

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM2G54, SM2L54

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 800V$
- R.M.S. On-State Current : $I_T (RMS) = 2A$
- High Commutation (dv / dt) : (dv / dt) c = 5V / μs (Min.)

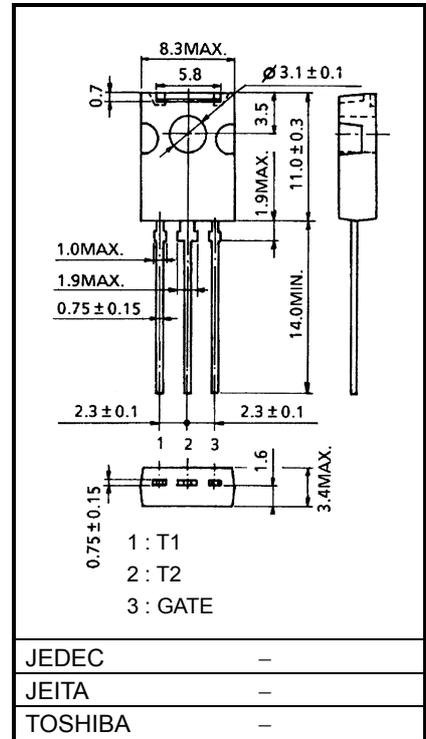
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	800	V
R.M.S. On-State Current (Full Sine Waveform)	$I_T (RMS)$	2	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
Critical Rate of Rise of On-State Current (Note)	di / dt	50	A / μs
Peak Gate Power Dissipation	P_{GM}	3	W
Average Gate Power Dissipation	$P_G (AV)$	0.3	W
Peak Gate Voltage	V_{FGM}	10	V
Peak Gate Current	I_{GM}	1.6	A
Junction Temperature	T_j	-40~125	$^{\circ}C$
Storage Temperature Range	T_{stg}	-40~125	$^{\circ}C$

Note: di / dt test condition

$$V_{DRM} = 400V, I_{TM} \leq 3A, t_{gw} \geq 10\mu s, t_{gr} \leq 250ns, i_{gp} = I_{GT} \times 2.0$$

