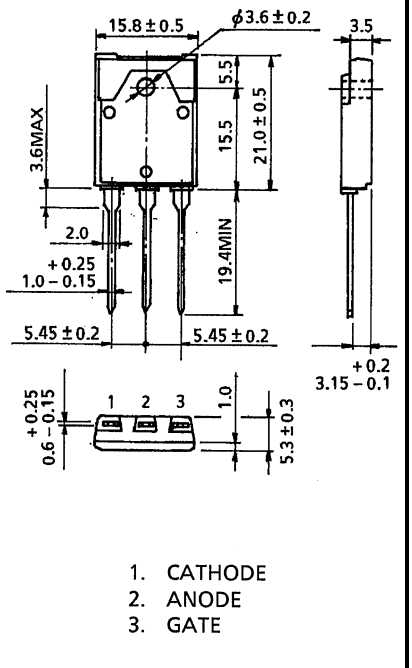
TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF25GZ51,SF25JZ51

MEDIUM POWER CONTROL APPLICATIONS

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

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	13−16A1B

Weight : 5.9g

MAXIMUM RATINGS

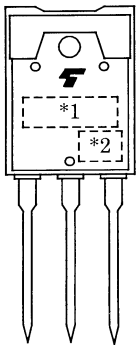
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off−State Voltage and Repetitive Peak Reverse Voltage	SF25GZ51	V_{DRM} V_{RRM}	400	V
	SF25JZ51		600	
Non−Repetitive Peak Reverse Voltage (Non−Repetitive < 5 ms, T_j = 0~125°C)	SF25GZ51	V_{RSM}	500	V
	SF25JZ51		720	
Average On−State Current (Half Sine 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	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	°C
Storage Temperature Range		T_{stg}	−40~125	°C
Isolation Voltage (AC, t = 1 min.)		V_{Isol}	1500	V

Note : di / dt Test Condition, i_G = 30mA, t_{gw} = 10μs, t_{gr} ≤ 250ns

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

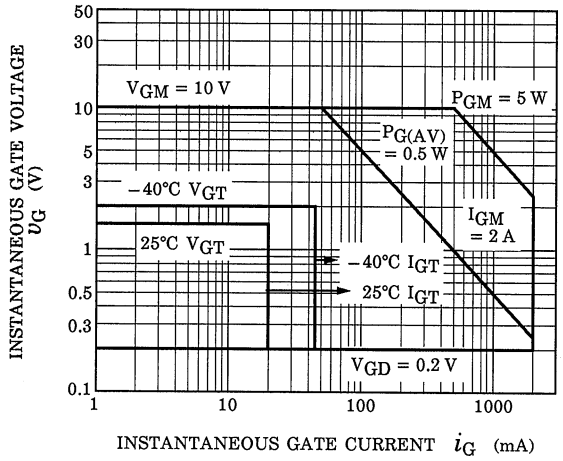
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Repetitive Peak Off−State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	V_{DRM} = V_{RRM} = Rated	—	—	20	μA
Peak On−State Voltage	V_{TM}	I_{TM} = 80 A	—	—	1.5	V
Gate Trigger Voltage	V_{GT}	V_D = 6 V, R_L = 10 Ω	—	—	1.5	V
Gate Trigger 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, Tc = 125°C Exponential Rise	—	50	—	V / μs
Thermal Resistance	$R_{th\ (j-c)}$	Junction to Case	—	—	1.3	°C / W

MARKING

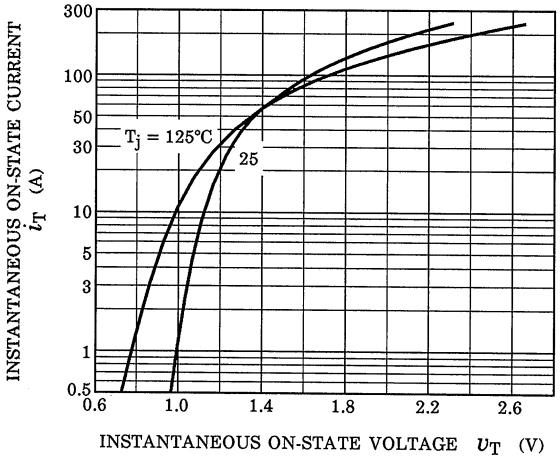


NUMBER	SYMBOL		MARK
*1	TYPE	SF25GZ51	F25GZ51
		SF25JZ51	F25JZ51
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Year of Manufacture)		Example 8A : January 1998 8B : February 1998 8L : December 1998

