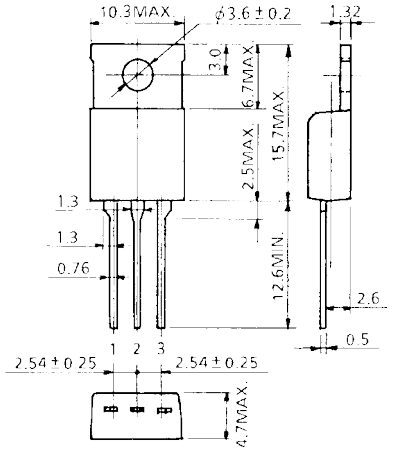
TOSHIBA THYRISITOR SILICON PLANAR TYPE

SF5G42,SF5J42

Unit: mm

MEDIUM POWER CONTROL APPLICATIONS

- Repetitive Peak Off−State Voltage : V_{DRM} = 400, 600V
  Repetitive Peak Reverse Voltage : V_{RRM} = 400, 600V
- Average On−State Current : $I_{T(AV)}$ = 5A
- JEDEC TO−220AB Package.



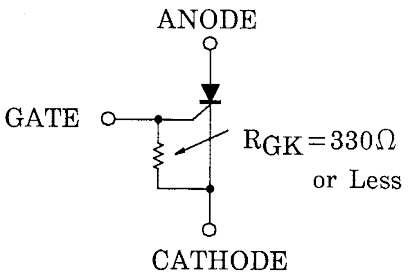
JEDEC	TO−220AB
JEITA	—
TOSHIBA	13−10G1B

Weight: 2g

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off−State Voltage and Repetitive Peak Reverse Voltage (RGK = 330Ω)	SF5G42	V_{DRM} V_{RRM}	400	V
	SF5J42		600	
Non−Repetitive Peak Reverse Voltage (Non−Repetitive<5ms, Tj = 0~125°C, RGK = 330Ω)	SF5G42	V_{RSM}	500	V
	SF5J42		720	
Average On−State Current (Half Sine Waveform Tc = 91°C)		$I_{T\ (AV)}$	5	A
R.M.S On−State Current		$I_{T\ (RMS)}$	7.8	A
Peak One Cycle Surge On−State Current (Non−Repetitive)		I_{TSM}	80 (50Hz)	A
			88 (60Hz)	
I^2t Limit Value		I^2t	32	A^2s
Peak Gate Power Dissipation		P_{GM}	0.5	W
Average Gate Power Dissipation		$P_{G\ (AV)}$	0.05	W
Peak Forward Gate Voltage		V_{FGM}	5	V
Peak Reverse Gate Voltage		V_{RGM}	−5	V
Peak Forward Gate Current		I_{GM}	200	mA
Junction Temperature		T_j	−40~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C

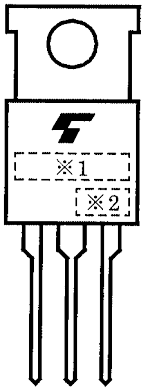
Note: Should be used with gate resistance as follows.



