

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

# SM1G43,SM1J43

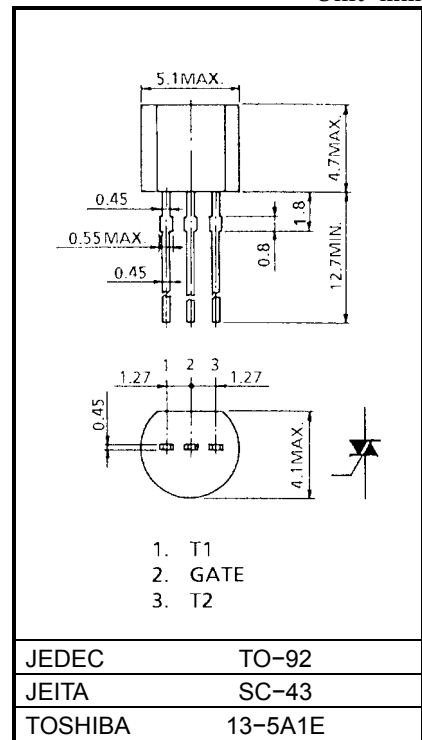
## AC POWER CONTROL APPLICATIONS

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

## MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	SM1G43	$V_{DRM}$	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	$^\circ C$

Unit: mm

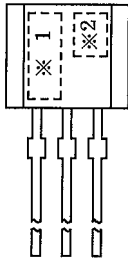


Weight: 0.2g

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

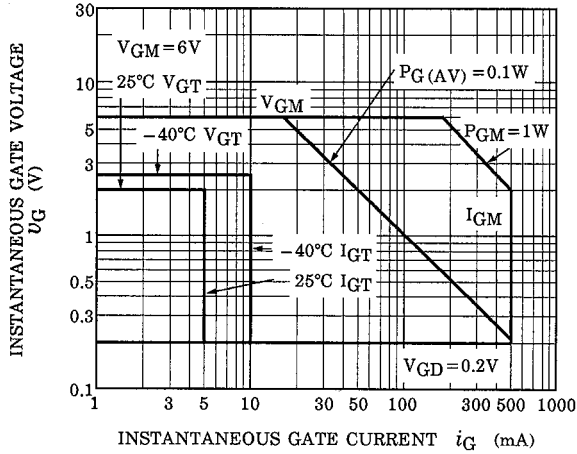
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT		
Repetitive Peak Off-State Current	$I_{DRM}$	$V_{DRM} = \text{Rated}$	—	—	10	$\mu\text{A}$		
Gate Trigger Voltage	I II III IV	$V_{GT}$	$V_D = 12\text{V}, R_L = 20\Omega$	T2 (+), Gate (+)	—	—	2	V
				T2 (+), Gate (-)	—	—	2	
				T2 (-), Gate (-)	—	—	2	
				T2 (-), Gate (+)	—	2	—	
Gate Trigger Current	I II III IV	$I_{GT}$	$V_D = 12\text{V}, R_L = 20\Omega$	T2 (+), Gate (+)	—	—	5	mA
				T2 (+), Gate (-)	—	—	5	
				T2 (-), Gate (-)	—	—	5	
				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

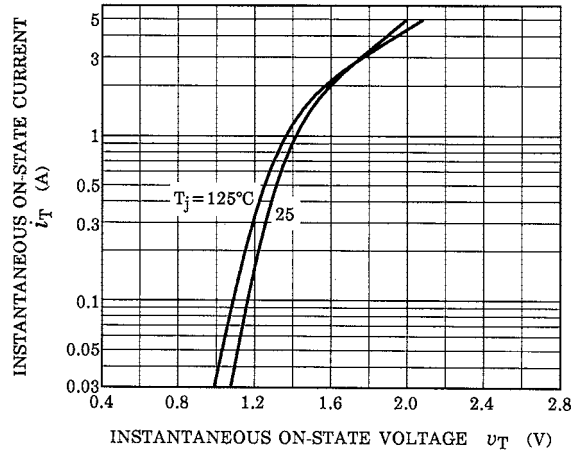


NUMBER	SYMBOL	MARK	
*1	TYPE	SM1G43	M1G43
		SM1J43	M1J43
*2	Lot Number 	Example 8A : January 1998 8B : February 1998 8L : December 1998	