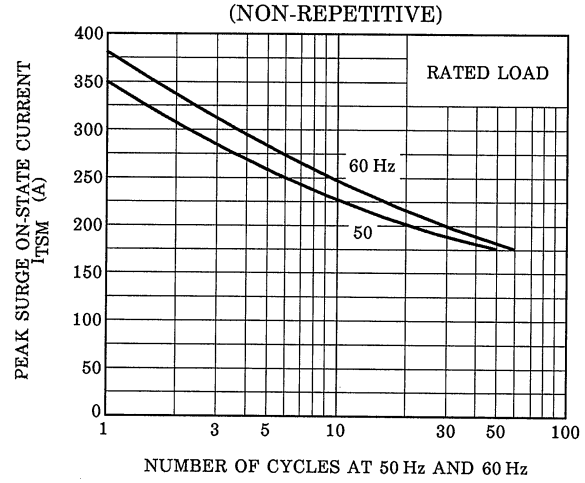
GATE TRIGGER CHARACTERISTIC



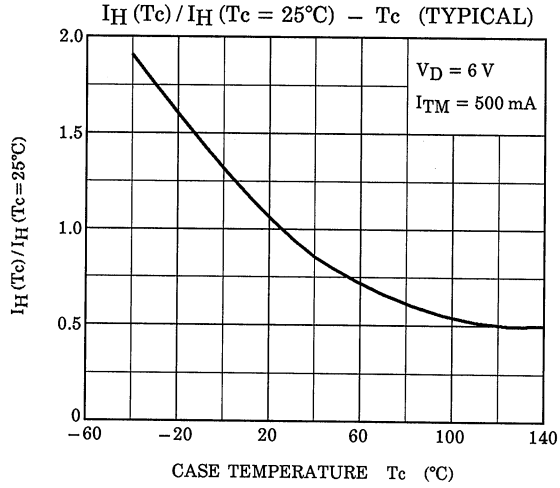
$i_T - v_T$



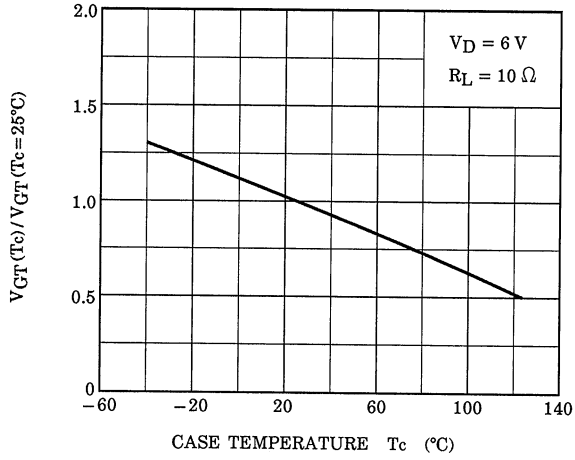
SURGE ON-STATE CURRENT
(NON-REPETITIVE)



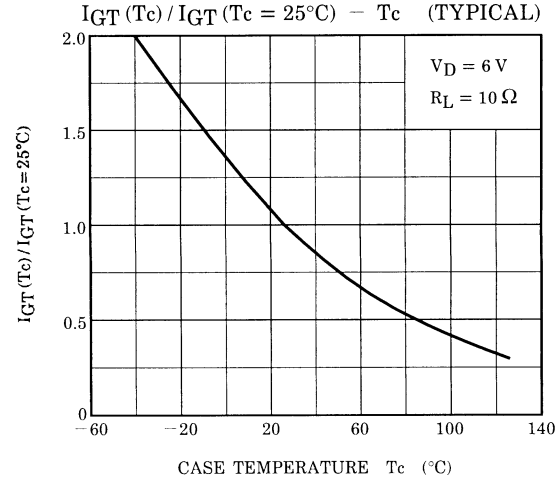
I_H (Tc) / I_H (Tc = 25°C) − Tc (TYPICAL)



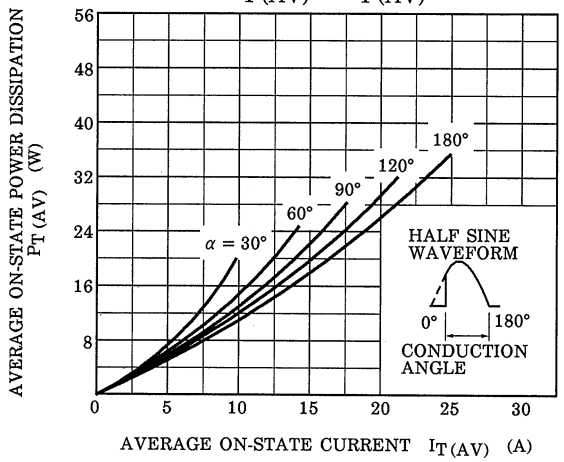
V_{GT} (Tc) / V_{GT} (Tc = 25°C) − Tc (TYPICAL)



