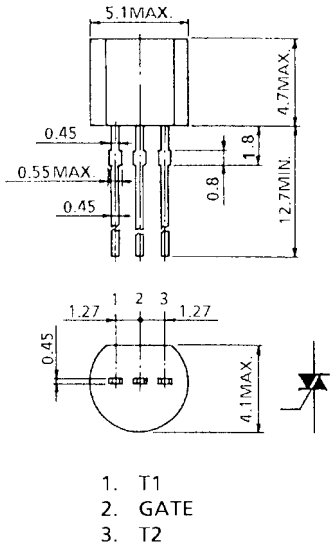
TOSHIBA BI−DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

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)

Unit: mm



JEDEC	TO−92
JEITA	SC−43
TOSHIBA	13−5A1E

Weight: 0.2g

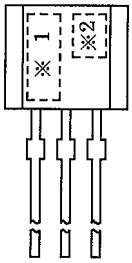
MAXIMUM RATINGS

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 Tc = 74°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	°C
Storage Temperature Range		T_{stg}	−40~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

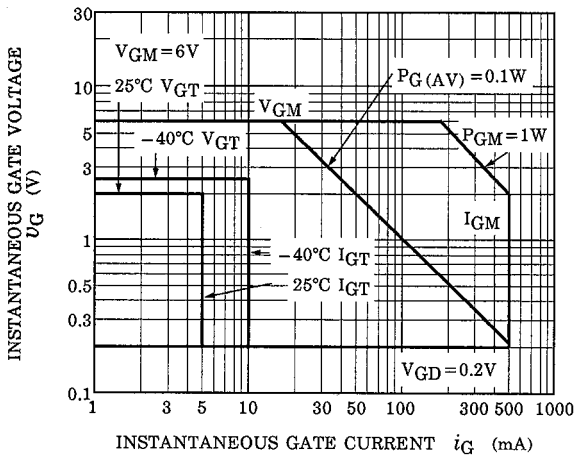
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off−State Current		I_{DRM}	V_{DRM} = Rated		—	—	10	μA
Gate Trigger Voltage	I	V_{GT}	V_D = 12V, R_L = 20Ω	T2 (+) , Gate (+)	—	—	2	V
	II			T2 (+) , Gate (−)	—	—	2	
	III			T2 (−) , Gate (−)	—	—	2	
	IV			T2 (−) , Gate (+)	—	2	—	
Gate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

MARKING

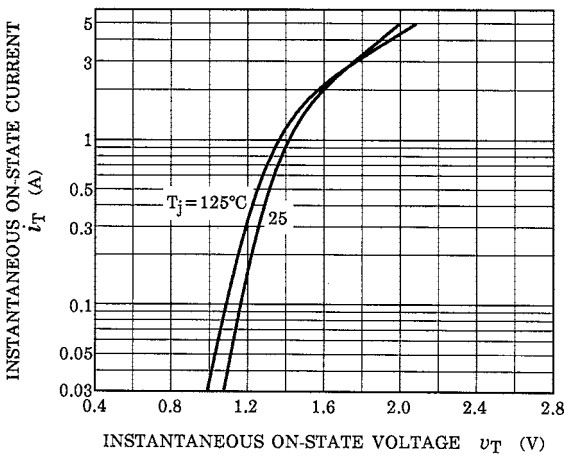


NUMBER	SYMBOL		MARK
*1	TYPE	SM1G43	M1G43
		SM1J43	M1J43
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