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

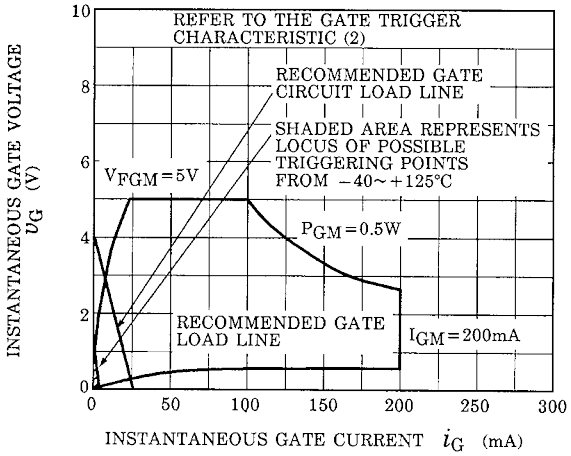
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off−State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	V_{DRM} = V_{RRM} = Rated T_j = 125°C, R_{GK} = 330Ω	—	—	2	mA
Peak On−State Voltage	V_{TM}	I_{TM} = 15A	—	—	1.6	V
Gate Trigger Voltage	V_{GT}	V_D = 6V, R_L = 100Ω R_{GK} = 330Ω	—	—	0.8	V
Gate Trigger Current	I_{GT}		—	—	200	μA
Gate Non−Trigger Voltage	V_{GD}	V_D = Rated × 2 / 3, Tc = 125°C	0.2	—	—	V
Critical Rate of Rise of Off−State Voltage	dv / dt	V_{DRM} = Rated × 2 / 3, Tc = 75°C R_{GK} = 330Ω, Exponential Rise	—	50	—	V / μs
Holding Current	I_H	R_L = 100Ω, R_{GK} = 330Ω	—	4	—	mA
Thermal Resistance	$R_{th\ (j-c)}$	Junction to Case	—	—	3	°C / W

MARKING

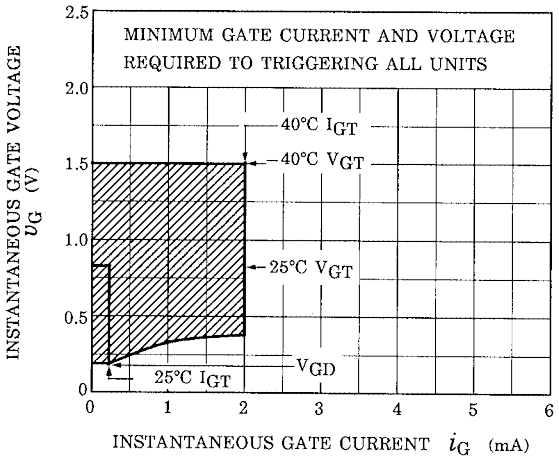


NUMBER	SYMBOL		MARK
*1	TYPE	SF5G42	SF5G42
		SF5J42	SF5J42
*2	Lot Number □ □ Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998

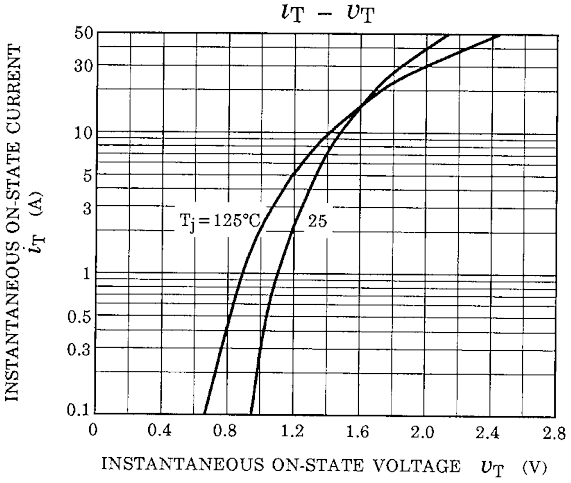
GATE TRIGGER CHARACTERISTIC (1)



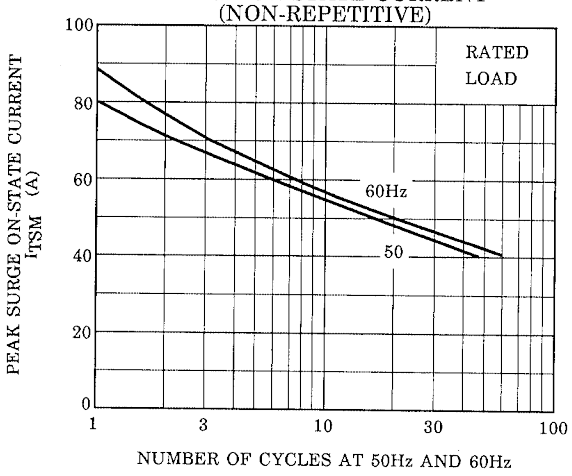
GATE TRIGGER CHARACTERISTIC (2)



