

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

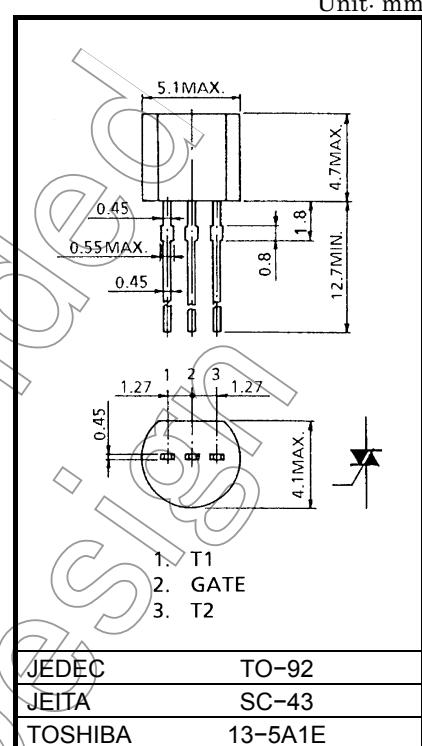
**SM1L43**

## AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage :  $V_{DRM} = 800V$
- R.M.S. On-State Current :  $I_T$  (RMS) = 1A

**ABSOLUTE MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	$V_{DRM}$	800	V
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 ( $t = 1\sim10ms$ )	$I^2t$	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	$^\circ C$



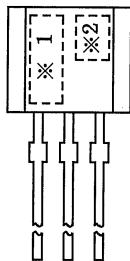
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

