

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM2GZ47, SM2GZ47A, SM2JZ47, SM2JZ47A

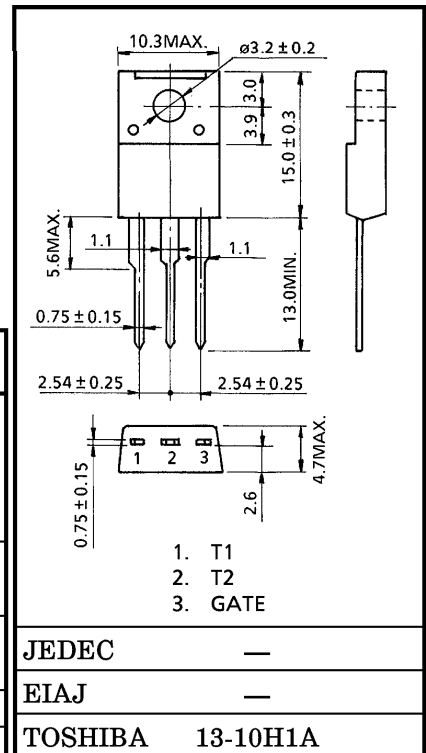
AC POWER CONTROL APPLICATIONS

Unit in mm

- $I_T(\text{RMS}) = 1\text{A}$ ($T_a = 65^\circ\text{C}$ 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 : $I_T(\text{RMS}) = 2\text{A}$ ($T_c = 110^\circ\text{C}$)
- Isolation Voltage : $V_{ISOL} = 1500\text{V}$ (AC, $t = 60\text{s}$)

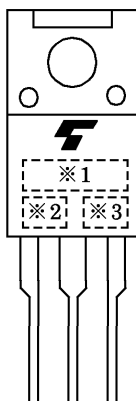
MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SM2GZ47	V_{DRM}	400	V
	SM2GZ47A			
	SM2JZ47		600	
	SM2JZ47A			
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^2t Limit Value		I^2t	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	$-40 \sim 125$	$^\circ\text{C}$
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