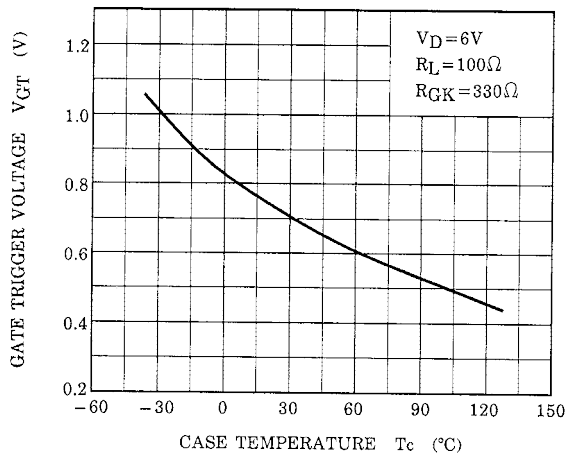
iT − vT



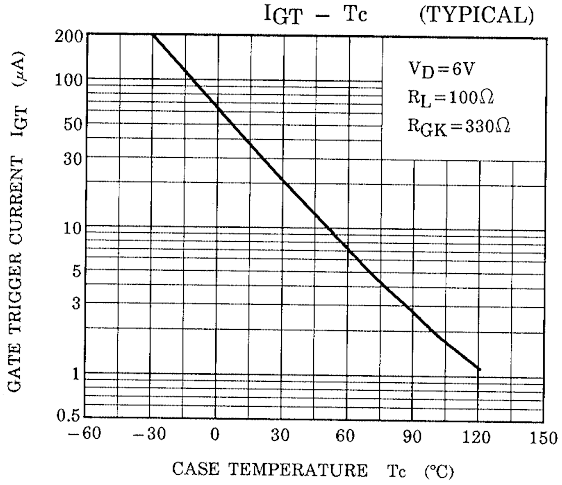
SURGE ON-STATE CURRENT (NON-REPETITIVE)



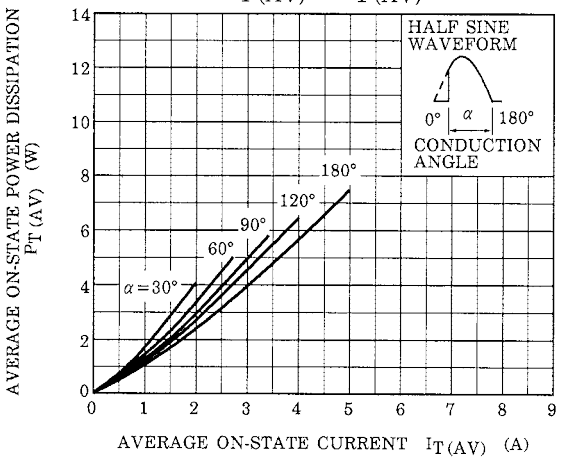
VGT − Tc (TYPICAL)



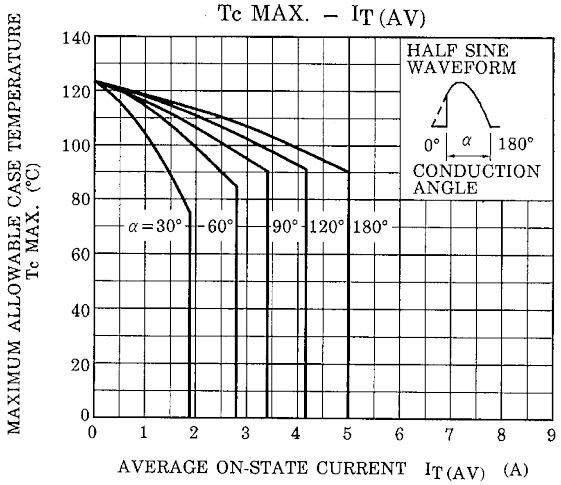
IGT − Tc (TYPICAL)



