

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM1G43,SM1J43

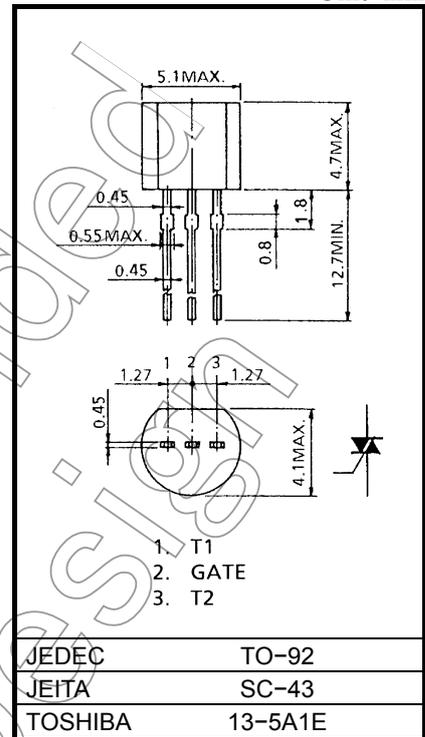
Unit: mm

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400, 600V$
- R.M.S On-State Current : $I_T (RMS) = 1A$
- Higt Commutating (dv / dt)

ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM1G43	400	V
	SM1J43	600	
R.M.S On-State Current (Full Sine Waveform $T_c = 74^\circ C$)	$I_T (RMS)$	1.0	A
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}	1	W
Average Gate Power Dissipation	$P_G (AV)$	0.1	W
Peak Gate Voltage	V_{GM}	6	V
Peak Gate Current	I_{GM}	0.5	A
Junction Temperature	T_j	-40~125	$^\circ C$
Storage Temperature Range	T_{stg}	-40~125	$^\circ C$



Weight: 0.2g

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

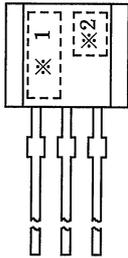
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Not for

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

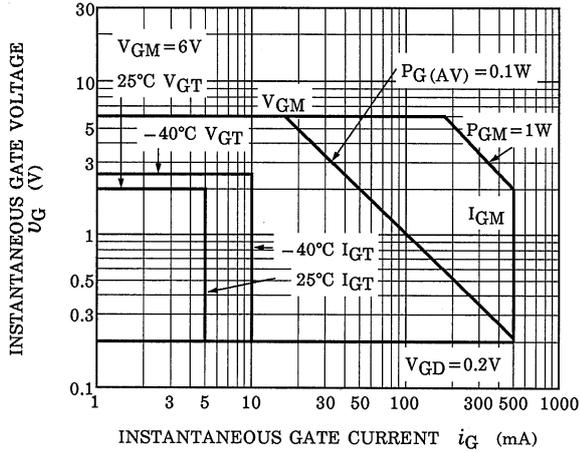
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM} = \text{Rated}$	—	—	10	μA	
Gate Trigger Voltage	I	$V_D = 12\text{V}$, $R_L = 20\Omega$	T2 (+), Gate (+)		—	2	V
	II		T2 (+), Gate (-)		—	2	
	III		T2 (-), Gate (-)		—	2	
	IV		T2 (-), Gate (+)		—	2	
Gate Trigger Current	I	$V_D = 12\text{V}$, $R_L = 20\Omega$	T2 (+), Gate (+)		—	5	mA
	II		T2 (+), Gate (-)		—	5	
	III		T2 (-), Gate (-)		—	5	
	IV		T2 (-), Gate (+)		—	10	
Peak On-State Voltage	V_{TM}	$I_{TM} = 1.5\text{A}$	—	—	1.5	V	
Gate Non-Trigger Voltage	V_{GD}	$V_D = \text{Rated}$, $T_c = 125^\circ\text{C}$	0.2	—	—	V	
Holding Current	I_H	$V_D = 12\text{V}$, $I_{TM} = 1\text{A}$	—	—	10	mA	
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, AC	—	—	40	$^\circ\text{C} / \text{W}$	
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient, AC	—	—	180	$^\circ\text{C} / \text{W}$	

