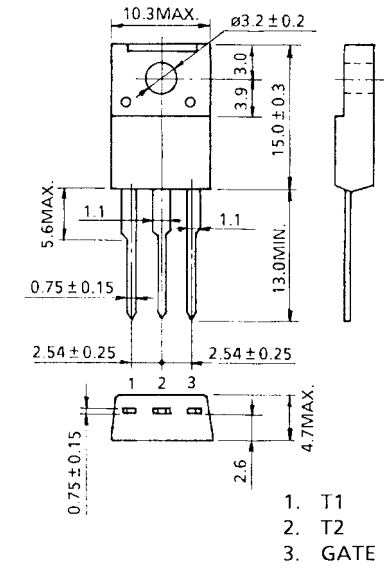
TOSHIBA BI−DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

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 / μs (Min.)
- Isolation Voltage : V_{ISOL} = 1500V AC

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	13−10H1A

Weight: 1.7g

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)	A
		8.8 (60Hz)	
I^2t Limit Value	I^2t	0.32	A^2s
Critical Rate of Rise of On−State Current (Note)	di / dt	50	A / μs
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	°C
Storage Temperature Range	T_{stg}	−40~125	°C
Isolation Voltage (AC, t = 1min.)	V_{ISOL}	1500	V

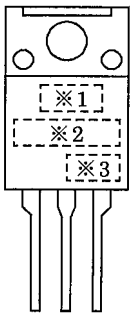
Note: di / dt test condition

V_{DRM} = 400V, I_{TM} ≤ 3A, t_{gw} ≥ 10μs, t_{gr} ≤ 250ns, i_{gp} = I_{GT} × 2.0

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

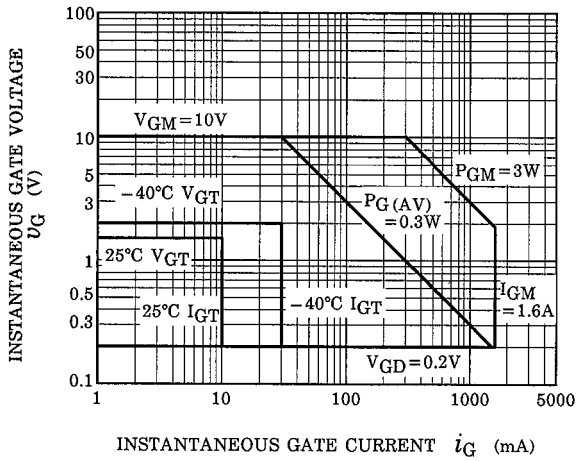
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off−State Current		I_{DRM}	V_{DRM} = 800V		—	—	20	μA
Gate Trigger Voltage	I	V_{GT}	V_D = 12V, R_L = 20Ω	T2 (+) , Gate (+)	—	—	1.5	V
	II			T2 (+) , Gate (−)	—	—	1.5	
	III			T2 (−) , Gate (−)	—	—	1.5	
Gate Trigger Current	I	I_{GT}	V_D = 12V, R_L = 20Ω	T2 (+) , Gate (+)	—	—	10	mA
	II			T2 (+) , Gate (−)	—	—	10	
	III			T2 (−) , Gate (−)	—	—	10	
Peak On−State Voltage		V_{TM}	I_{TM} = 3A		—	—	2.0	V
Gate Non−Trigger Voltage		V_{GD}	V_D = 800V, Tc = 125°C		0.2	—	—	V
Holding Current		I_H	V_D = 12V, I_{TM} = 1A		—	—	10	mA
Thermal Resistance		$R_{th\ (j-a)}$	Junction to Ambient, AC		—	—	58	°C / W
Critical Rate of Rise of Off−State Voltage		dv / dt	V_{DRM} = 800V, T_j = 125°C Exponential Rise		—	500	—	V / μs
Critical Rate of Rise of Off−State Voltage at Communication		(dv / dt) c	V_{DRM} = 400V, T_j = 125°C (di / dt) c = − 0.5A / ms		5	—	—	V / μs

