

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

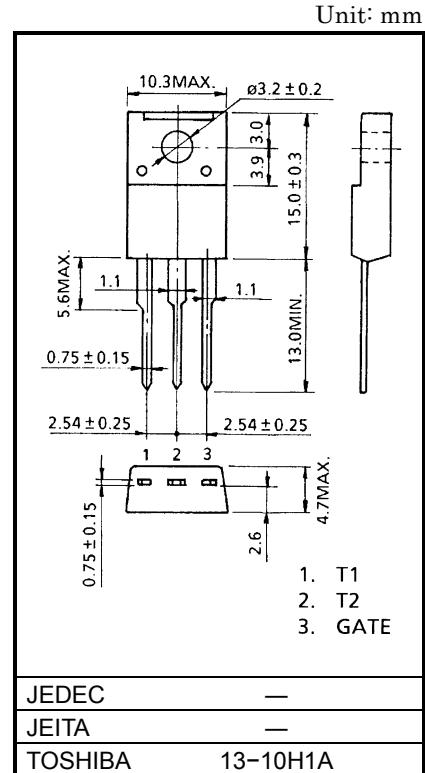
**SM8LZ47**

## AC POWER CONTROL APPLICATIONS

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

**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive PeakOff-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	$\text{A}^2\text{s}$
Critical Rate of Rise of On-State Current (Note 1)	$di / dt$	50	$\text{A} / \mu\text{s}$
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	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-40~125	$^{\circ}\text{C}$
Isolation Voltage (AC, $t = 1\text{min.}$ )	$V_{ISOL}$	1500	V

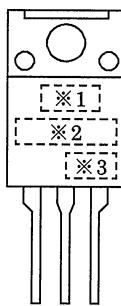
Note:  $di / dt$  test condition
 $V_{DRM} = 400V$ ,  $I_{TM} \leq 12A$ ,  $t_{gw} \geq 10\mu\text{s}$ ,  $t_{gr} \leq 250\text{ns}$ ,  
 $i_{gp} = I_{GT} \times 2.0$ 


