

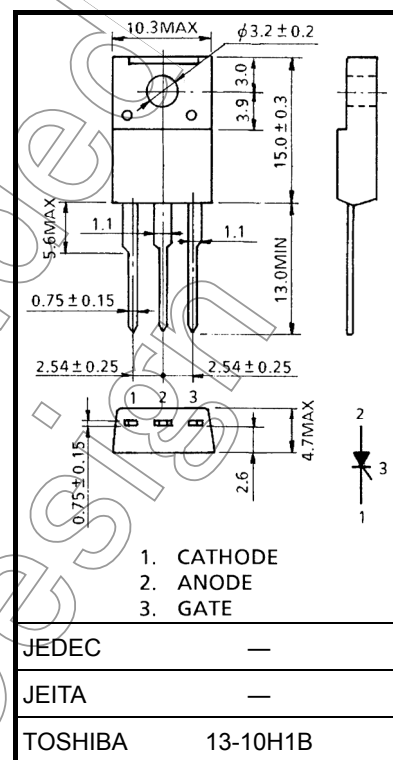
S6785G

HIGH SPEED SWITCHING AND CONTROL
APPLICATIONS

Unit: mm

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, $T_j = 0 \sim 125^\circ\text{C}$)	V_{RSM}	500	V
Average On-State Current (Half Sine Waveform)	$I_T (AV)$	3	A
R.M.S On-State Current	$I_T (RMS)$	4.7	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	60 (50Hz) 66 (60Hz)	A
I^2t Limit Value	I^2t	18	A^2s
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}	-6	V
Peak Forward Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40~125	$^\circ\text{C}$



Weight: 1.7 g (typ.)

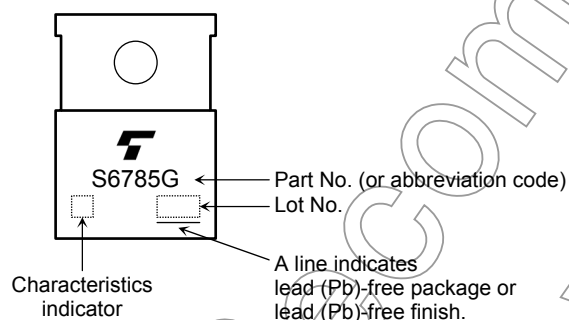
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

