

TOSHIBA THYRISTOR SILICON PLANAR TYPE

S6744

MEDIUM POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400V$
Repetitive Peak Reverse Voltage : $V_{RRM} = 400V$
- Average On-State Current : $I_T (AV) = 8A$
- Large Current Pulse Capability

ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	V_{DRM} V_{RRM}	400	V
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, $T_j = 0 \sim 125^\circ C$)	V_{RSM}	500	V
Average On-State Current (Half Sine Waveform $T_c = 72^\circ C$)	$I_T (AV)$	8	A
R.M.S On-State Current	$I_T (RMS)$	12.6	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	200 (50Hz) 220 (60Hz)	A
$I^2 t$ Limit Value	$I^2 t$	200	$A^2 s$
Repetitive Peak Surge On-State Current (Note 1)	I_{TRM}	1300	A
Critical Rate of Rise of On-State Current (Note 2)	di/dt	100	A / μs
Peak Gate Power Dissipation	P_{GM}	5	W
Average Gate Power Dissipation	$P_G (AV)$	0.5	W
Peak Forward Gate Voltage	V_{FGM}	10	V
Peak Reverse Gate Voltage	V_{RGM}	-5	V
Peak Forward Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	$^\circ C$
Storage Temperature Range	T_{stg}	-40~125	$^\circ C$

Note 1: $C_M \leq 500\mu F$, $t_w \leq 300\mu s$, $V_D \leq 350V$

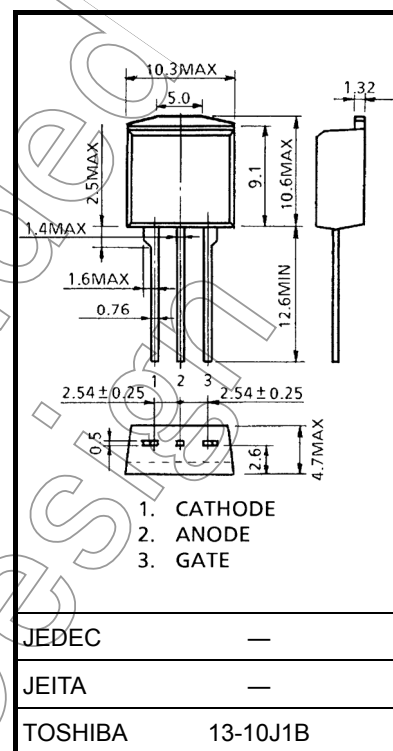
Note 2: di/dt Test condition

$V_{DRM} = 0.5 \times \text{Rated}$, $I_{TM} \leq 25A$, $t_{gw} \geq 10\mu s$, $t_{gr} \leq 250ns$, $i_{gp} = I_{GT} \times 2.0$

Note 3: 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).