Weight: 1.7g

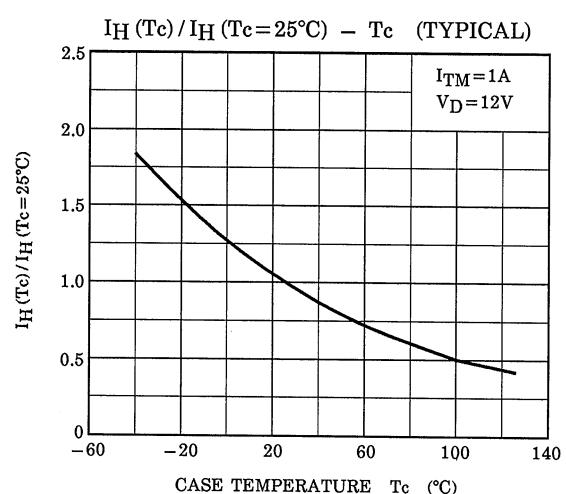
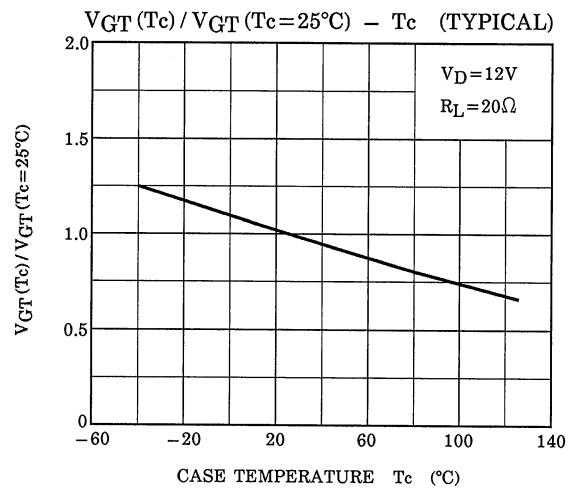
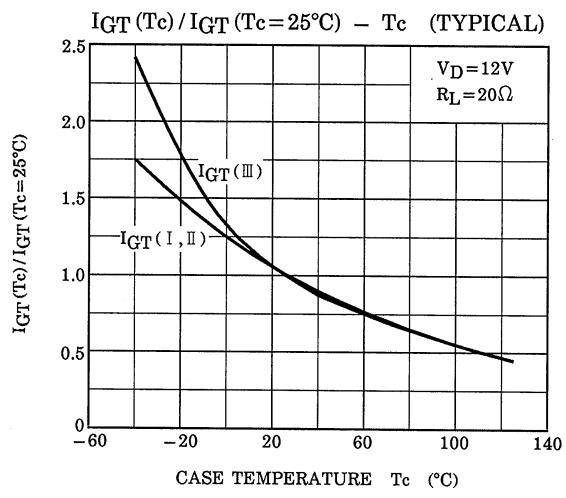
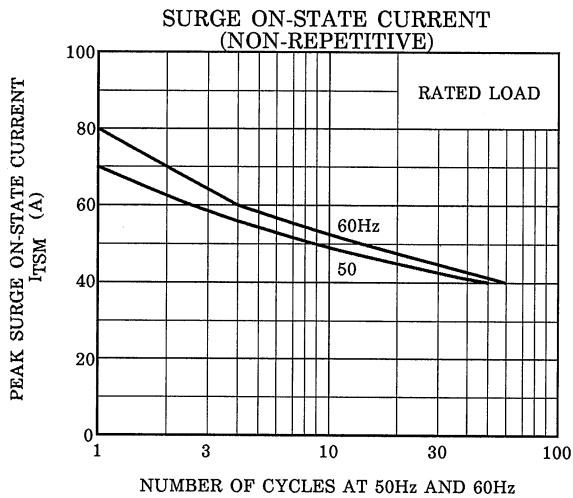
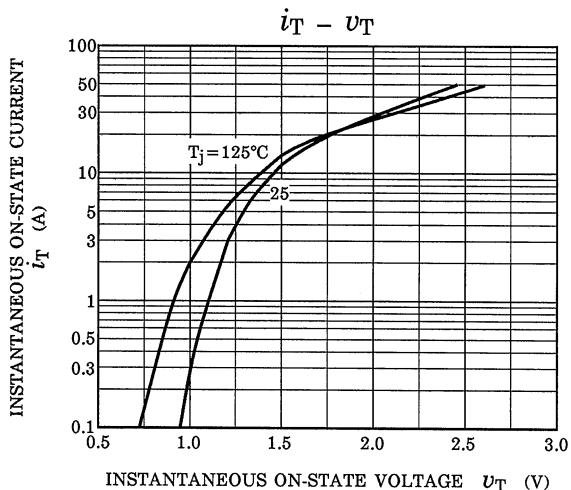
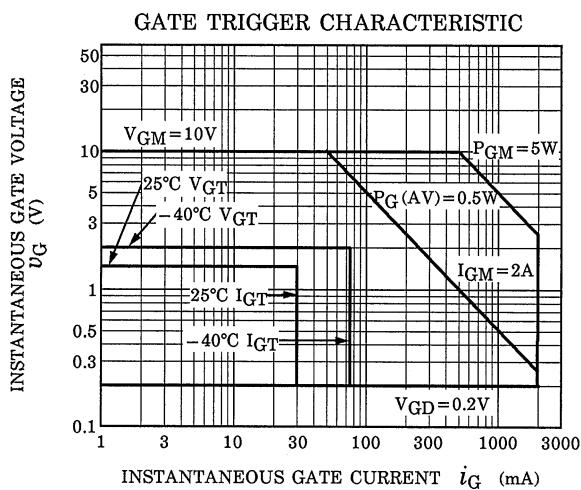
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

