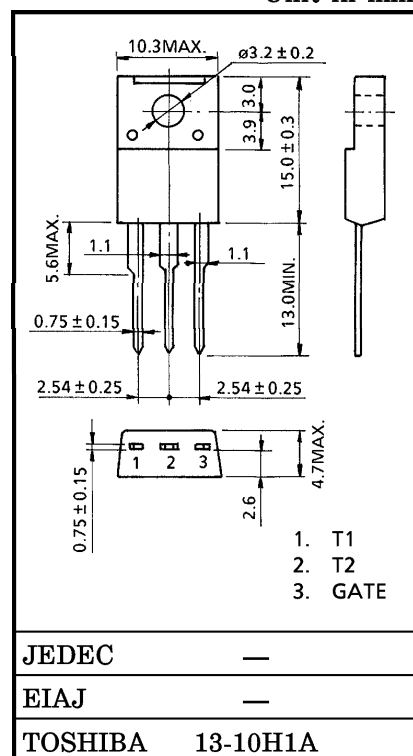
CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	800	V
R.M.S. On-State Current (Full Sine Waveform)	$I_T(RMS)$	2	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	8 (50Hz) 8.8 (60Hz)	A
I^2t Limit Value	I^2t	0.32	A^2s
Critical Rate of Rise of On-State Current (Note)	di/dt	50	$A/\mu s$
Peak Gate Power Dissipation	P_{GM}	3	W
Average Gate Power Dissipation	$P_G(AV)$	0.3	W
Peak Gate Voltage	V_{FGM}	10	V
Peak Gate Current	I_{GM}	1.6	A
Junction Temperature	T_j	-40~125	$^{\circ}C$
Storage Temperature Range	T_{stg}	-40~125	$^{\circ}C$
Isolation Voltage (AC, $t=1min.$)	V_{ISOL}	1500	V

(Note) di/dt test condition

$$V_{DRM}=400V, I_{TM}\leq 3A, t_{gw}\geq 10\mu s, t_{gr}\leq 250ns,$$

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

Unit in mm



Weight : 1.7g

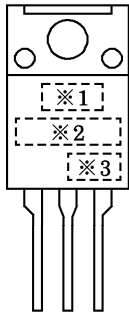
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

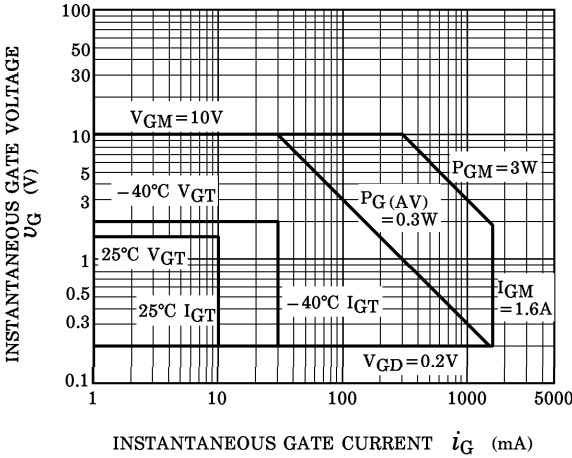
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current		I_{DRM}	$V_{\text{DRM}} = 800\text{V}$		—	—	20	μA
Gate Trigger Voltage	I	V_{GT}	$V_{\text{D}} = 12\text{V}, R_{\text{L}} = 20\Omega$	T2 (+), GATE (+)	—	—	1.5	V
	II			T2 (+), GATE (—)	—	—	1.5	
	III			T2 (—), GATE (—)	—	—	1.5	
Gate Trigger Current	I	I_{GT}	$V_{\text{D}} = 12\text{V}, R_{\text{L}} = 20\Omega$	T2 (+), GATE (+)	—	—	10	mA
	II			T2 (+), GATE (—)	—	—	10	
	III			T2 (—), GATE (—)	—	—	10	
Peak On-State Voltage		V_{TM}	$I_{\text{TM}} = 3\text{A}$		—	—	2.0	V
Gate Non-Trigger Voltage		V_{GD}	$V_{\text{D}} = 800\text{V}, T_{\text{c}} = 125^{\circ}\text{C}$		0.2	—	—	V
Holding Current		I_{H}	$V_{\text{D}} = 12\text{V}, I_{\text{TM}} = 1\text{A}$		—	—	10	mA
Thermal Resistance		$R_{\text{th}} (\text{j-a})$	Junction to Ambient, AC		—	—	58	$^{\circ}\text{C} / \text{W}$
Critical Rate of Rise of Off-State Voltage		dv / dt	$V_{\text{DRM}} = 800\text{V}, T_{\text{j}} = 125^{\circ}\text{C}$ Exponential Rise		—	500	—	$\text{V} / \mu\text{s}$
Critical Rate of Rise of Off-State Voltage at Communication		$(dv / dt)_{\text{c}}$	$V_{\text{DRM}} = 400\text{V}, T_{\text{j}} = 125^{\circ}\text{C}$ $(dv / dt)_{\text{c}} = -0.5\text{A} / \text{ms}$		5	—	—	$\text{V} / \mu\text{s}$