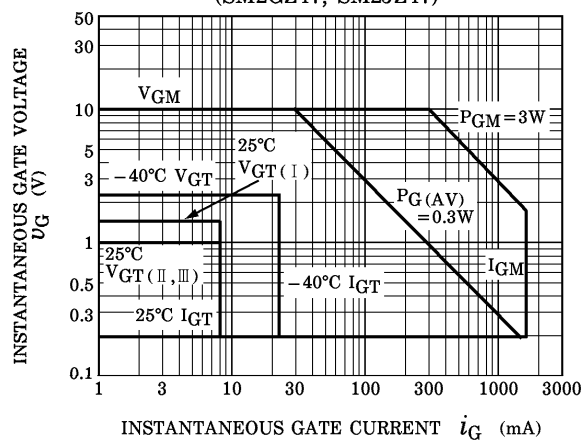
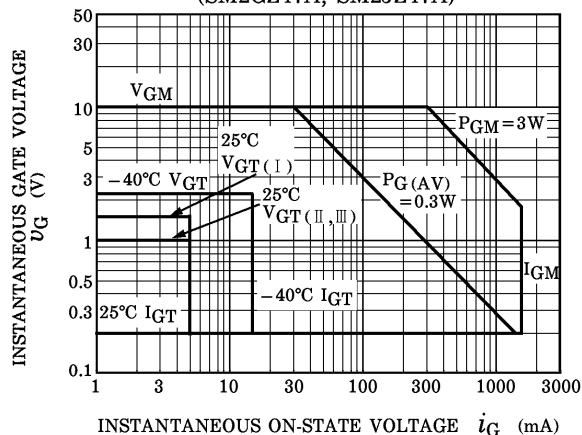
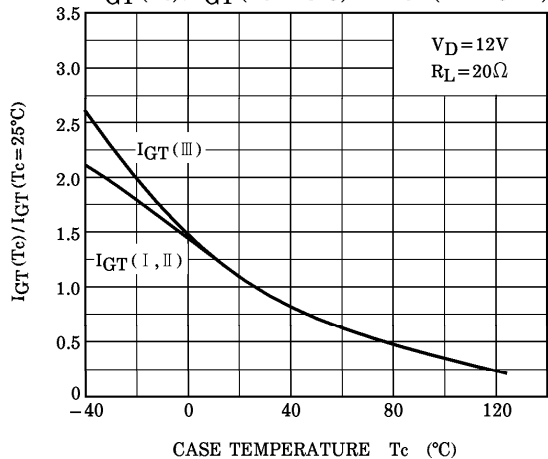
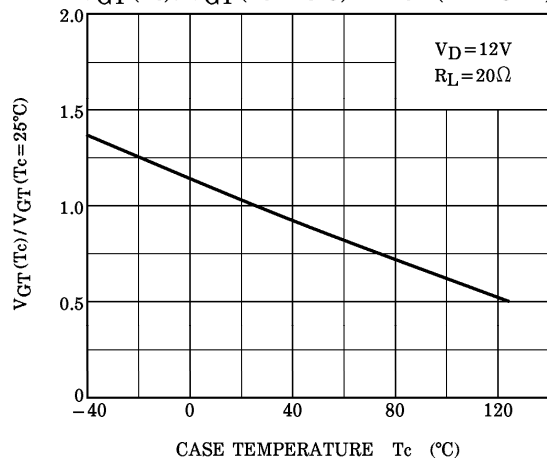
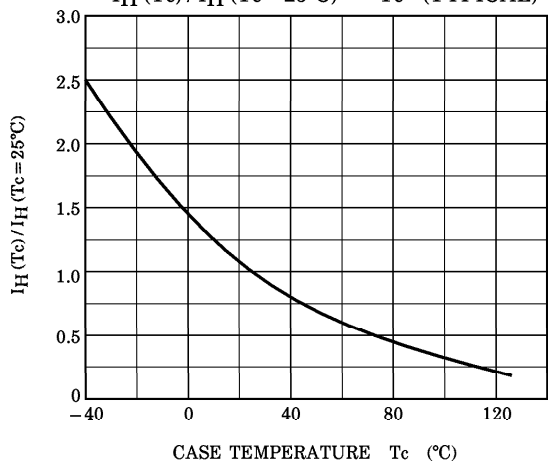
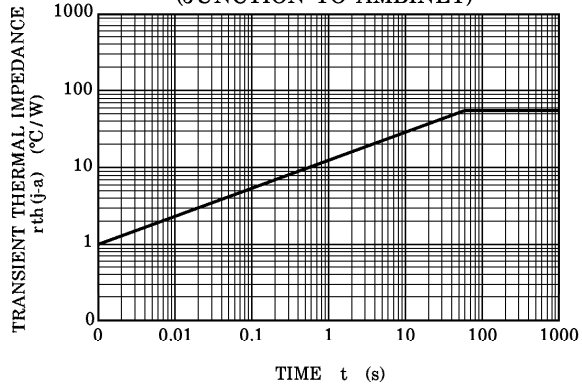
NUMBER	SYMBOL		MARK
※1	TYPE	SM2GZ47, SM2GZ47A	M2GZ47
		SM2JZ47, SM2JZ47A	M2JZ47
※2		SM2GZ47A, SM2JZ47A	A
※3	Lot Number		Example 8A : January 1998 8B : February 1998 8L : December 1998
	Month (Starting from (Alphabet A) Year (Last Decimal Digit of the Current Year)		