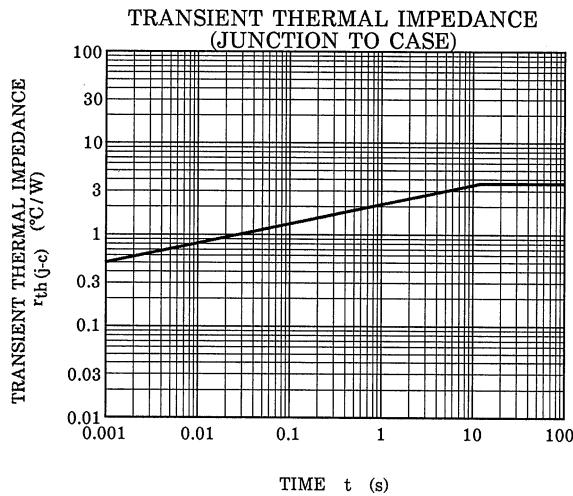
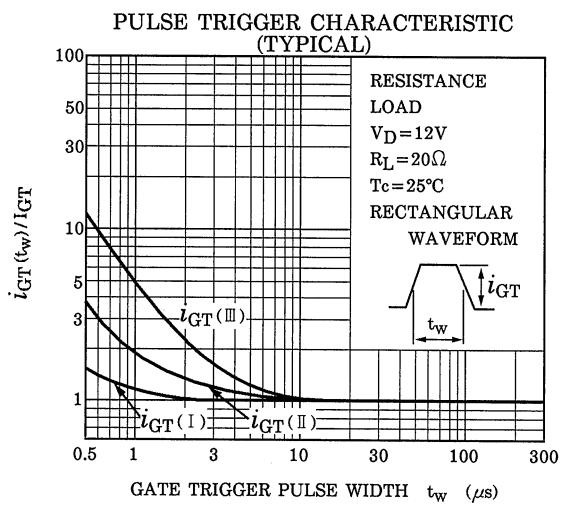
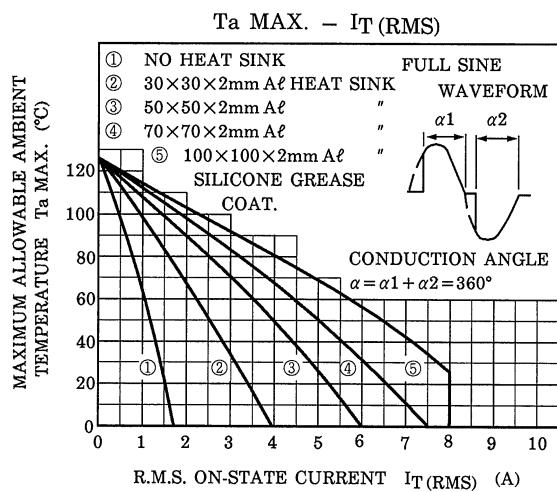
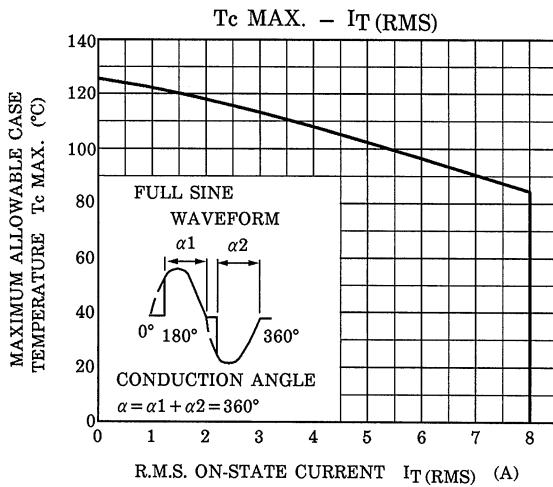
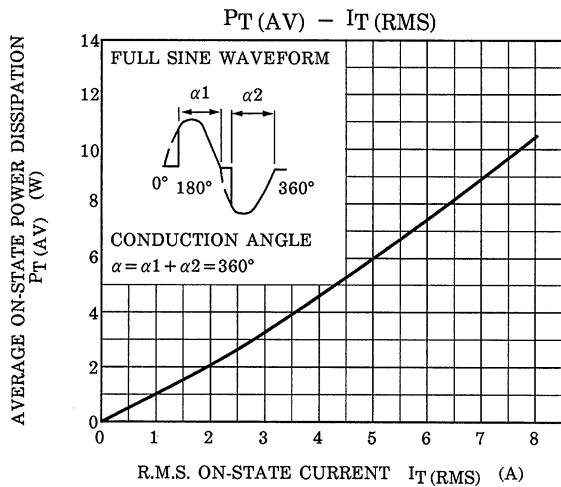
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current		I <sub>DRM</sub>	V <sub>DRM</sub> = 800V		—	—	20	µA
Gate Trigger Voltage	I	V <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
Gate Trigger Current	I	I <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	30	mA
	II			T2 (+), Gate (-)	—	—	30	
	III			T2 (-), Gate (-)	—	—	30	
Peak On-State Voltage		V <sub>TM</sub>	I <sub>TM</sub> = 12A		—	—	1.5	V
Gate Non-Trigger Voltage		V <sub>GD</sub>	V <sub>D</sub> = 800V, T <sub>c</sub> = 125°C		0.2	—	—	V
Holding Current		I <sub>H</sub>	V <sub>D</sub> = 12V, I <sub>TM</sub> = 1A		—	—	50	mA
Thermal Resistance		R <sub>th</sub> (j-c)	Junction to Case, AC		—	—	3.6	°C / W
Critical Rate of Rise of Off-State Voltage		dv / dt	V <sub>DRM</sub> = 800V, T <sub>j</sub> = 125°C Exponential Rise		—	300	—	V / µs
Critical Rate of Rise of Off-State Voltage at Commutation		(dv / dt) c	V <sub>DRM</sub> = 400V, T <sub>j</sub> = 125°C (di / dt) c = -4.5A / ms		10	—	—	V / µs

## MARKING



NUMBER	SYMBOL	MARK
* 1	TOSHIBA PRODUCT MARK	
* 2	TYPE	SM8LZ47
* 3	Lot Number 	Example 8A : January 1998 8B : February 1998 8L : December 1998





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000707EAA

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