

TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF25GZ51, SF25JZ51

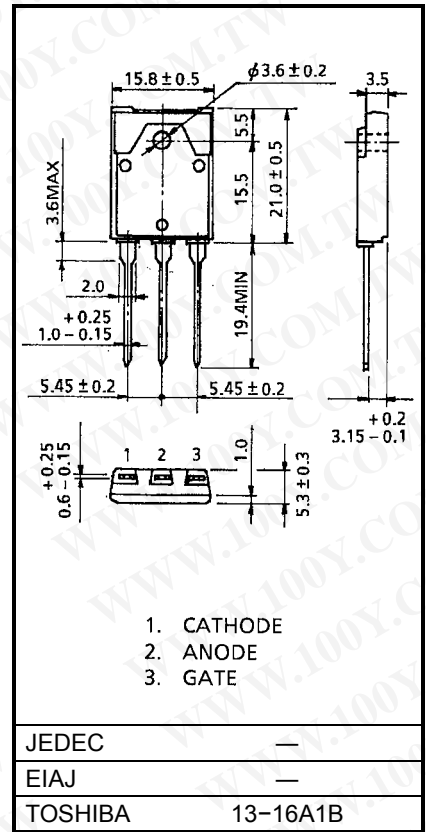
Unit in mm

MEDIUM POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400, 600 \text{ V}$
 Repetitive Peak Reverse Voltage : $V_{RRM} = 400, 600 \text{ V}$
- Average On-State Current : $I_T(AV) = 25 \text{ A}$
- Isolation Voltage : $V_{Isol} = 1500 \text{ V AC}$

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF25GZ51	V_{DRM} V_{RRM}	400	V
	SF25JZ51		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5 ms, $T_j = 0\sim 125^\circ\text{C}$)	SF25GZ51	V_{RSM}	500	V
	SF25JZ51		720	
Average On-State Current (Half Sine Waveform)		$I_T(AV)$	25	A
R.M.S On-State Current		$I_T(RMS)$	39	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	350 (50 Hz)	A
			385 (60 Hz)	
I^2t Limit Value		I^2t	612	A^2s
Critical Rate of Rise of On-State Current (Note)		di/dt	100	$\text{A}/\mu\text{s}$
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	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40~125	$^\circ\text{C}$
Isolation Voltage (AC, $t = 1 \text{ min.}$)		V_{Isol}	1500	V



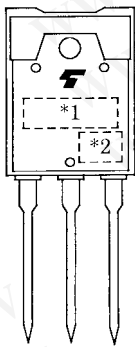
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Note : di/dt Test Condition, $I_G = 30\text{mA}$, $t_{gw} = 10\mu\text{s}$, $t_{gr} \leq 250\text{ns}$

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} = Rated	—	—	20	μA
Peak On-State Voltage	V _{TM}	I _{TM} = 80 A	—	—	1.5	V
Gate Trigger Voltage	V _{GT}	V _D = 6 V, R _L = 10 Ω	—	—	1.5	V
Gate Trigger Current	I _{GT}		—	—	20	mA
Holding Current	I _H	V _D = 6 V, I _{TM} = 500 mA	—	—	100	mA
Critical Rate of Rise of Off-State Voltage	dv / dt	V _{DRM} = Rated, T _c = 125°C Exponential Rise	—	50	—	V / μs
Thermal Resistance	R _{th(j-c)}	Junction to Case	—	—	1.3	°C / W

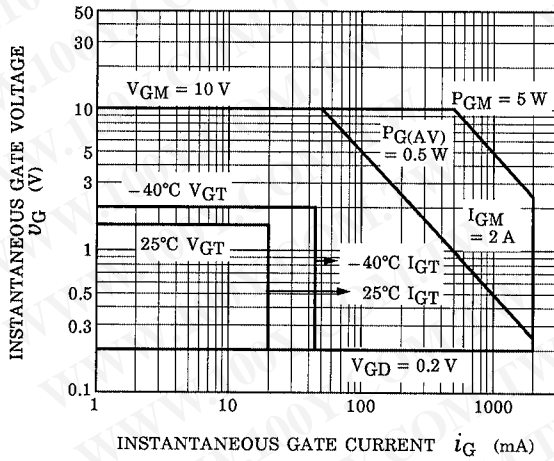
MARKING



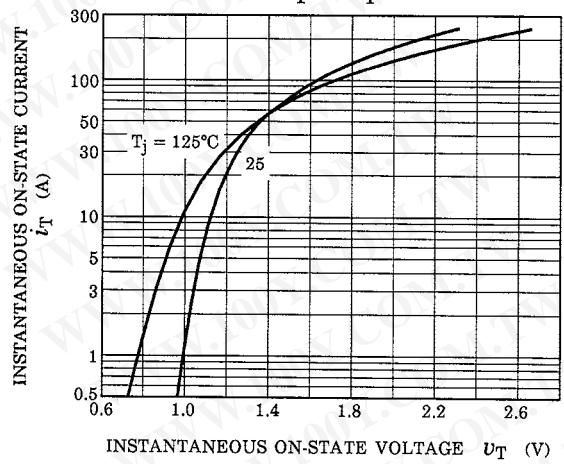
NUMBER	SYMBOL		MARK
*1	TYPE	SF25GZ51	F25GZ51
		SF25JZ51	F25JZ51
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Year of Manufacture)		Example 8A : January 1998 8B : February 1998 8L : December 1998