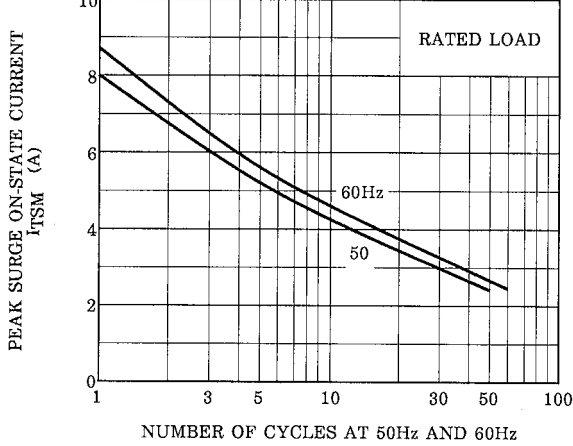
GATE TRIGGER CHARACTERISTIC



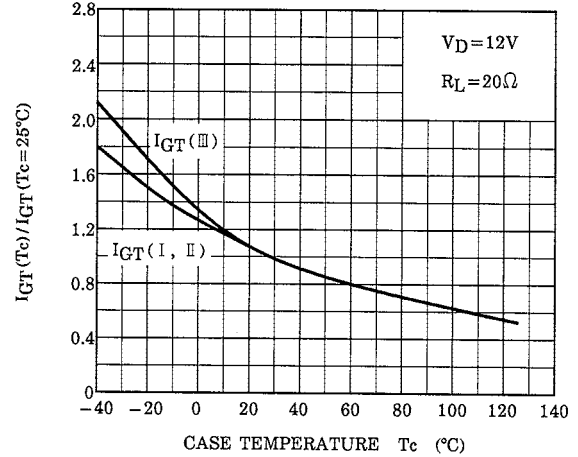
$i_T - v_T$



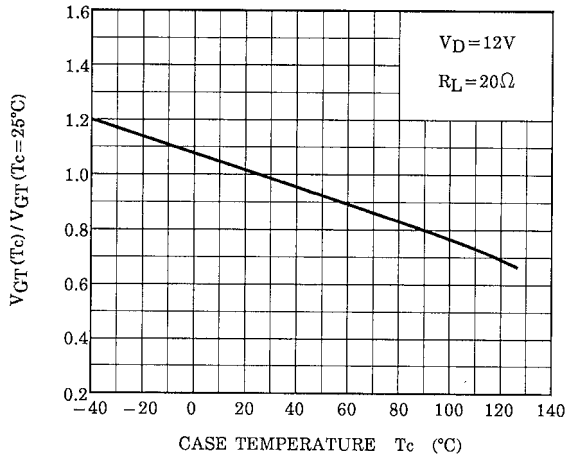
SURGE ON-STATE CURRENT (NON-REPETITIVE)



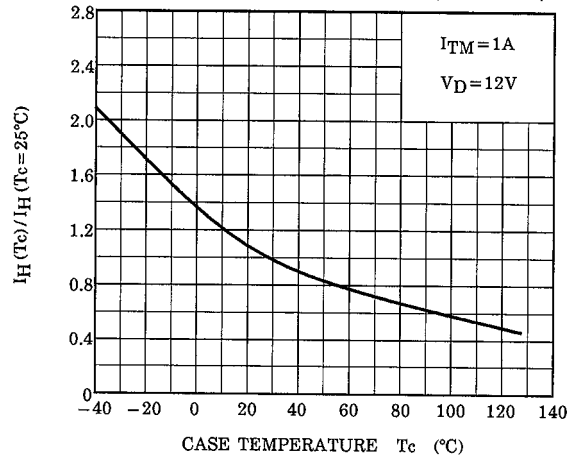
$I_{GT}(T_c) / I_{GT}(T_c=25^\circ C) - T_c$  (TYPICAL)

