

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

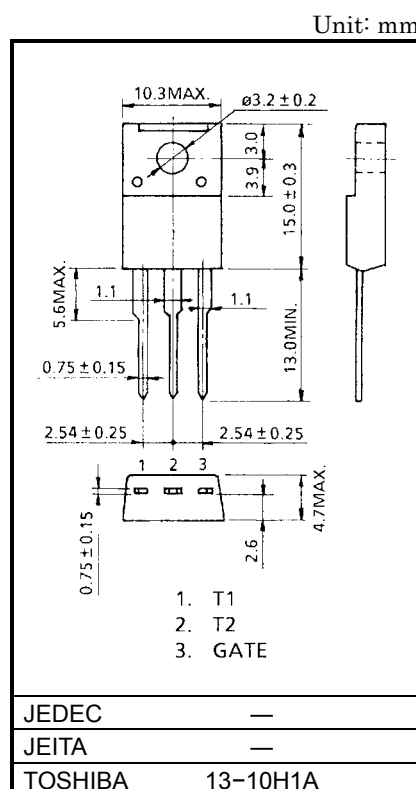
SM2GZ47, SM2GZ47A, SM2JZ47, SM2JZ47A

AC POWER CONTROL APPLICATIONS

- IT (RMS) = 1A (Ta = 65°C without radiator)
- Gate Trigger Current : IGT = 5mA Max. (TYPE “A”)
- Repetitive Peak Off-State Voltage : VDRM = 400V, 600V
- R.M.S On-State Current : IT (RMS) = 2A (Tc = 110°C)
- Isolation Voltage : VISOL = 1500V (AC, t = 60s)

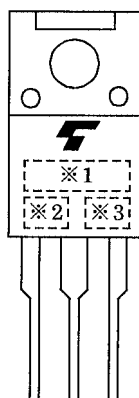
MAXIMUM RATINGS

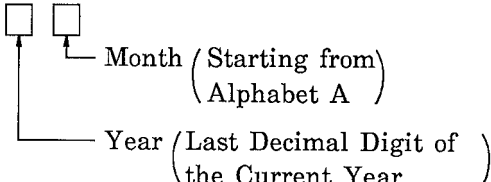
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SM2GZ47 SM2GZ47A	V_{DRM}	400	V
	SM2JZ47 SM2JZ47A		600	
R.M.S On-State Current (Full Sine Waveform)	$T_c = 110^{\circ}\text{C}$	$I_T \text{ (RMS)}$	2	A
	$T_a = 65^{\circ}\text{C}$		1	
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	8 (50Hz)	A
			8.8 (60Hz)	
I_t^2 Limit Value		I_t^2	0.32	A^2s
Peak Gate Power Dissipation		P_{GM}	3	W
Average Gate Power Dissipation		$P_G \text{ (AV)}$	0.3	W
Peak Gate Voltage		V_{FGM}	10	V
Peak Gate Current		I_{GM}	1.6	A
Junction Temperature		T_j	-40~125	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-40~125	$^{\circ}\text{C}$
Isolation Voltage (AC, $t = 1\text{min.}$)		V_{ISOL}	1500	V



Weight: 1.7g (Typ.)

MARKING

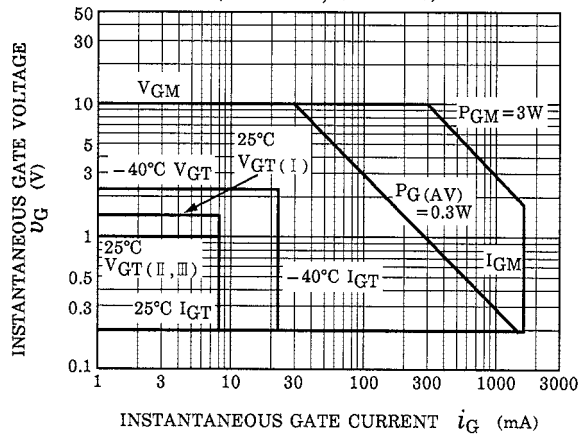


NUMBER	SYMBOL		MARK
*1	TYPE	SM2GZ47, SM2GZ47A	M2GZ47
		SM2JZ47, SM2JZ47A	M2JZ47
*2		SM2GZ47A, SM2JZ47A	A
*3	Lot Number  Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

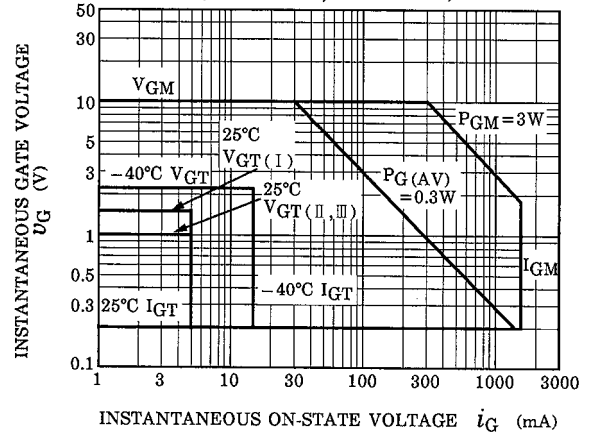
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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}	T2 (+) , Gate (+)	—	—	1.5	V
		II		T2 (+) , Gate (−)	—	—	1	
		III		T2 (−) , Gate (−)	—	—	1	
		IV		T2 (−) , Gate (+)	—	—	—	
Gate Trigger Current	SM2GZ47 SM2JZ47	I	I _{GT}	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