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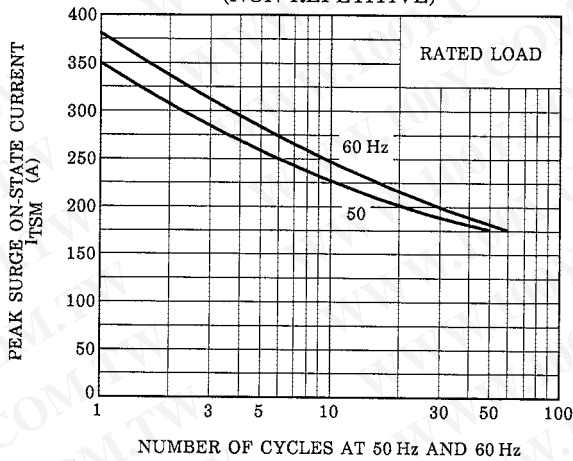
GATE TRIGGER CHARACTERISTIC



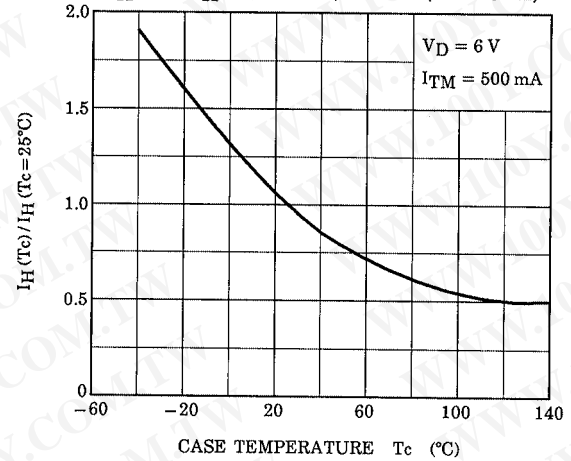
$i_T - u_T$



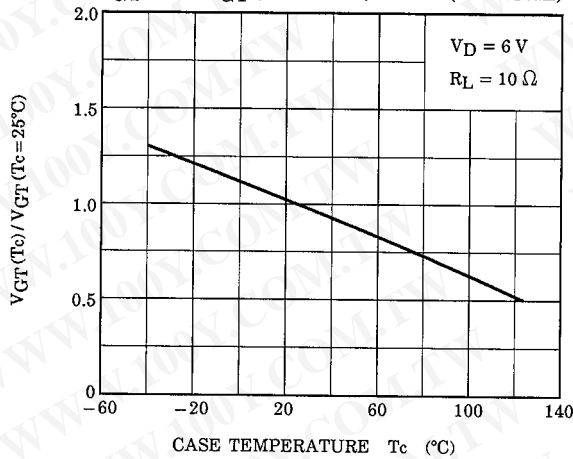
SURGE ON-STATE CURRENT (NON-REPETITIVE)



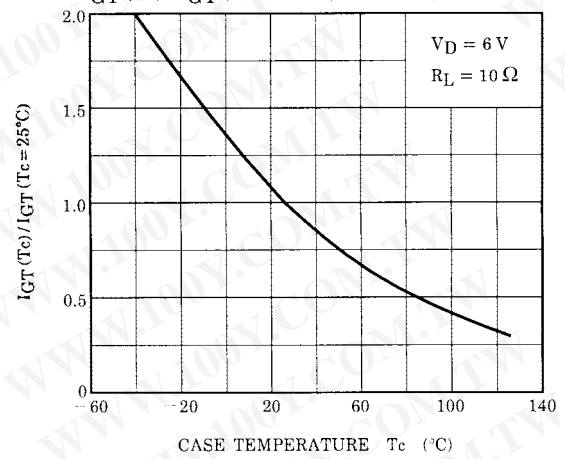
$I_H(T_c) / I_H(T_c = 25^\circ\text{C}) - T_c$ (TYPICAL)



