

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

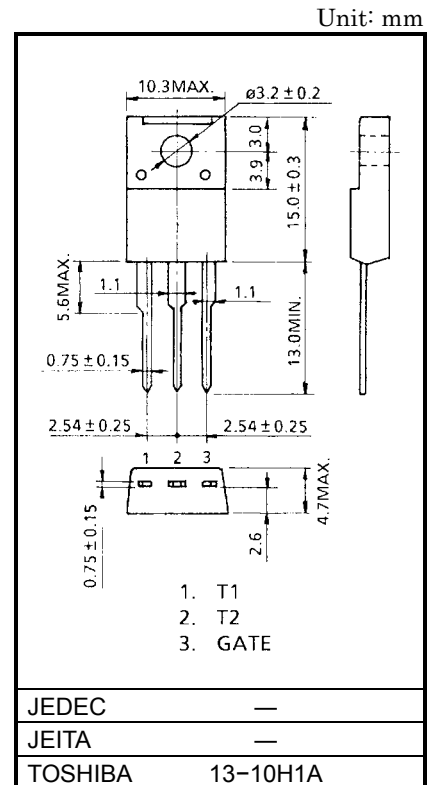
## SM2GZ47, SM2GZ47A, SM2JZ47, SM2JZ47A

### AC POWER CONTROL APPLICATIONS

- $I_T$  (RMS) = 1A ( $T_a = 65^\circ\text{C}$  without radiator)
- Gate Trigger Current :  $I_{GT} = 5\text{mA Max. (TYPE "A")}$
- Repetitive Peak Off-State Voltage :  $V_{DRM} = 400\text{V, } 600\text{V}$
- R.M.S On-State Current :  $I_T$  (RMS) = 2A ( $T_c = 110^\circ\text{C}$ )
- Isolation Voltage :  $V_{ISOL} = 1500\text{V (AC, } t = 60\text{s)}$

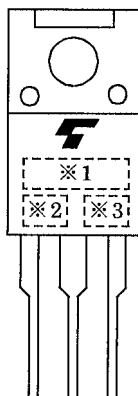
### MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SM2GZ47 SM2GZ47A	400	V
	SM2JZ47 SM2JZ47A	600	
R.M.S On-State Current (Full Sine Waveform)	$T_c = 110^\circ\text{C}$	2	A
	$T_a = 65^\circ\text{C}$	1	
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	$\text{A}^2\text{s}$
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	$T_j$	$-40 \sim 125$	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-40 \sim 125$	$^\circ\text{C}$
Isolation Voltage (AC, $t = 1\text{min.}$ )	$V_{ISOL}$	1500	V



Weight: 1.7g (Typ.)

### MARKING

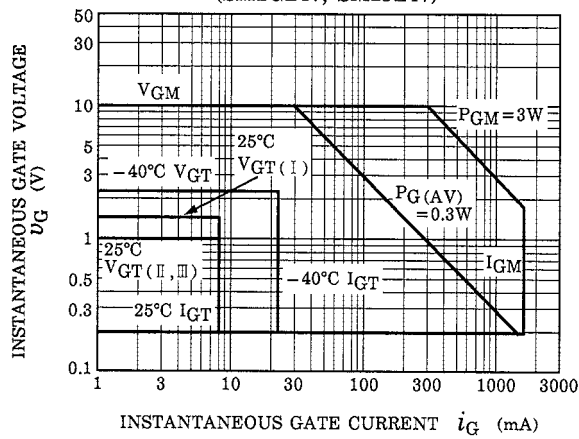


NUMBER	SYMBOL	MARK
*1	TYPE	SM2GZ47, SM2GZ47A
		SM2JZ47, SM2JZ47A
*2		SM2GZ47A, SM2JZ47A
*3	Lot Number  Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)	
	Example 8A : January 1998 8B : February 1998 8L : December 1998	