MARKING

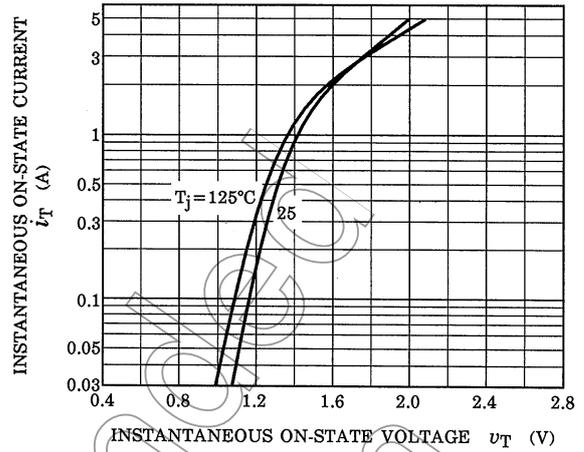


NUMBER	SYMBOL	MARK
*1	TYPE	SM1G43
		SM1J43
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)	Example 8A : January 1998 8B : February 1998 8L : December 1998

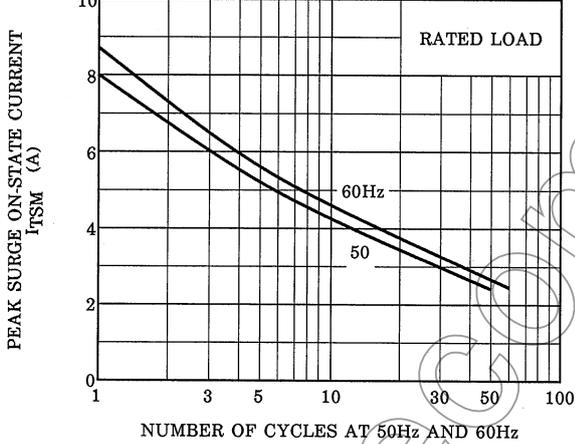
GATE TRIGGER CHARACTERISTIC



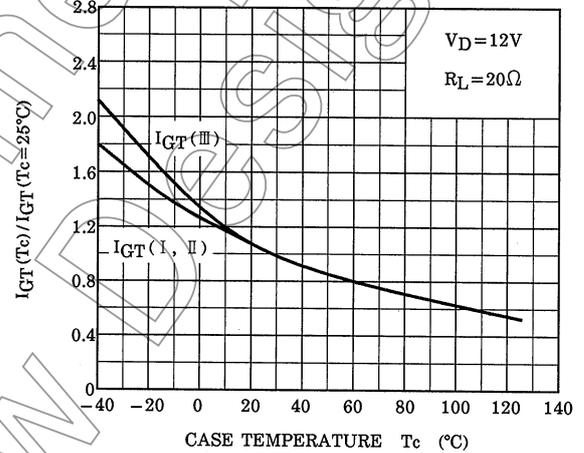
$i_T - v_T$



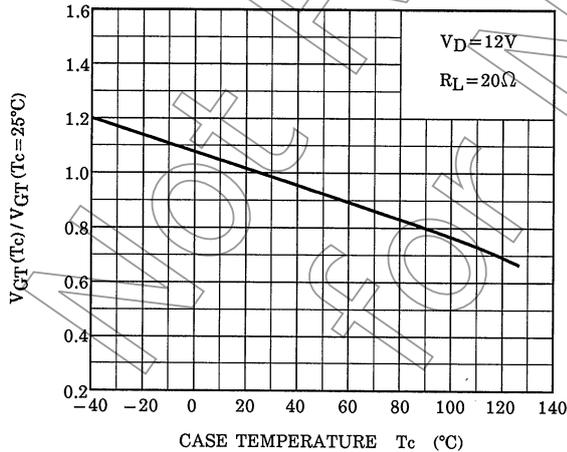
SURGE ON-STATE CURRENT (NON-REPETITIVE)



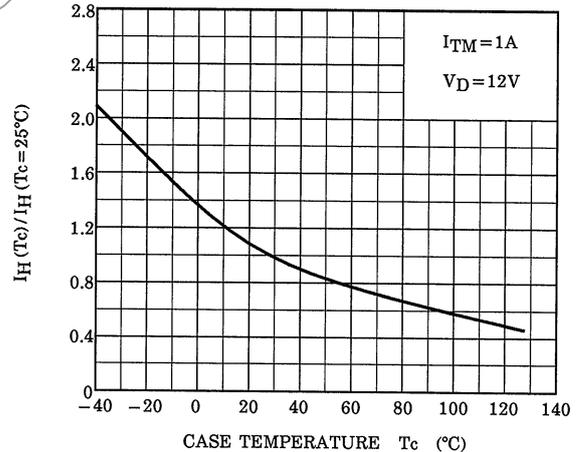
$I_{GT}(T_c) / I_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)