MARKING

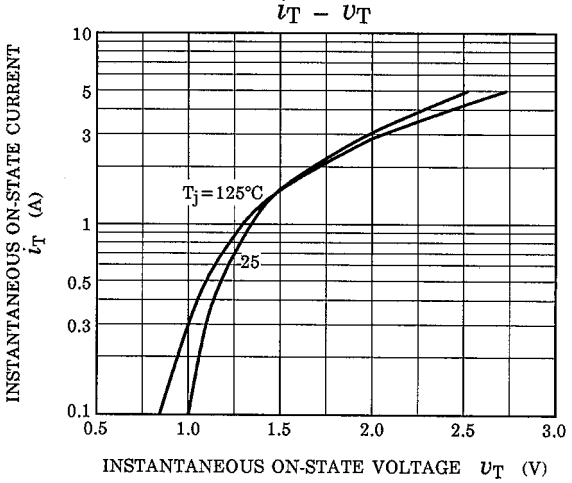


NUMBER	SYMBOL		MARK
*1	Toshiba Product Mark		
*2	TYPE	SM2LZ47	M2LZ47
*3	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

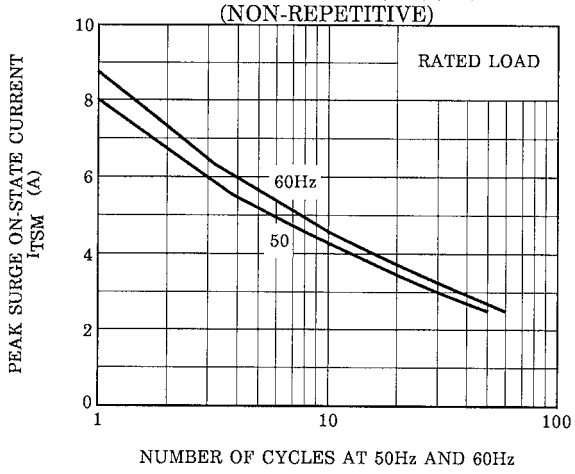
GATE TRIGGER CHARACTERISTIC



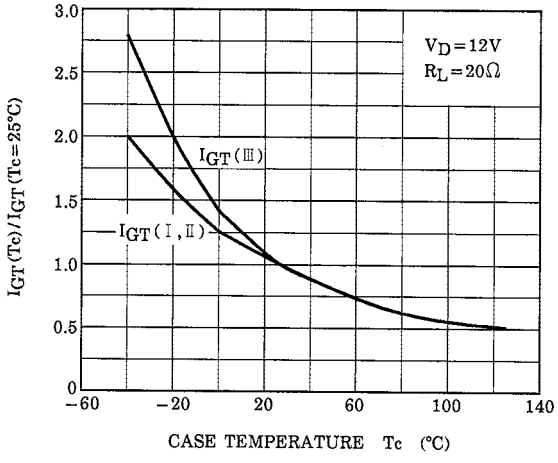
$i_T - v_T$



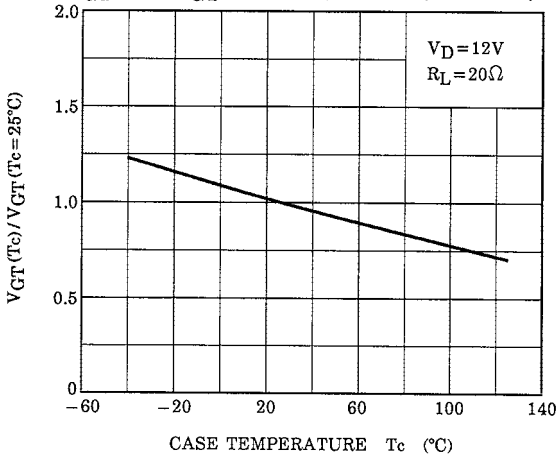
SURGE ON-STATE CURRENT (NON-REPETITIVE)



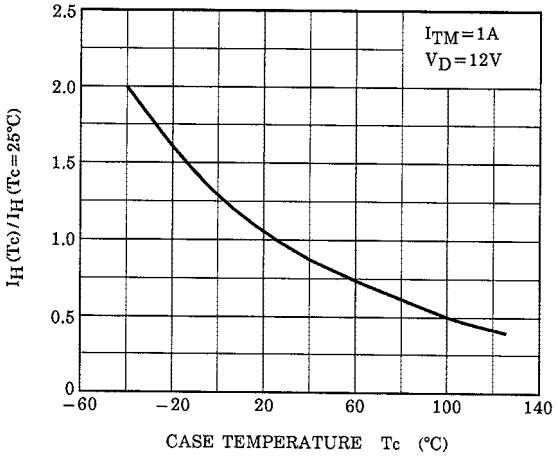
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