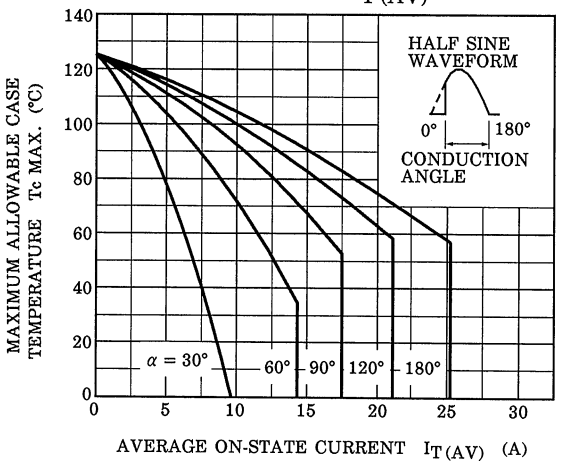
I_{GT} (Tc) / I_{GT} (Tc = 25°C) − Tc (TYPICAL)



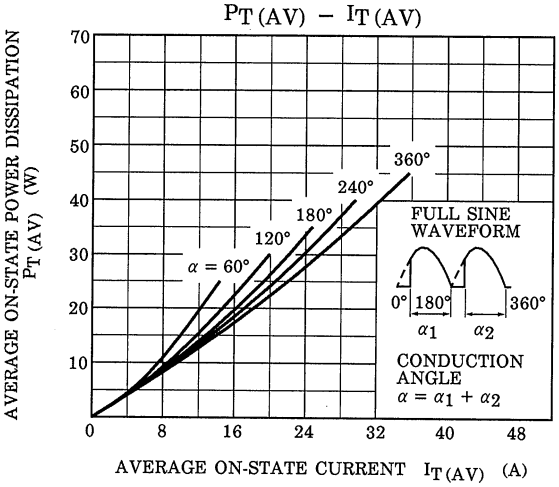
$P_{T(AV)}$ — $I_{T(AV)}$



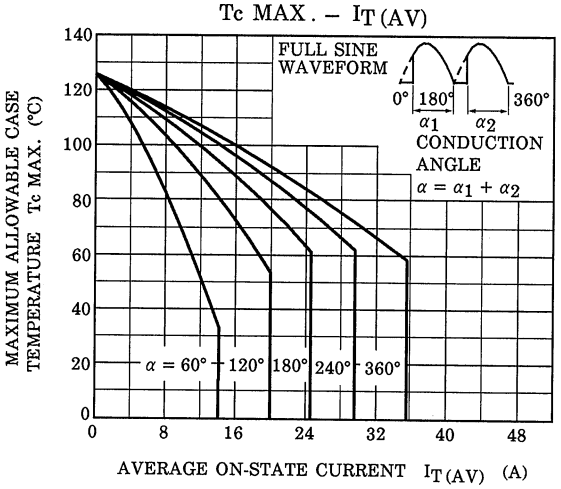
Tc MAX. – $I_{T(AV)}$



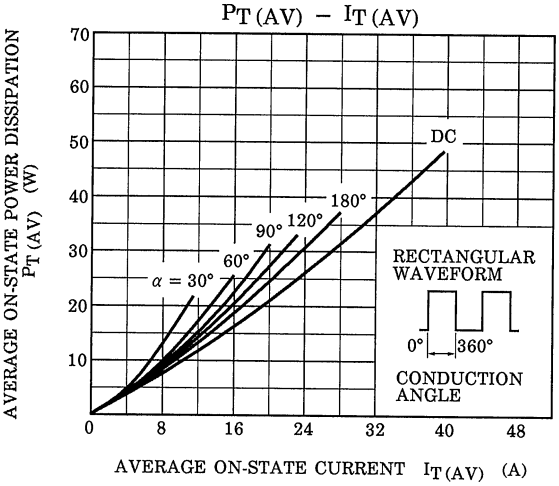
$P_{T(AV)}$ – $I_{T(AV)}$



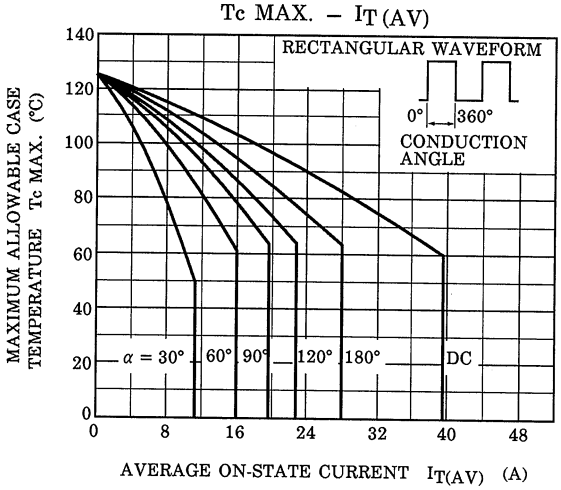
Tc MAX. – $I_{T(AV)}$