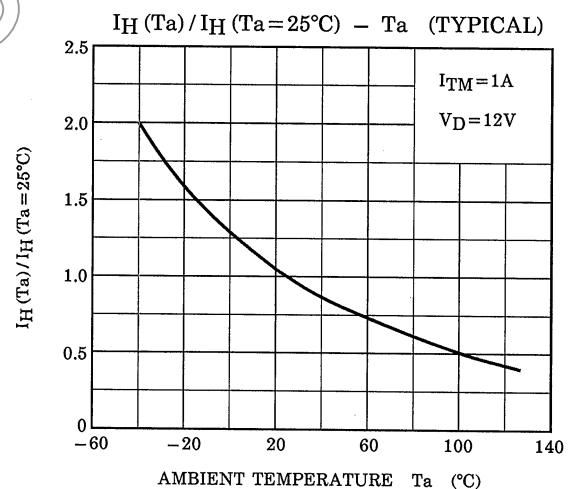
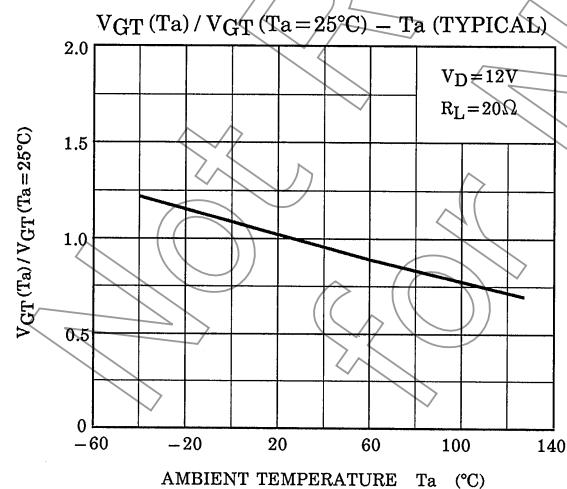
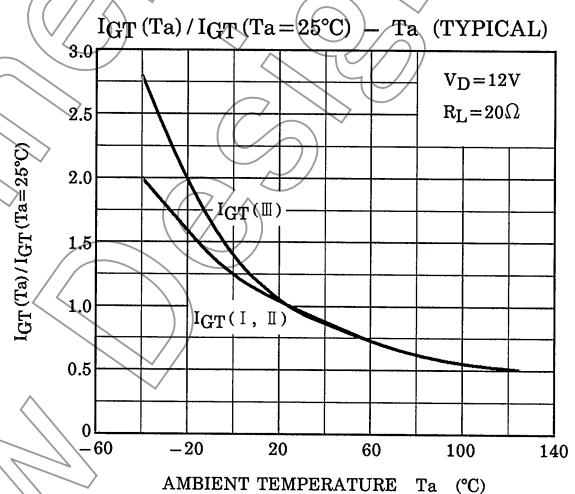
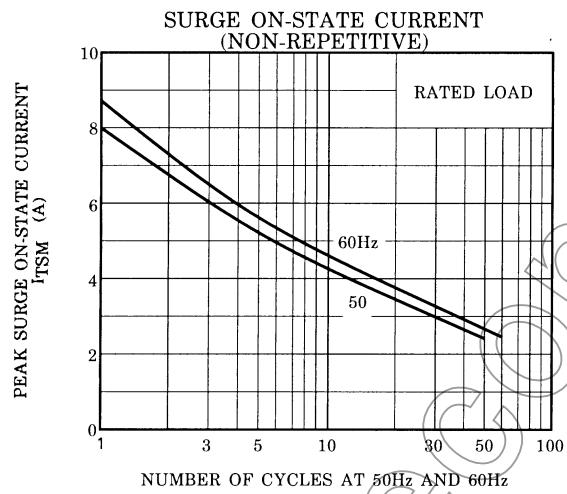
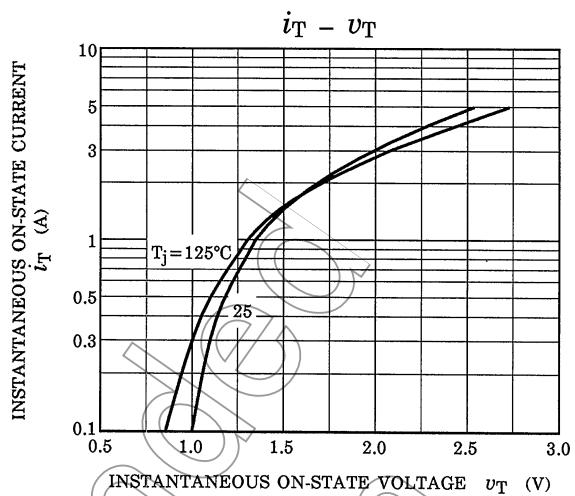
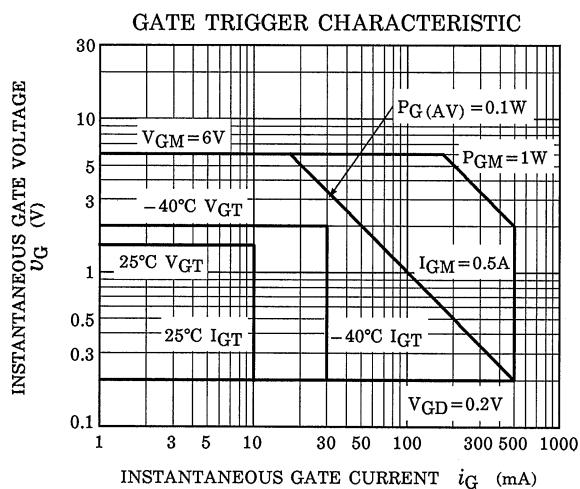
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