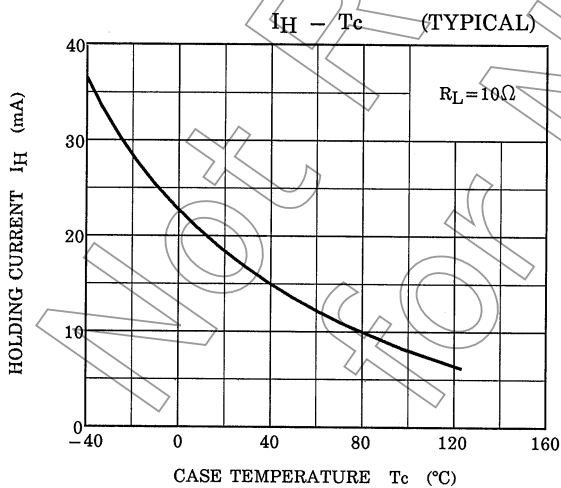
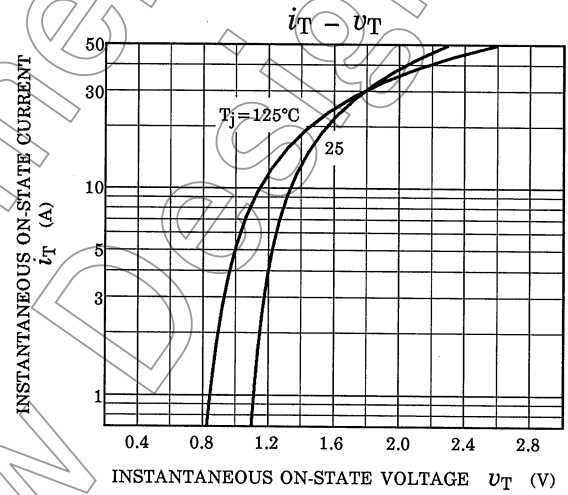
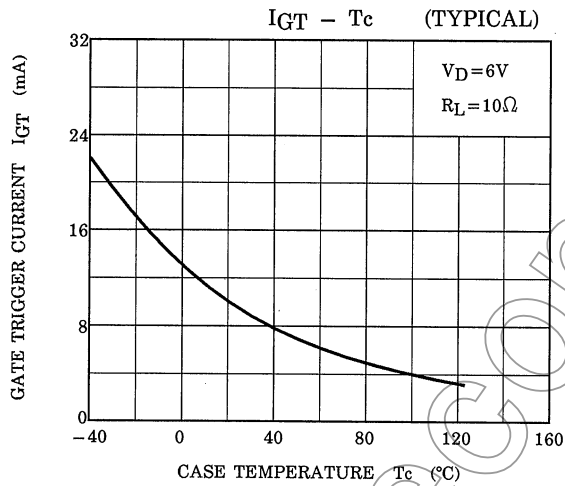
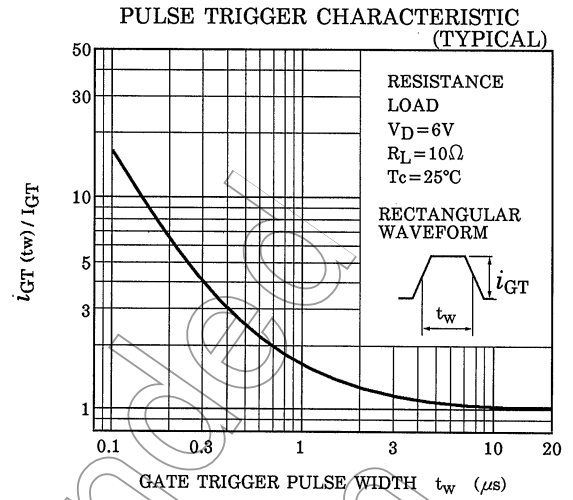
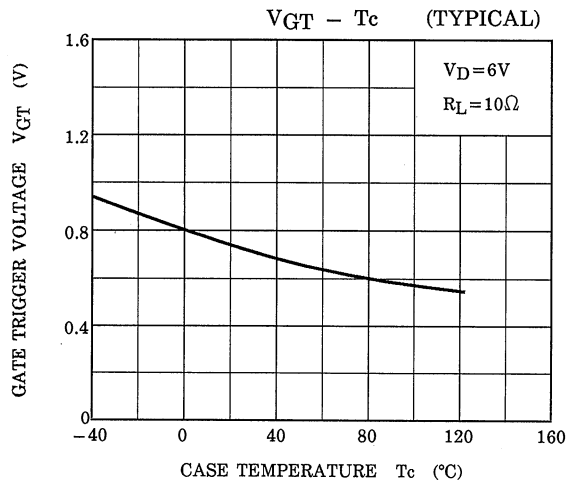
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	MAX.	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I_{DRM}	$V_{DRM} = V_{RRM} = \text{Rated}, T_j = 125^\circ\text{C}$	—	1.0	mA
	I_{RRM}		—	2.0	
Peak On-State Voltage	V_{TM}	$I_{TM} = 20\text{A}$	—	2.0	V
Gate Trigger Voltage	V_{GT}	$V_D = 6\text{V}, R_L = 10\Omega$	—	1.5	V
Gate Trigger Current	I_{GT}		—	25.0	mA
Gate Non-Trigger Voltage	V_{GD}	$V_D = \text{Rated}, T_c = 100^\circ\text{C}$	0.2	—	V
Gate Non-Trigger Current	I_{GD}		0.2	—	mA
Turn-On Time	t_{gt}	$V_D = \text{Rated}, I_{TM} = 3\text{A}, I_G = 120\text{mA}, t_{gr} < 1\mu\text{s}$	—	3.0	μs
Turn-Off Time	t_q	$V_D = \text{Rated}, I_{TM} = 20\text{A}, V_G = -2.5\text{V}, dv/dt \geq 100\text{V}/\mu\text{s}, T_c = 90^\circ\text{C}$	—	3.5	μs
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_D = \text{Rated}, R_{GK} = 100\Omega, V_G = -2.5\text{V}, T_c = 125^\circ\text{C}, \text{Exponential Rise}$	100	—	V / μs
Holding Current	I_H	$R_L = 10\Omega$	—	80.0	mA
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, DC	—	4.0	$^\circ\text{C} / \text{W}$

MARKING





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20070701-EN

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