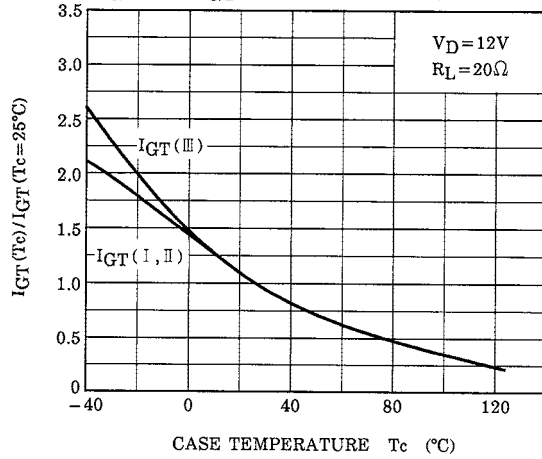
GATE TRIGGER CHARACTERISTIC
(SM2GZ47, SM2JZ47)



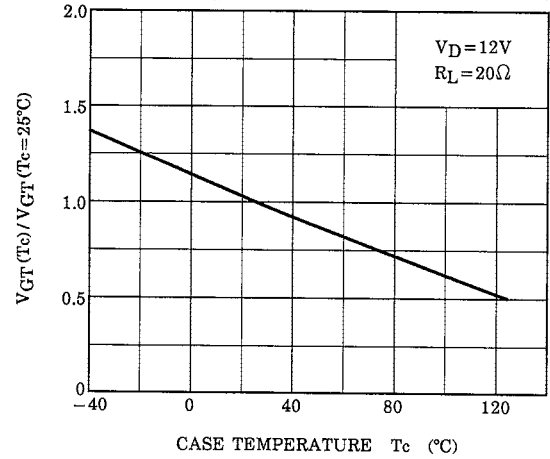
GATE TRIGGER CHARACTERISTIC
(SM2GZ47A, SM2JZ47A)



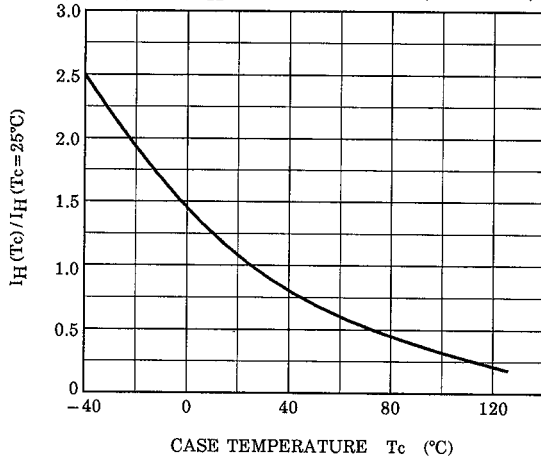
$I_{GT}(T_c)/I_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



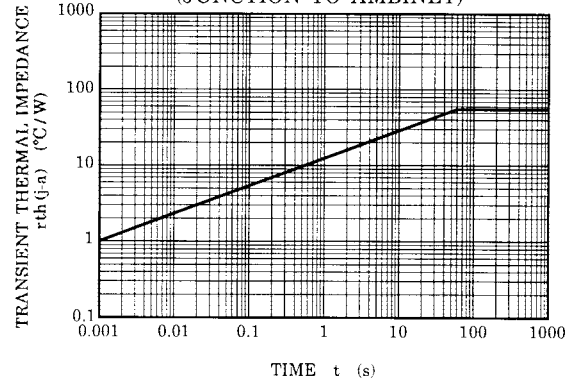
$V_{GT}(T_c)/V_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)

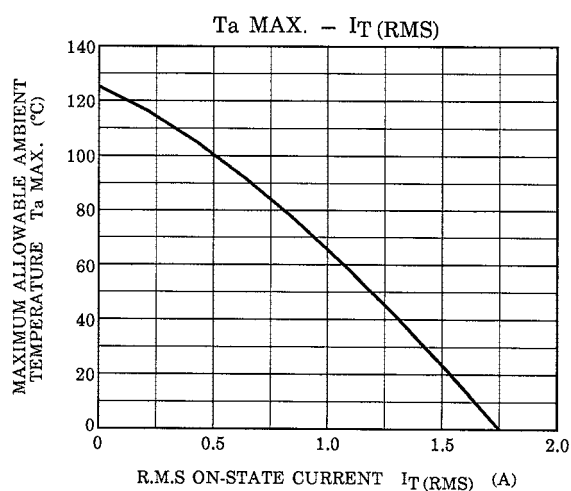
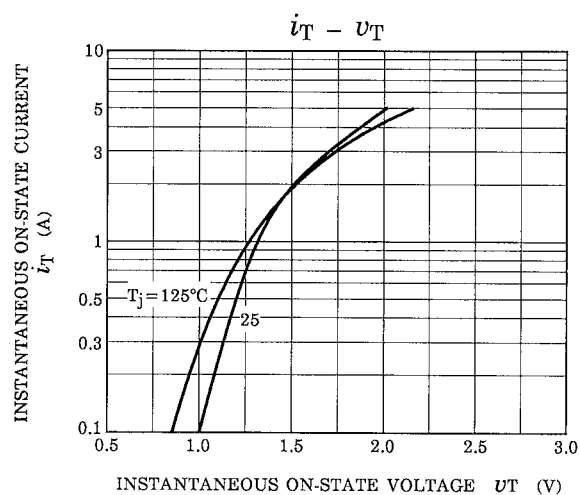


$I_H(T_c)/I_H(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



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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