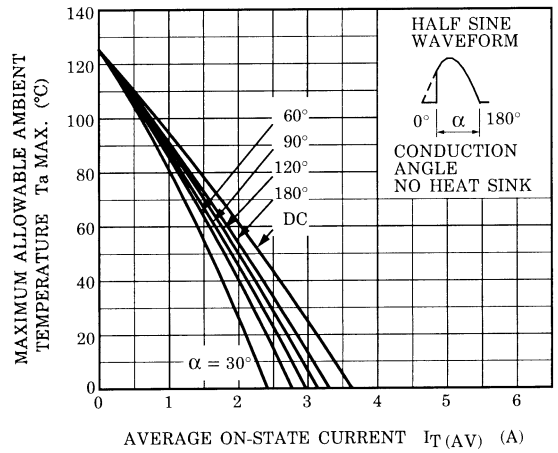
$P_{T(AV)}$ – $I_{T(AV)}$



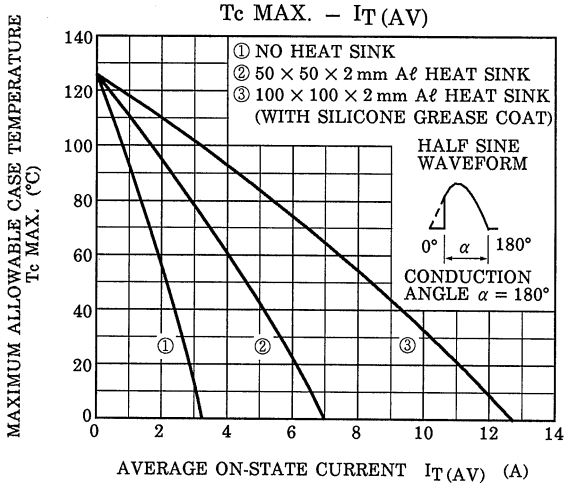
Tc MAX. – $I_{T(AV)}$



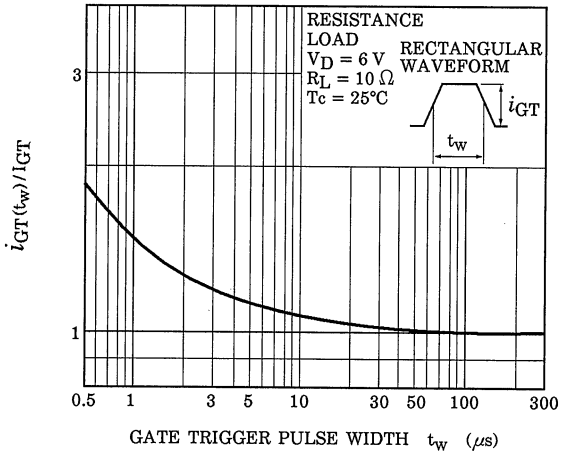
Ta MAX. – $I_{T(AV)}$



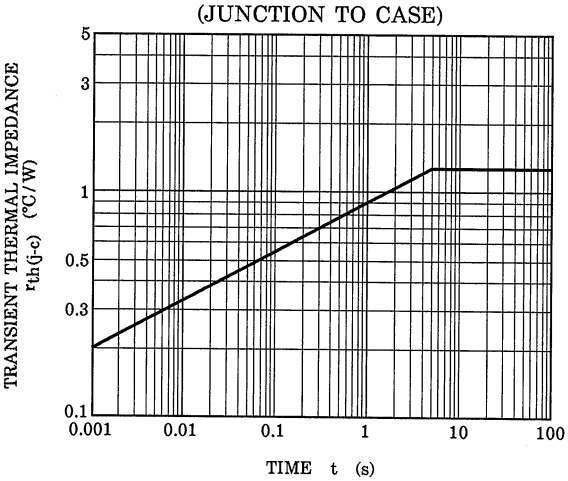
Tc MAX. – $I_{T(AV)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



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