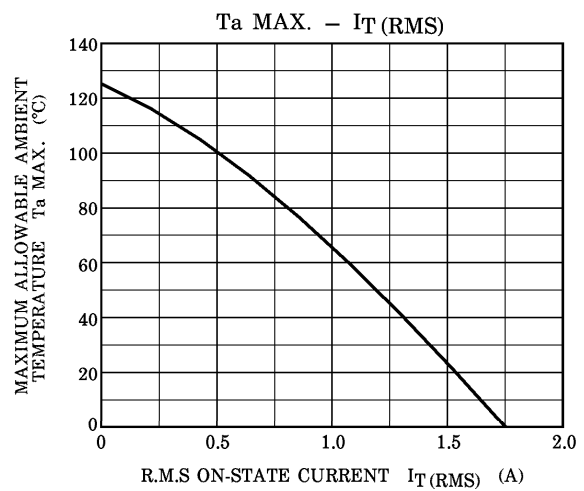
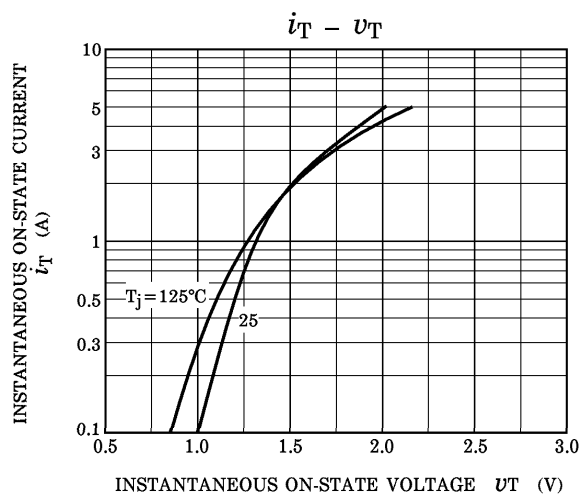
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off-State Current		I_{DRM}	$V_{\text{DRM}} = \text{Rated}$		—	—	20	μA
Gate Trigger Voltage	I	V_{GT}	$V_{\text{D}} = 12\text{V}$ $R_{\text{L}} = 20\Omega$	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (—)	—	—	1	
	III			T2 (—), Gate (—)	—	—	1	
	IV			T2 (—), Gate (+)	—	—	—	
Gate Trigger Current	I	I_{GT}	$V_{\text{D}} = 12\text{V}$ $R_{\text{L}} = 20\Omega$	T2 (+), Gate (+)	—	—	8	mA
	II			T2 (+), Gate (—)	—	—	8	
	III			T2 (—), Gate (—)	—	—	8	
	IV			T2 (—), Gate (+)	—	—	—	
	I			T2 (+), Gate (+)	—	—	5	
	II			T2 (+), Gate (—)	—	—	5	
	III			T2 (—), Gate (—)	—	—	5	
	IV			T2 (—), Gate (+)	—	—	—	
Peak On-State Voltage		V_{TM}	$I_{\text{TM}} = 3\text{A}$		—	—	1.7	V
Gate Non-Trigger Voltage		V_{GD}	$V_{\text{D}} = \text{Rated}$, $T_{\text{c}} = 125^{\circ}\text{C}$		0.2	—	—	V
Holding Current		I_{H}	$R_{\text{L}} = 100\Omega$		—	—	10	mA
Thermal Resistance		$R_{\text{th(j-a)}}$	Junction to Ambient, AC		—	—	55	$^{\circ}\text{C/W}$

GATE TRIGGER CHARACTERISTIC
(SM2GZ47, SM2JZ47)GATE TRIGGER CHARACTERISTIC
(SM2GZ47A, SM2JZ47A) $I_{GT}(T_c)/I_{GT}(T_c=25^\circ C) - T_c$ (TYPICAL) $V_{GT}(T_c)/V_{GT}(T_c=25^\circ C) - T_c$ (TYPICAL) $I_H(T_c)/I_H(T_c=25^\circ C) - T_c$ (TYPICAL)TRANSIENT THERMAL IMPEDANCE
(JUNCTION TO AMBIENT)



<CONDITION>

- ◆ NO HEAT SINK
 - ◆ LEAD FORMING : LB182
 - ◆ PRINT BOARD
- $\left(\begin{array}{l} t = 1.6\text{mm} \\ \text{SOLDER LAND : } 2\text{mm}\phi \end{array} \right)$