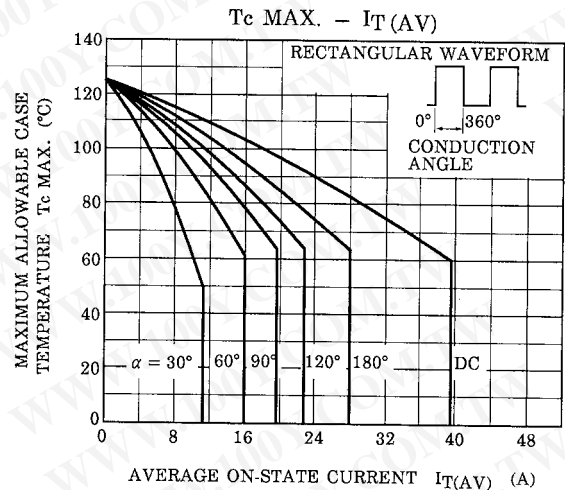
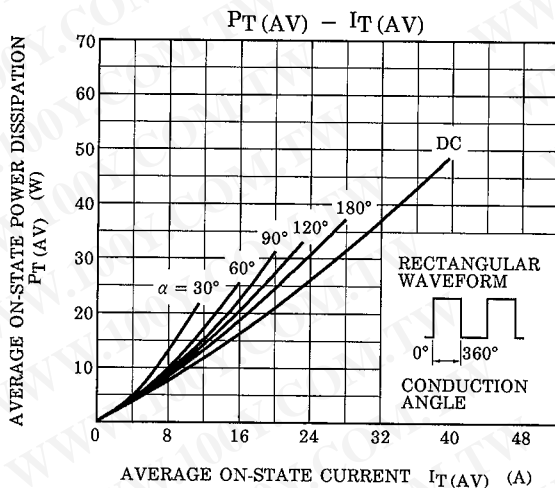
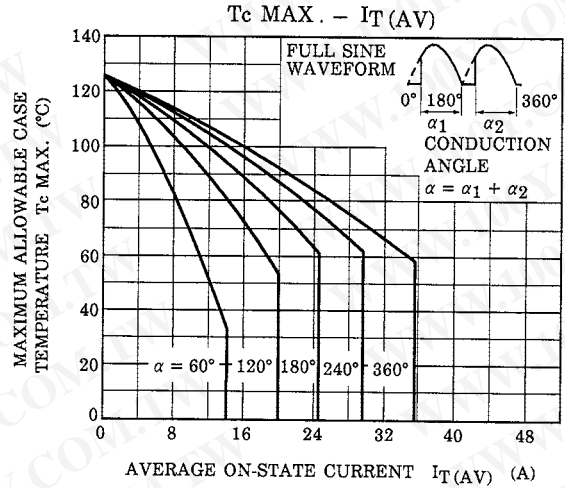
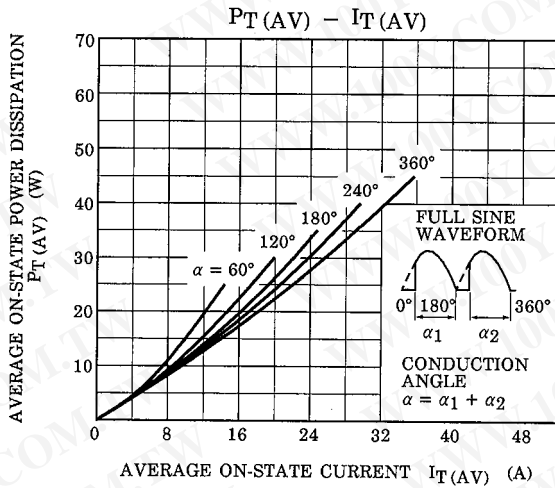
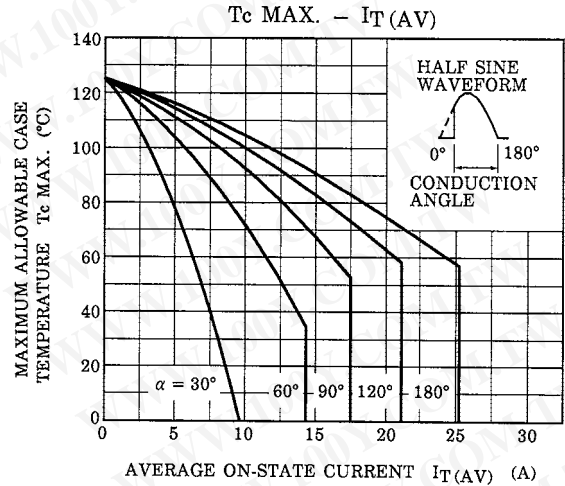
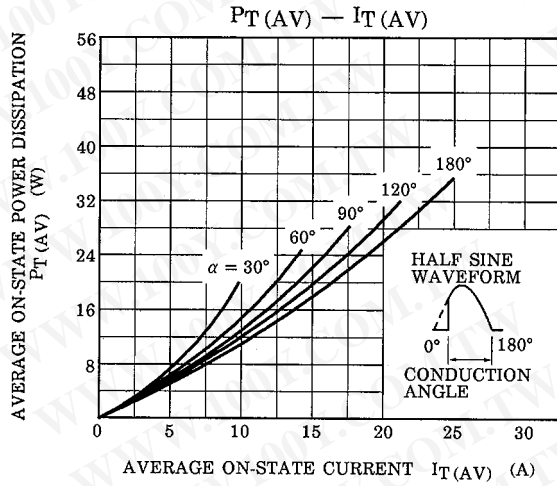
$V_{GT}(T_c) / V_{GT}(T_c = 25^\circ\text{C}) - T_c$ (TYPICAL)