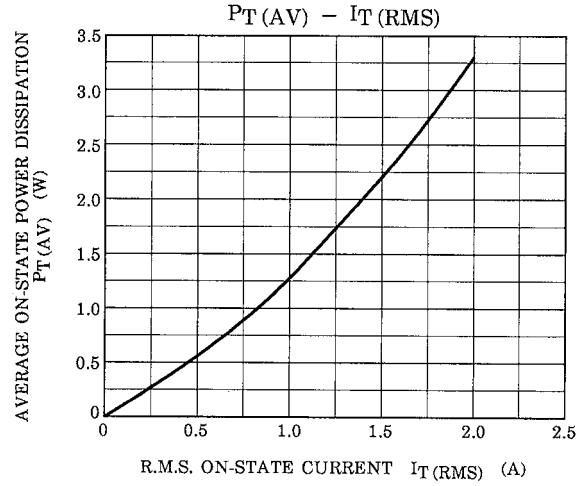
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



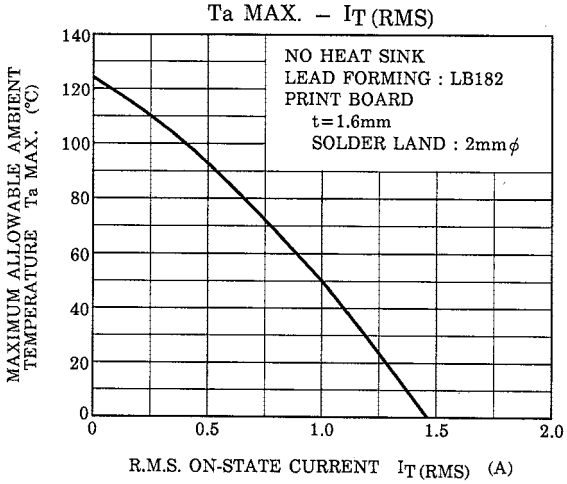
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



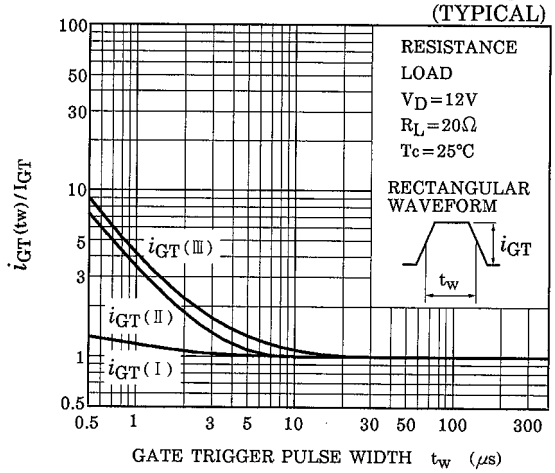
$P_{T(AV)}$ – $I_{T(RMS)}$



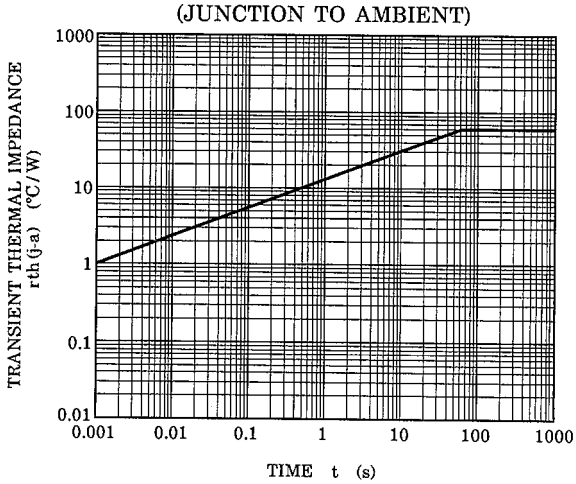
Ta MAX. – $I_{T(RMS)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO AMBIENT)



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