

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

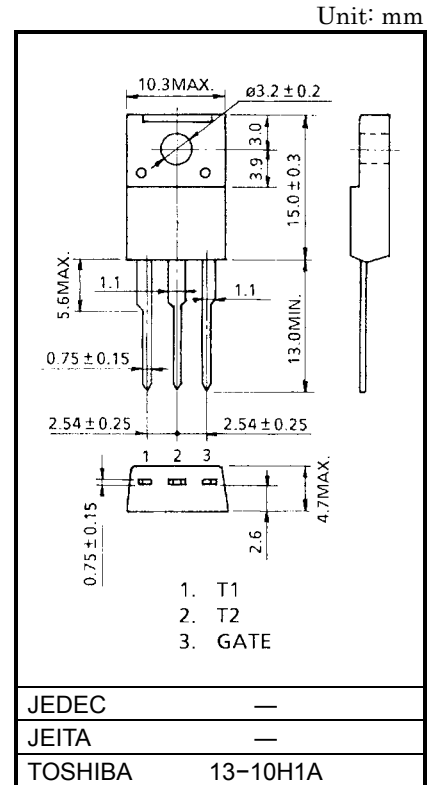
SM2GZ47, SM2GZ47A, SM2JZ47, SM2JZ47A

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 : $V_{ISOL} = 1500\text{V (AC, } t = 60\text{s)}$

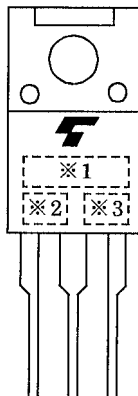
MAXIMUM RATINGS

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	A^2s
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

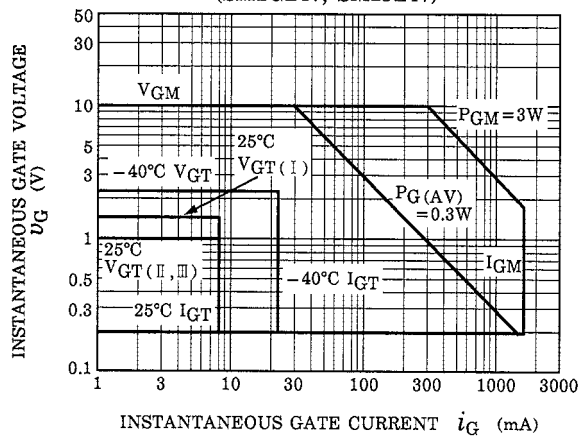


NUMBER	SYMBOL	MARK
*1	TYPE	SM2GZ47, SM2GZ47A
		M2GZ47
		SM2JZ47, SM2JZ47A
*2		M2JZ47
		SM2GZ47A, SM2JZ47A
		A
*3	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)	
	Example 8A : January 1998 8B : February 1998 8L : December 1998	

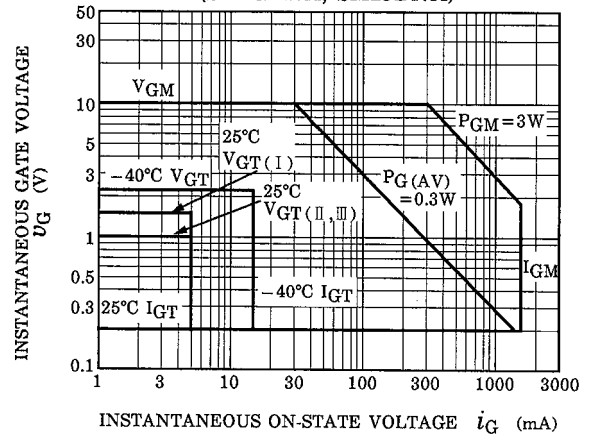
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I _{DRM}	V _{DRM} = Rated		—	—	20	μA	
Gate Trigger Voltage		I	V _{GT}	V _D = 12V R _L = 20Ω	T2 (+) , Gate (+)	—	—	1.5	V
		II			T2 (+) , Gate (–)	—	—	1	
		III			T2 (–) , Gate (–)	—	—	1	
		IV			T2 (–) , Gate (+)	—	—	—	
Gate Trigger Current	SM2GZ47 SM2JZ47	I	I _{GT}	V _D = 12V R _L = 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 _{TM}	I _{TM} = 3A		—	—	1.7	V	
Gate Non-Trigger Voltage		V _{GD}	V _D = Rated, T _c = 125°C		0.2	—	—	V	
Holding Current		I _H	R _L = 100Ω		—	—	10	mA	
Thermal Resistance		R _{th (j-a)}	Junction to Ambient, AC		—	—	55	°C / W	

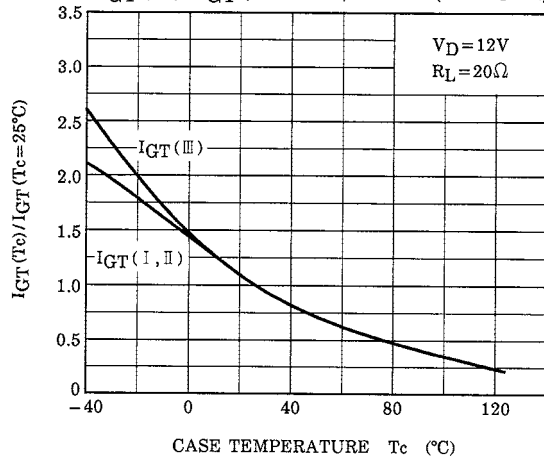
GATE TRIGGER CHARACTERISTIC
(SM2GZ47, SM2JZ47)