MARKING

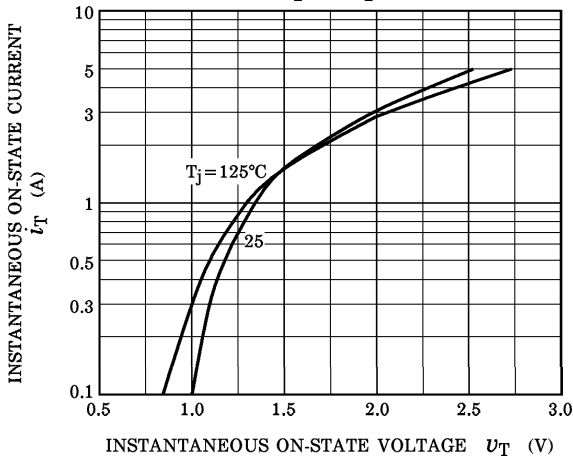


NUMBER	SYMBOL		MARK
※1	TOSHIBA PRODUCT MARK		
※2	TYPE	SM2LZ47	M2LZ47
※3	Lot Number □ □ Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

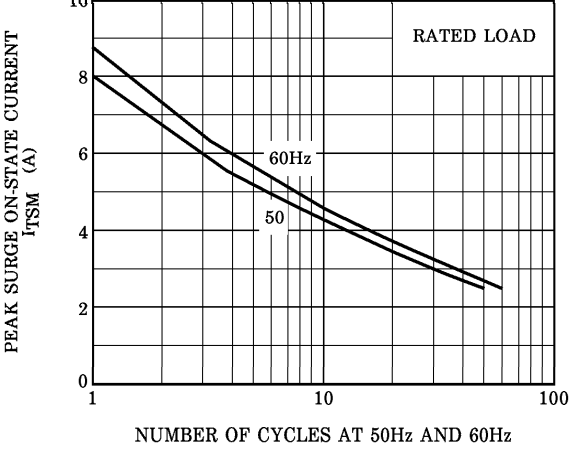
GATE TRIGGER CHARACTERISTIC



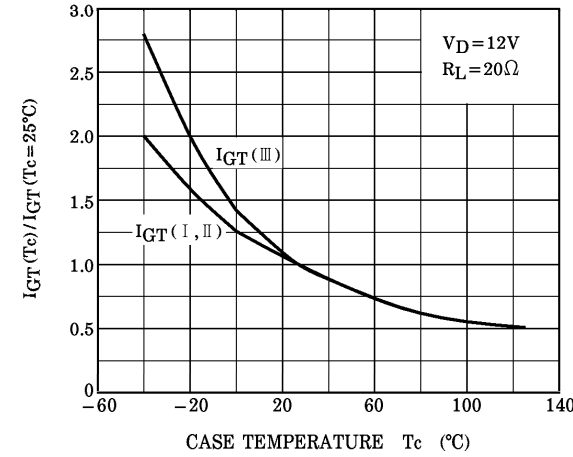
$i_T - v_T$



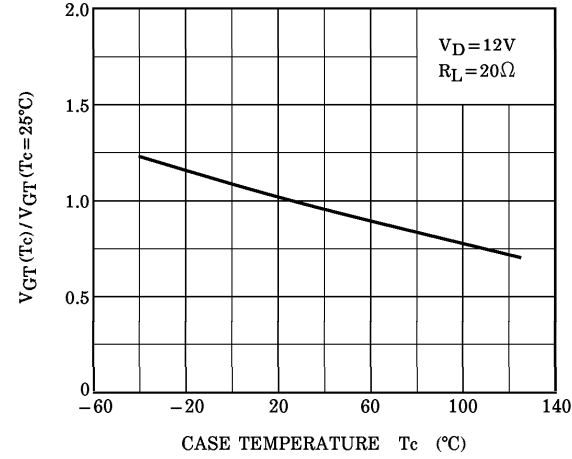
SURGE ON-STATE CURRENT (NON-REPETITIVE)



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