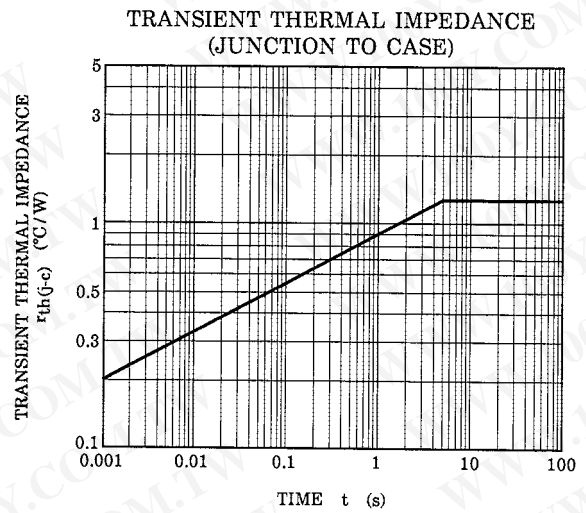
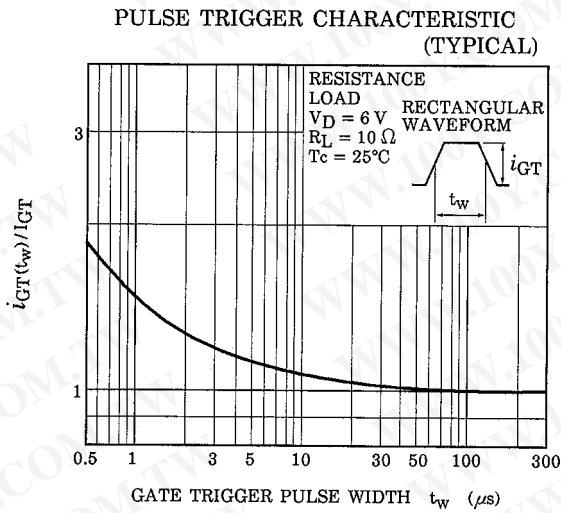
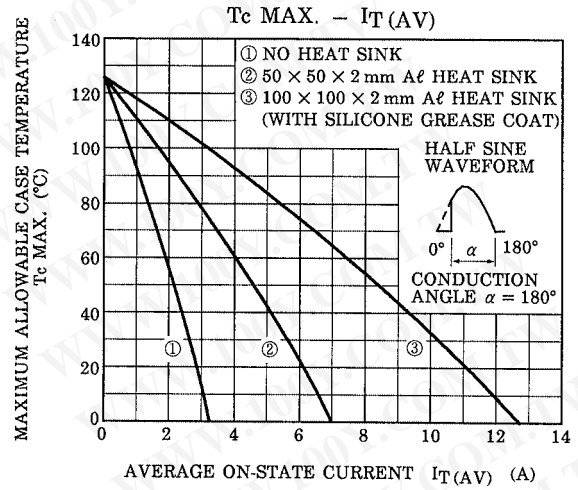
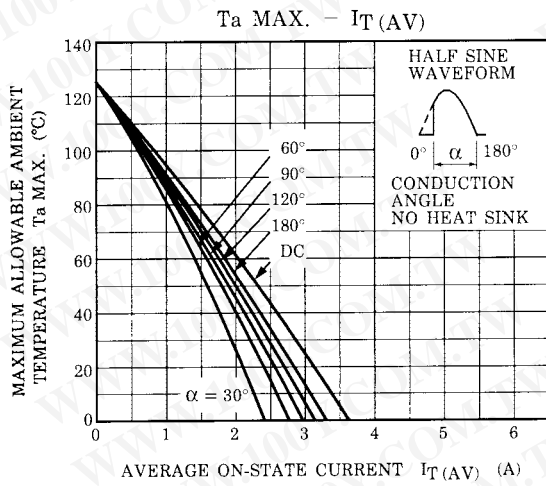
$I_{GT}(T_c) / I_{GT}(T_c = 25^\circ\text{C}) - T_c$ (TYPICAL)



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