Unit: mm

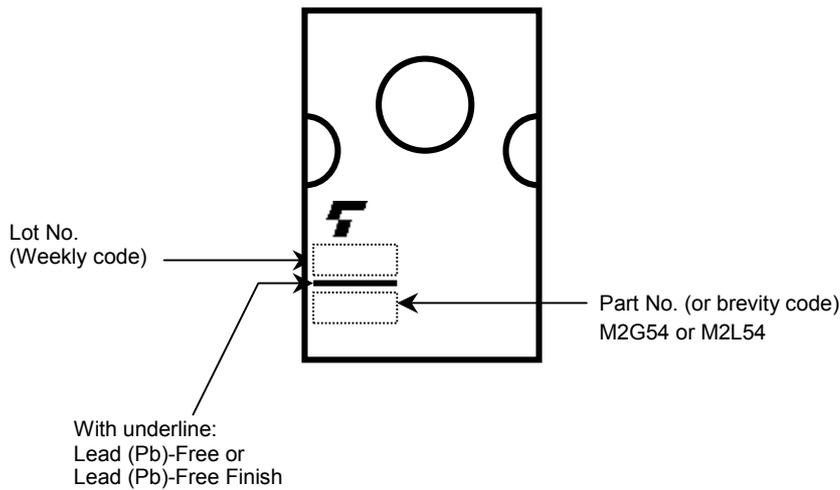


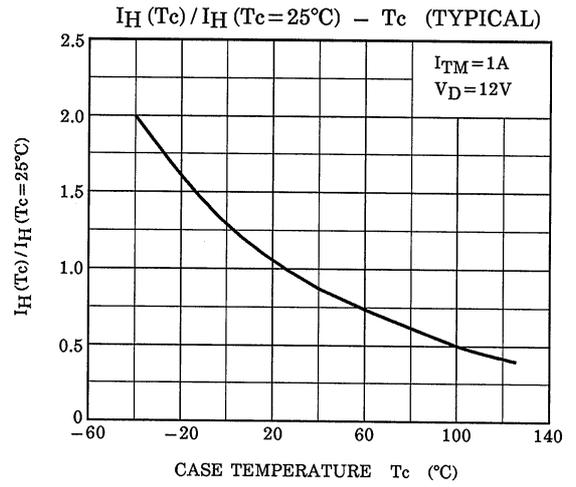
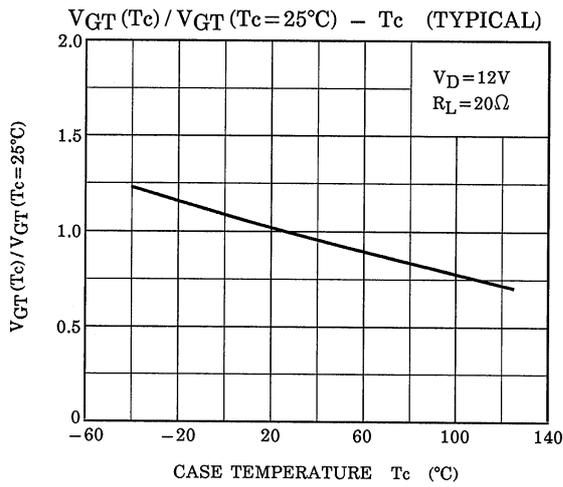
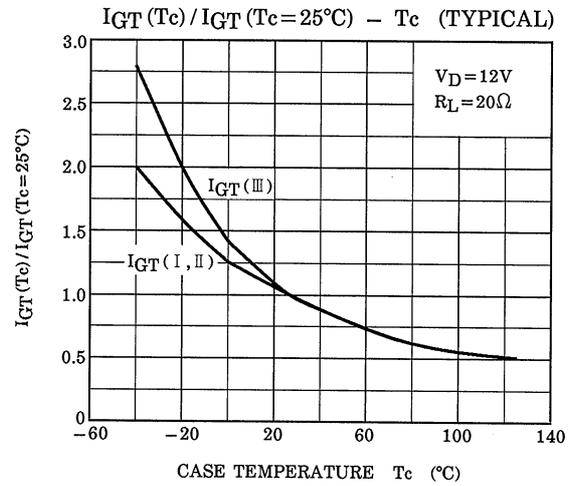
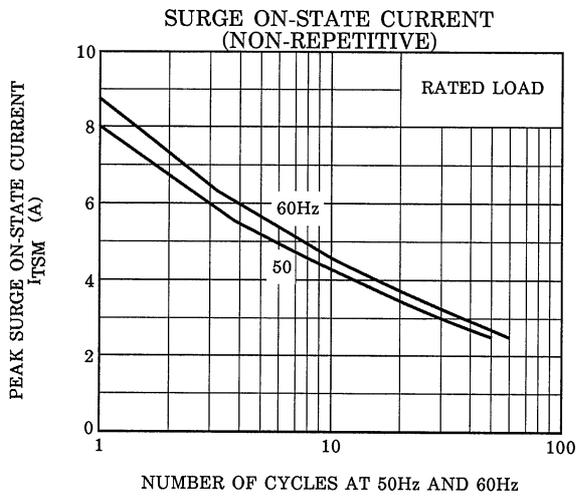
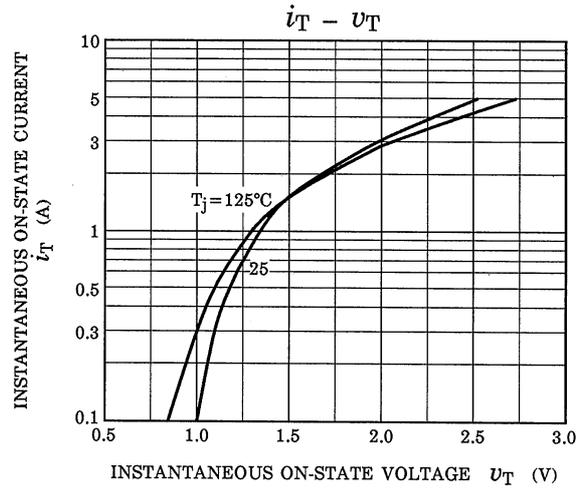
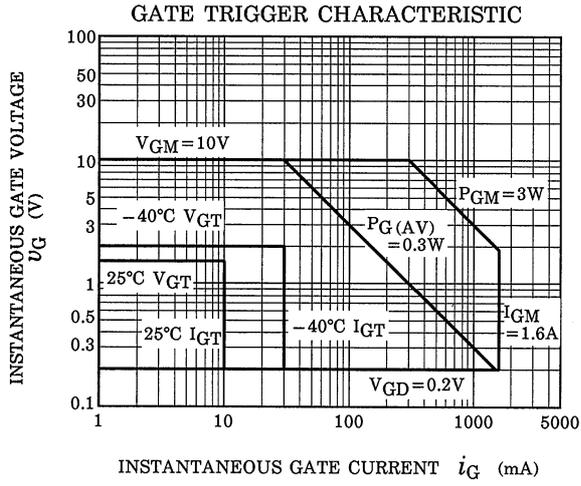
Weight: 0.82g