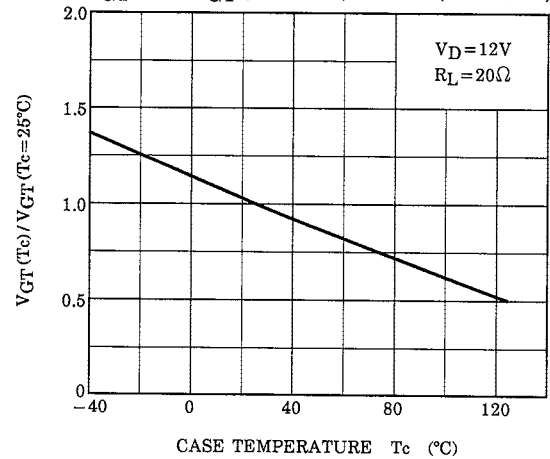
GATE TRIGGER CHARACTERISTIC
(SM2GZ47A, SM2JZ47A)



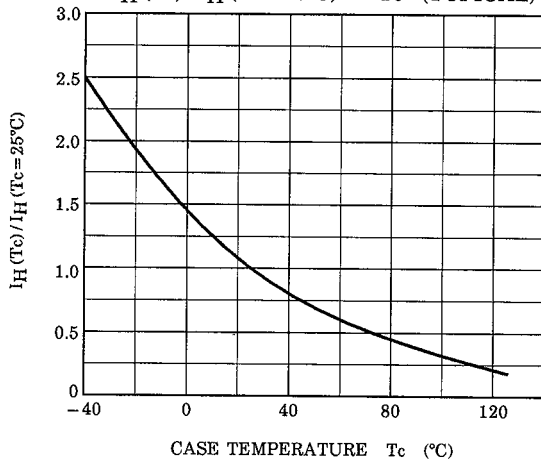
$I_{GT}(T_c)/I_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



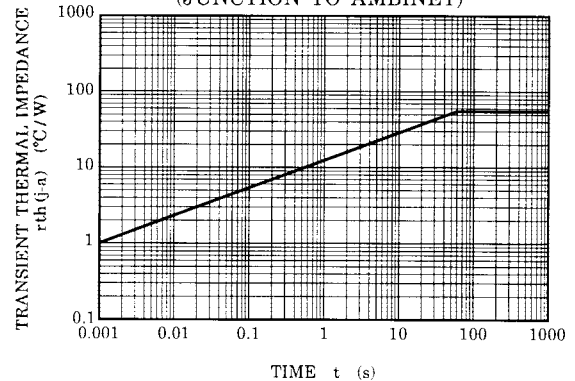
$V_{GT}(T_c)/V_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)

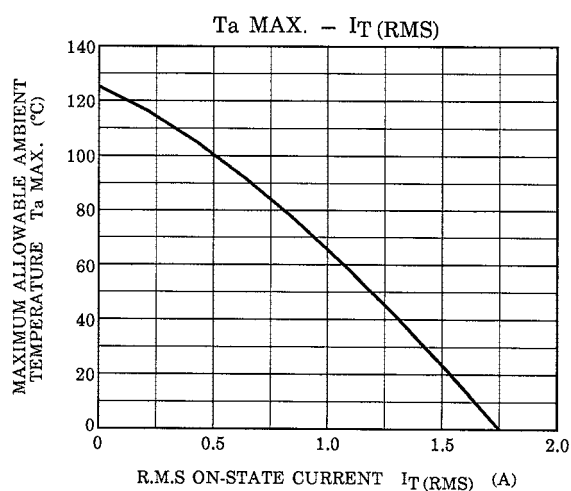
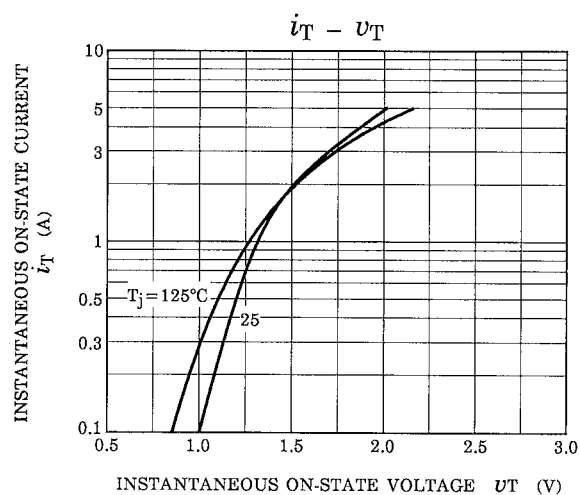


$I_H(T_c)/I_H(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



TRANSIENT THERMAL IMPEDANCE
(JUNCTION TO AMBIENT)





<CONDITION>

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

$\left(\begin{array}{l} t=1.6\text{mm} \\ \text{SOLDER LAND : } 2\text{mm}\phi \end{array} \right)$

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000707EAA

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