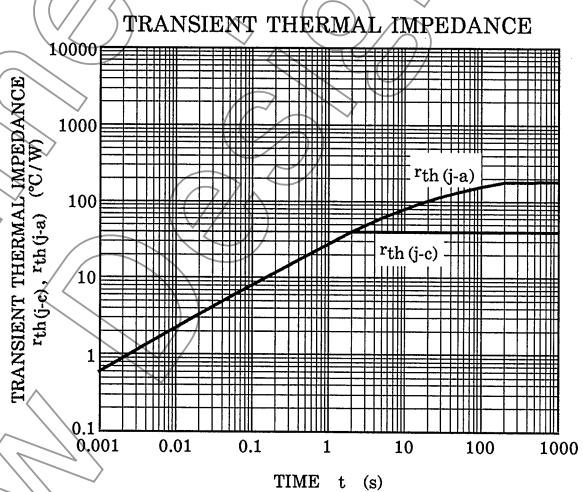
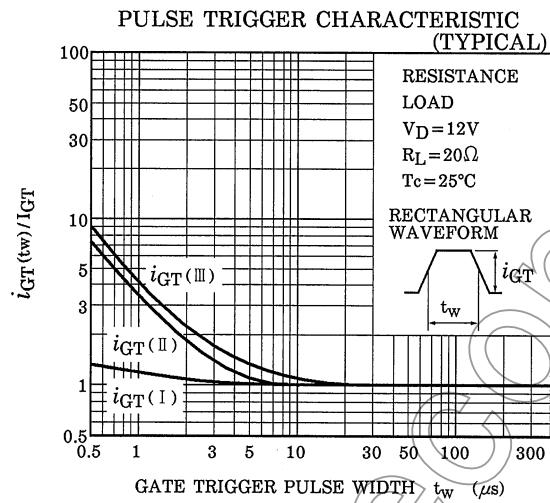
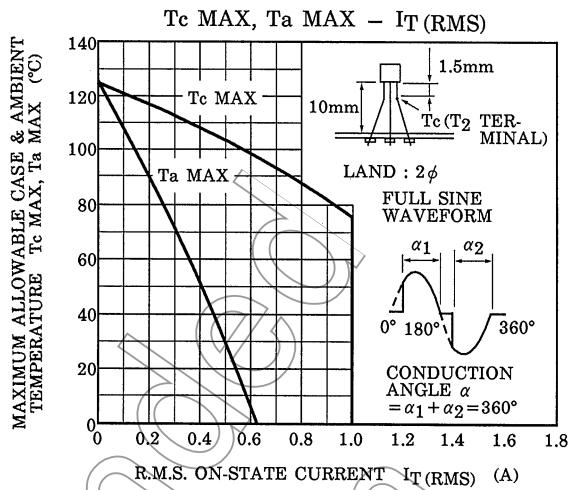
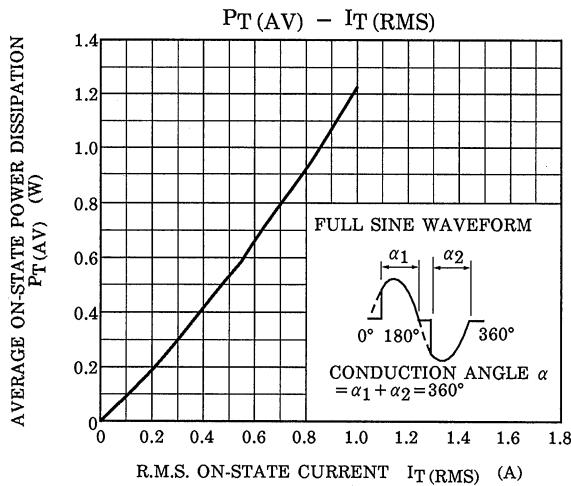
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current		I <sub>DRM</sub>	V <sub>DRM</sub> = 800V		—	—	10	µA
Gate Trigger Voltage	I	V <sub>GT</sub>	V <sub>D</sub> = 12V, R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
Gate Trigger Current	I	I <sub>GT</sub>	V <sub>D</sub> = 12V, R <sub>L</sub> = 20Ω	T2 (+), Gate (+)	—	—	10	mA
	II			T2 (+), Gate (-)	—	—	10	
	III			T2 (-), Gate (-)	—	—	10	
Peak On-State Voltage		V <sub>TM</sub>	I <sub>TM</sub> = 1.5A		—	—	1.5	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>	V <sub>D</sub> = 12V, I <sub>TM</sub> = 1A		—	—	10	mA
Thermal Resistance		R <sub>th</sub> (j-c)	Junction to Case, AC		—	—	40	°C / W
Thermal Resistance		R <sub>th</sub> (j-a)	Junction to Ambient, AC		—	—	180	°C / W

## MARKING



NUMBER	SYMBOL		MARK
*1	TYPE	SM1L43	M1L43
*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





## RESTRICTIONS ON PRODUCT USE

20070701-EN

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