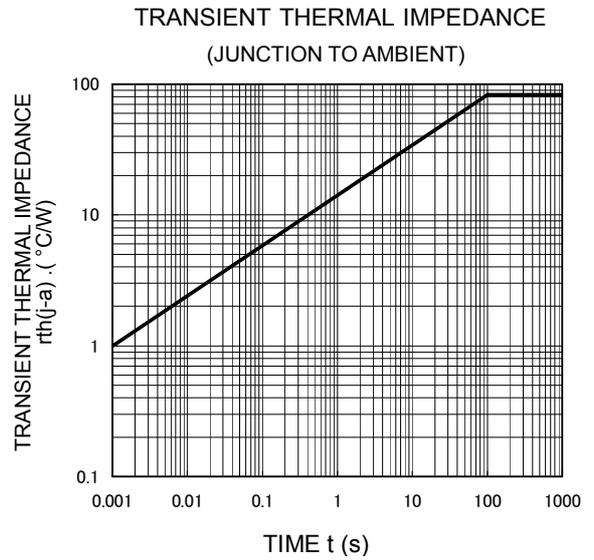
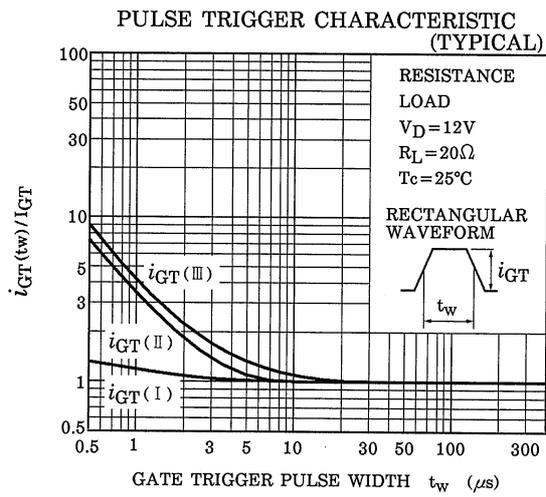
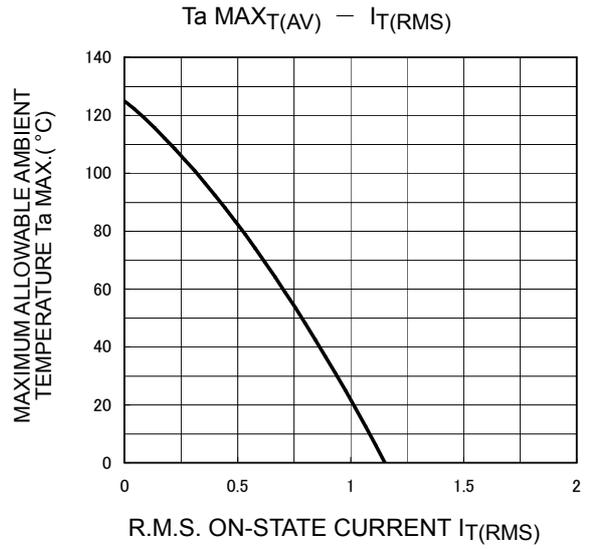
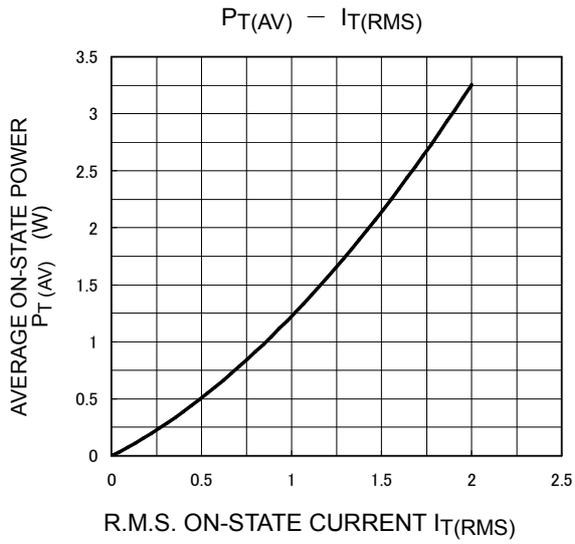
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT				
Repetitive Peak Off-State Current	I_{DRM}	$V_{DRM} = 800V$	–	–	20	μA				
Gate Trigger Voltage	I	$V_D = 12V,$ $R_L = 20\Omega$				V				
	II						T2 (+), Gate (+)	–	–	1.5
	III						T2 (+), Gate (-)	–	–	1.5
Gate Trigger Current	I	$V_D = 12V,$ $R_L = 20\Omega$				mA				
	II						T2 (-), Gate (-)	–	–	1.5
	III						T2 (+), Gate (+)	–	–	10
Peak On-State Voltage	V_{TM}	$I_{TM} = 3A$	–	–	2.0	V				
Gate Non-Trigger Voltage	V_{GD}	$V_D = 800V, T_c = 125^\circ C$	0.2	–	–	V				
Holding Current	I_H	$V_D = 12V, I_{TM} = 1A$	–	–	10	mA				
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient, AC	–	–	83	$^\circ C / W$				
Critical Rate of Rise of Off-State Voltage	dv / dt	$V_{DRM} = 800V, T_j = 125^\circ C$ Exponential Rise	50	–	–	$V / \mu s$				
Critical Rate of Rise of Off-State Voltage at Communication	$(dv / dt)_c$	$V_{DRM} = 400V, T_j = 80^\circ C$ $(di / dt)_c = -0.5A / ms$	5	–	–	$V / \mu s$				

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