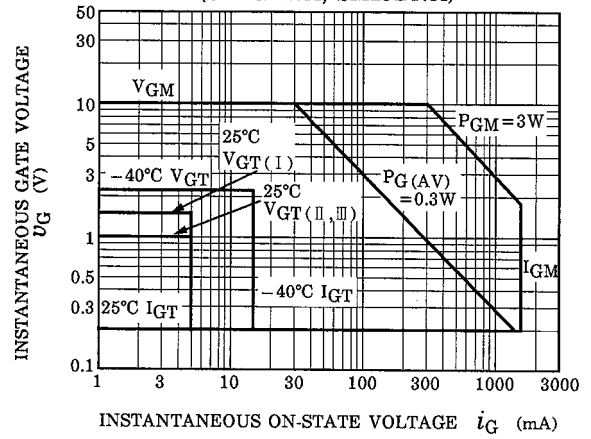
**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I <sub>DRM</sub>	V <sub>DRM</sub> = Rated		—	—	20	μA	
Gate Trigger Voltage		I	V <sub>GT</sub>	T2 (+) , Gate (+)	—	—	1.5	V	
		II		T2 (+) , Gate (–)	—	—	1		
		III		T2 (–) , Gate (–)	—	—	1		
		IV		T2 (–) , Gate (+)	—	—	—		
Gate Trigger Current	SM2GZ47 SM2JZ47	I	I <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 20Ω	T2 (+) , Gate (+)	—	—	8	mA
		II			T2 (+) , Gate (–)	—	—	8	
		III			T2 (–) , Gate (–)	—	—	8	
		IV			T2 (–) , Gate (+)	—	—	—	
	SM2GZ47A SM2JZ47A	I			T2 (+) , Gate (+)	—	—	5	
		II			T2 (+) , Gate (–)	—	—	5	
		III			T2 (–) , Gate (–)	—	—	5	
		IV			T2 (–) , Gate (+)	—	—	—	
Peak On-State Voltage		V <sub>TM</sub>	I <sub>TM</sub> = 3A		—	—	1.7	V	
Gate Non-Trigger Voltage		V <sub>GD</sub>	V <sub>D</sub> = Rated, T <sub>c</sub> = 125°C		0.2	—	—	V	
Holding Current		I <sub>H</sub>	R <sub>L</sub> = 100Ω		—	—	10	mA	
Thermal Resistance		R <sub>th (j-a)</sub>	Junction to Ambient, AC		—	—	55	°C / W	

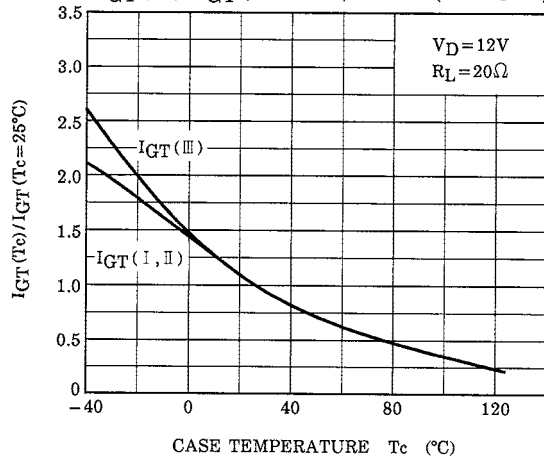
GATE TRIGGER CHARACTERISTIC  
(SM2GZ47, SM2JZ47)



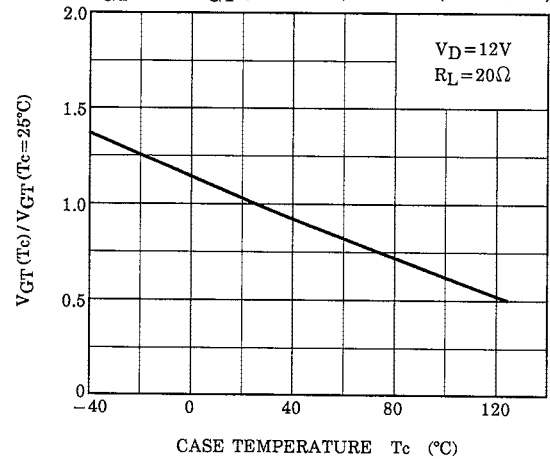
GATE TRIGGER CHARACTERISTIC  
(SM2GZ47A, SM2JZ47A)