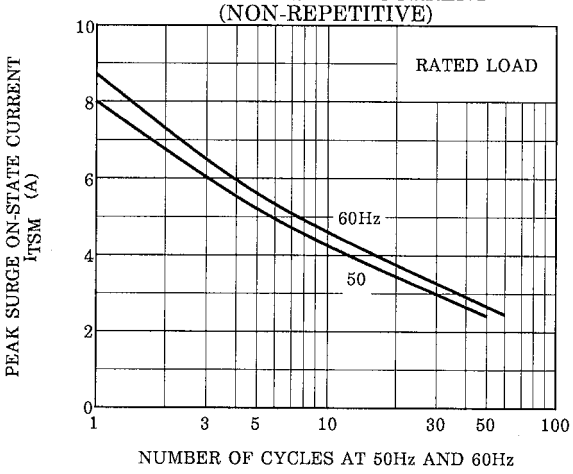
GATE TRIGGER CHARACTERISTIC



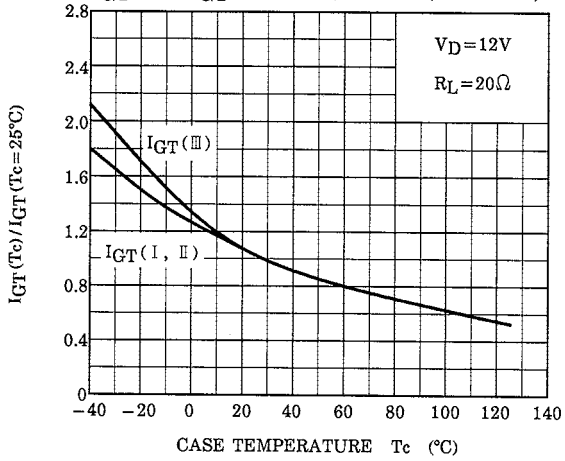
$i_T - v_T$



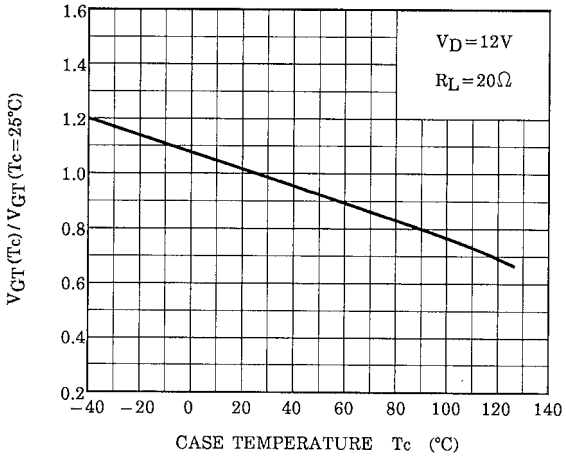
SURGE ON-STATE CURRENT (NON-REPETITIVE)



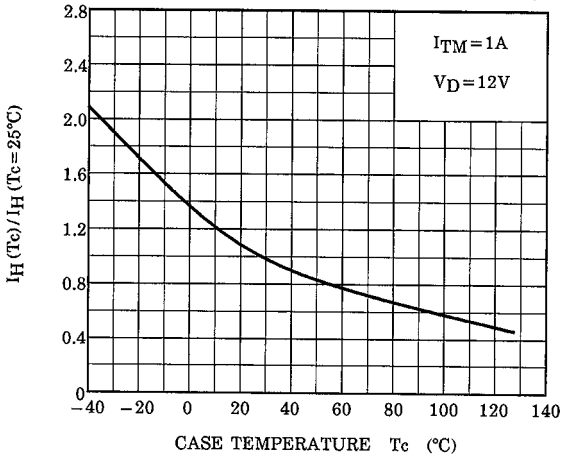
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



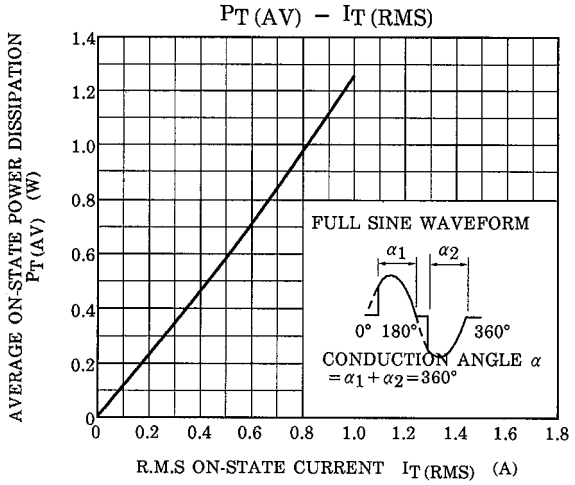
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