Unit: mm

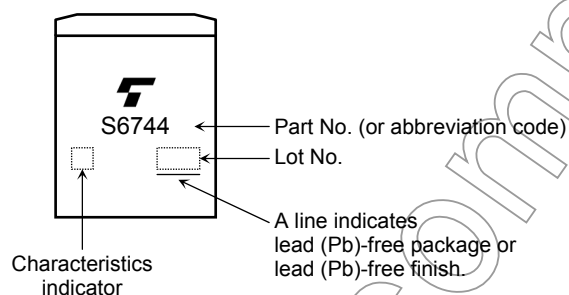


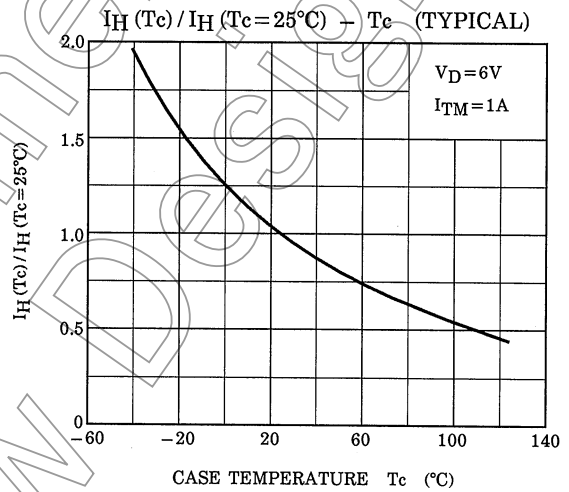
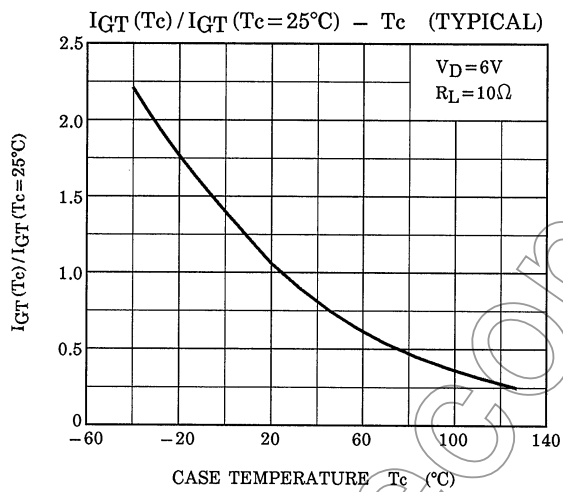
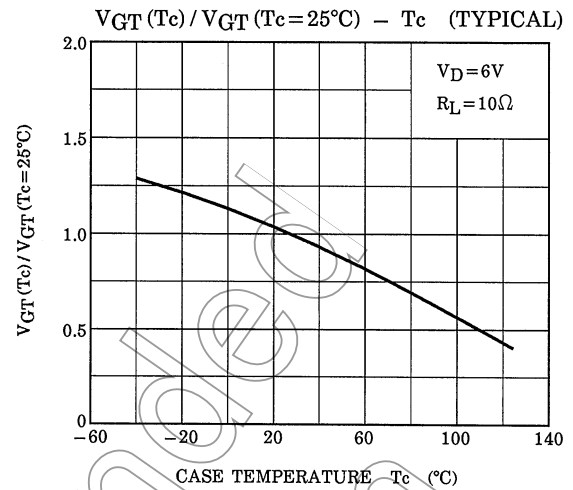
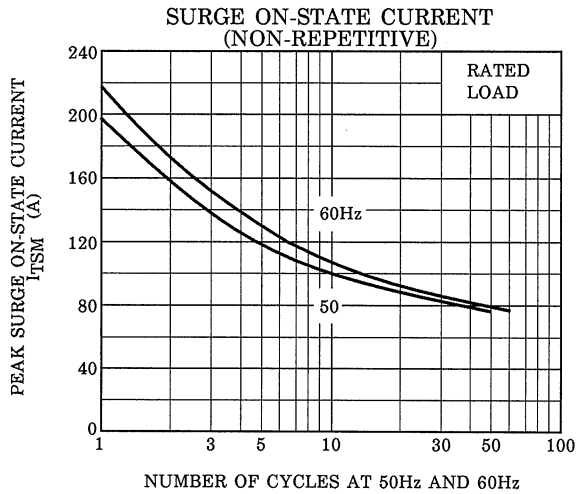
Weight: 1.7 g (typ.)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	μA
Peak On-State Voltage	V_{TM}	$I_{TM} = 25\text{A}$	—	—	1.5	V
Gate Trigger Voltage	V_{GT}	$V_D = 6\text{V}, R_L = 10\Omega$	—	—	1.0	V
Gate Trigger Current	I_{GT}		—	—	20	mA
Gate Non-Trigger Voltage	V_{GD}	$V_D = \text{Rated} \times 2 / 3, T_c = 125^\circ\text{C}$	0.2	—	—	V
Critical Rate of Rise of Off-State Voltage	dv / dt	$V_{DRM} = \text{Rated}, T_c = 125^\circ\text{C}, \text{Exponential Rise}$	—	50	—	V / μs
Holding Current	I_H	$V_D = 6\text{V}, I_{TM} = 1\text{A}$	—	—	40	mA
Latching Current	I_L	$V_D = 6\text{V}, f = 50\text{Hz}, t_{gw} = 100\mu\text{s}, i_G = 40\text{mA}$	—	—	60	mA
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient	—	—	70	$^\circ\text{C} / \text{W}$

MARKING





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