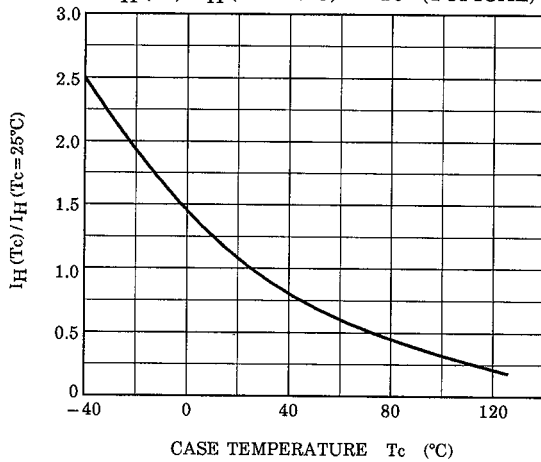
$I_{GT}(T_c)/I_{GT}(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)



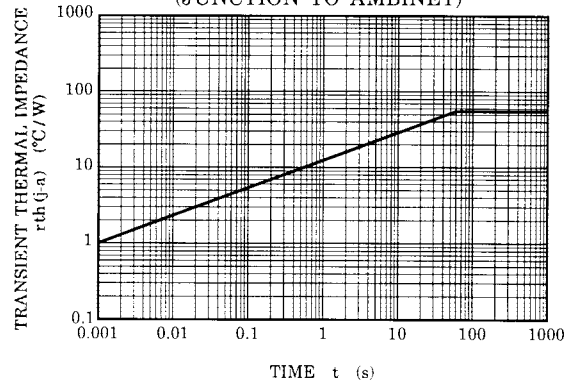
$V_{GT}(T_c)/V_{GT}(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)

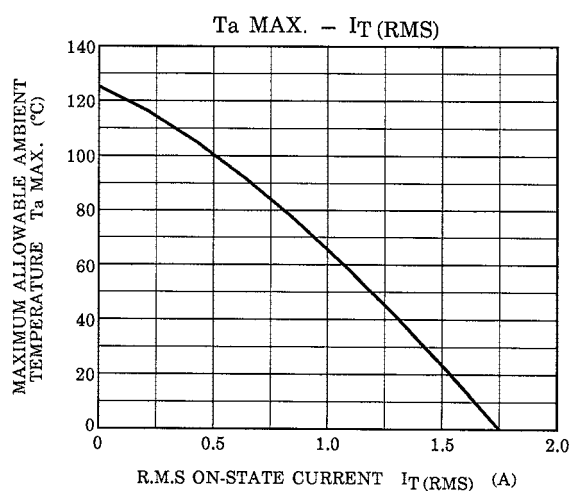
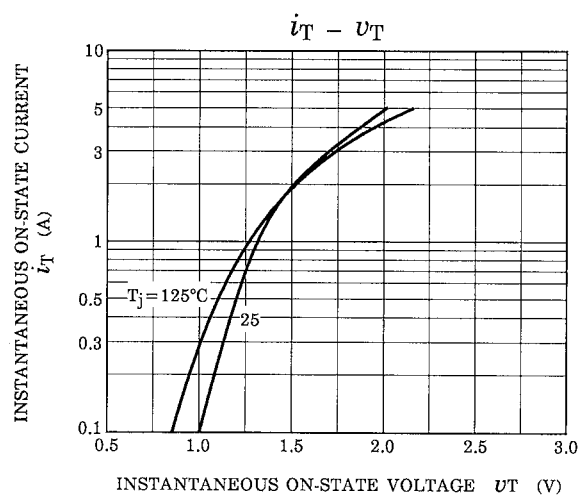


$I_H(T_c)/I_H(T_c=25^\circ\text{C}) - T_c$  (TYPICAL)



TRANSIENT THERMAL IMPEDANCE  
(JUNCTION TO AMBIENT)





<CONDITION>

- ◆ NO HEAT SINK
- ◆ LEAD FORMING : LB182
- ◆ PRINT BOARD

$t = 1.6\text{mm}$   
 $\text{SOLDER LAND : } 2\text{mm}\phi$

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