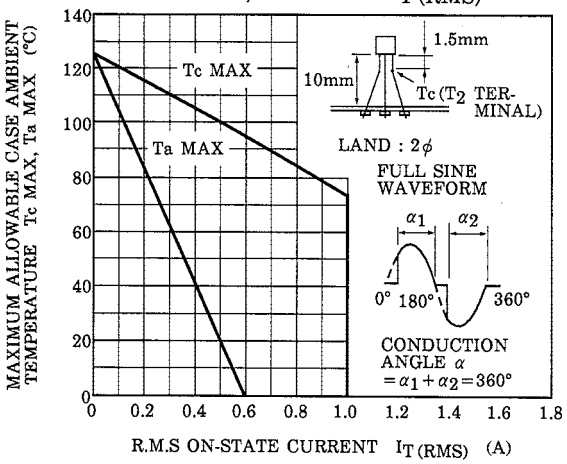
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



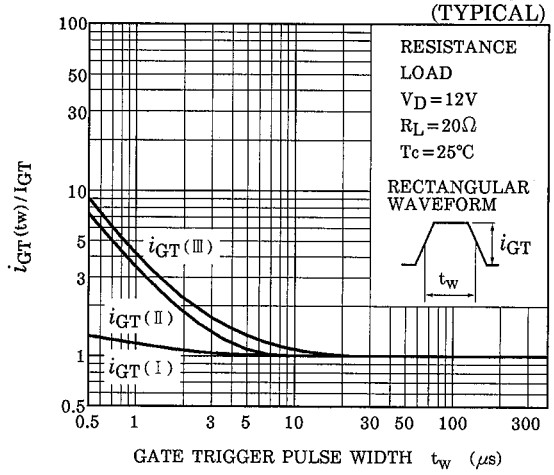
$P_{T(AV)}$ – $I_{T(RMS)}$



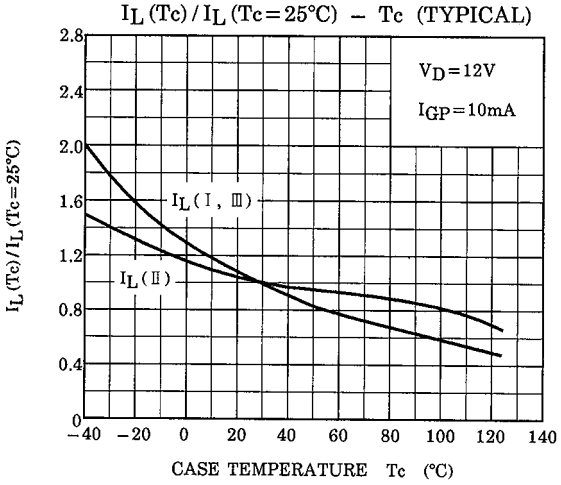
Tc MAX, Ta MAX – $I_{T(RMS)}$



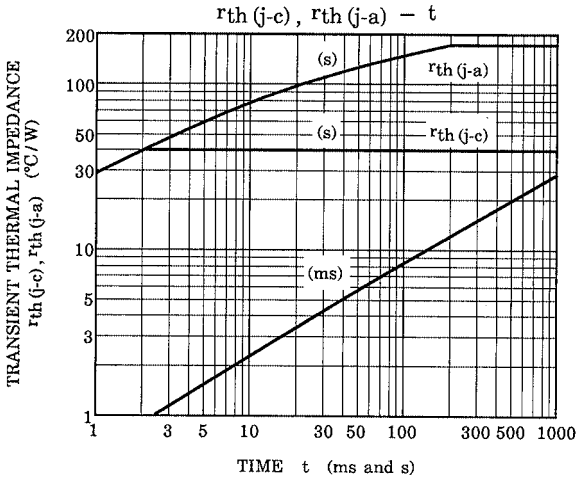
PULSE TRIGGER CHARACTERISTIC (TYPICAL)



$I_{L(Tc)}/I_{L(Tc=25°C)}$ – Tc (TYPICAL)



$r_{th(j-c)}$, $r_{th(j-a)}$ – t



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