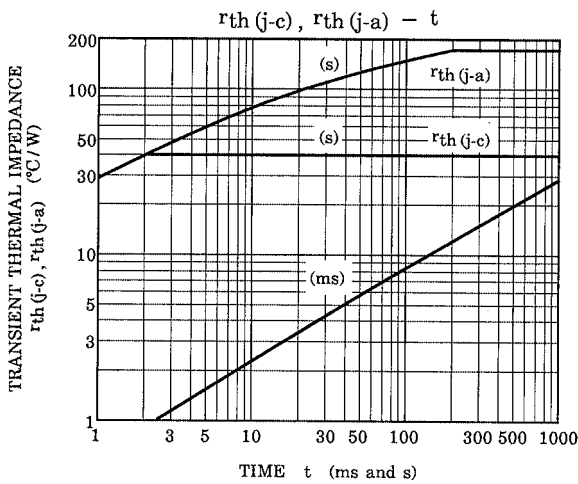
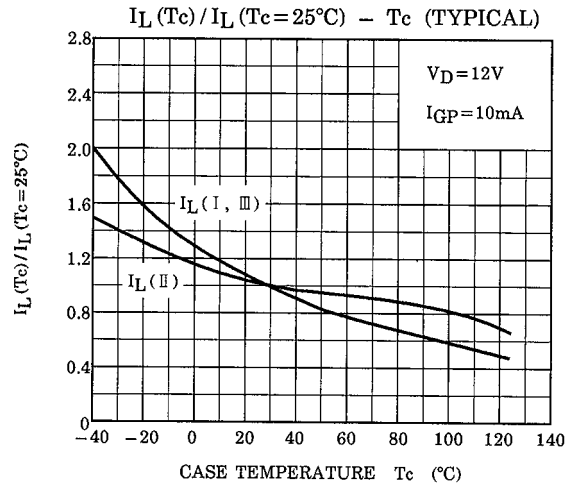
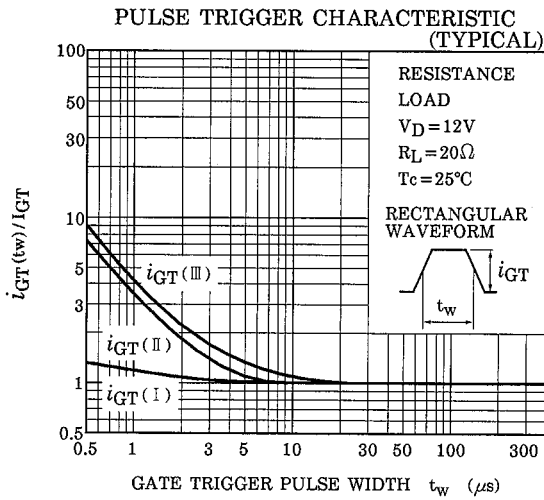
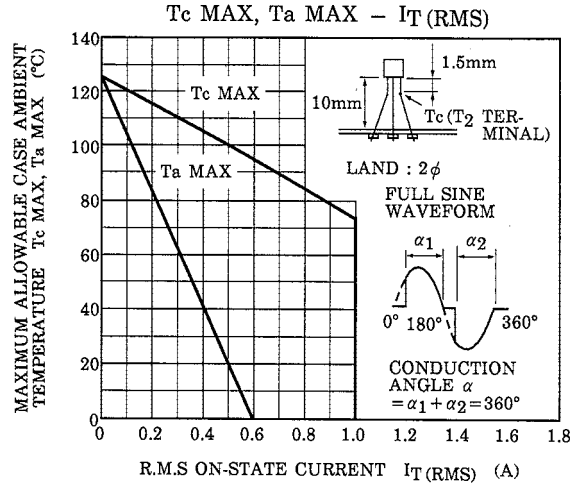
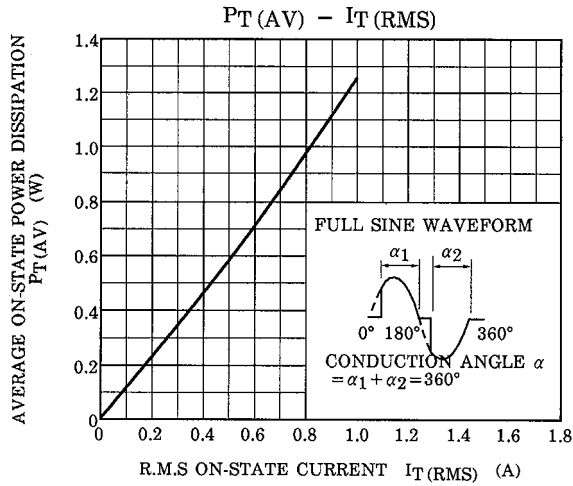


$V_{GT}(T_c) / V_{GT}(T_c=25^\circ C) - T_c$  (TYPICAL)



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





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