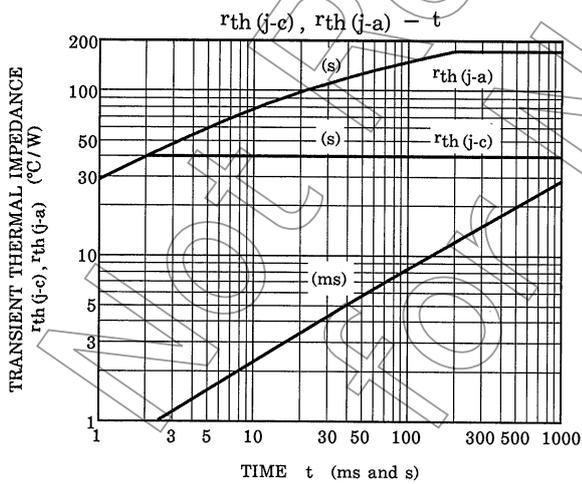
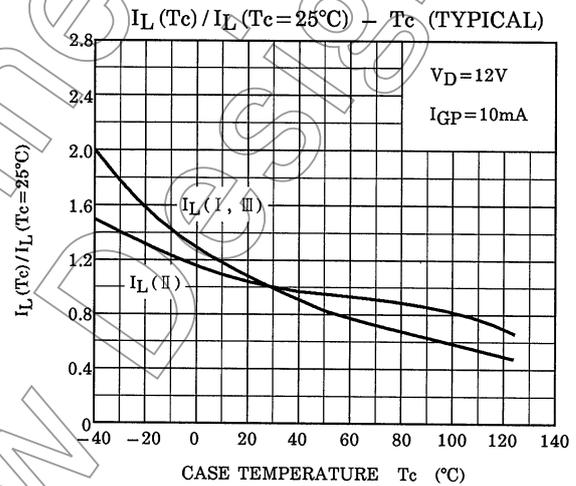
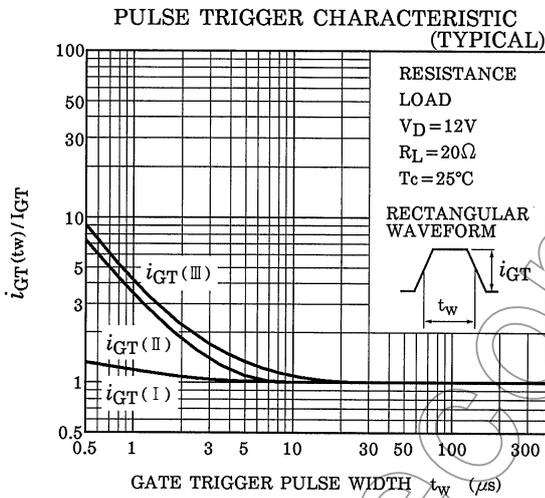
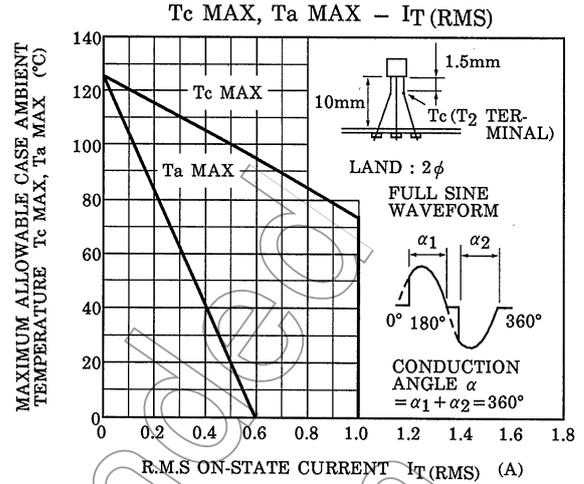
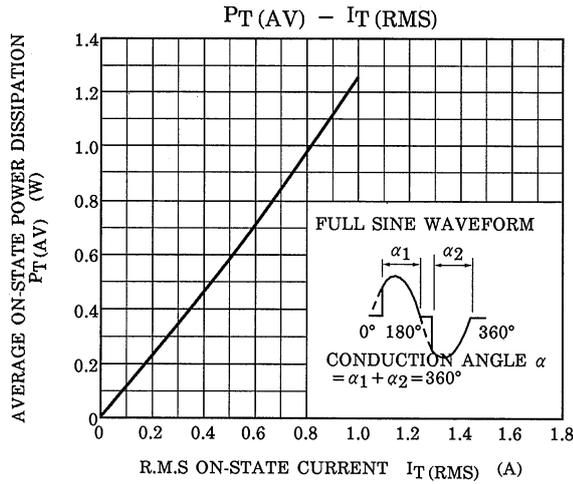


$V_{GT}(T_c) / V_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



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





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20070701-EN

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