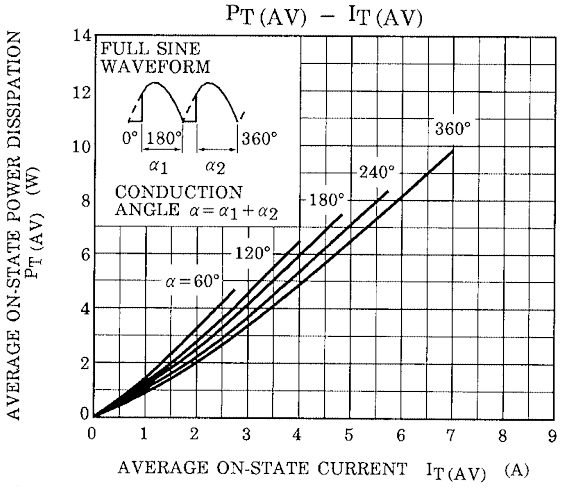
$P_{T(AV)} - I_{T(AV)}$



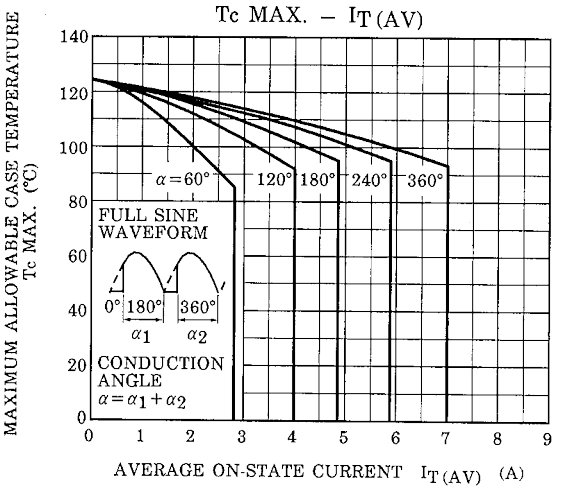
T_C MAX. $- I_{T(AV)}$



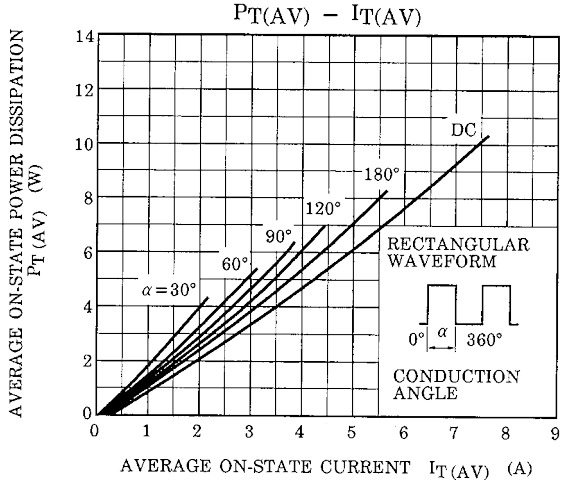
$P_{T(AV)} - I_{T(AV)}$



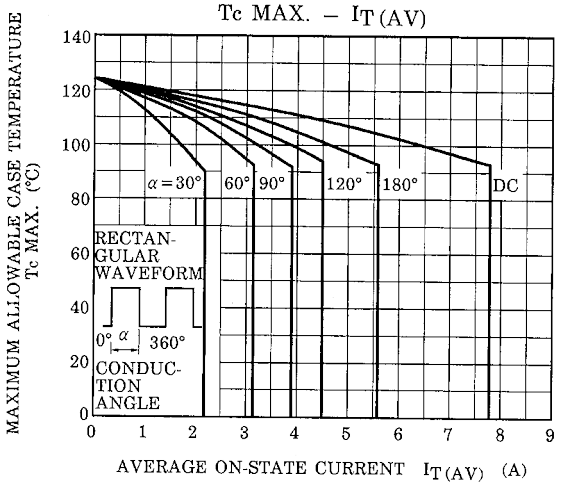
T_C MAX. $- I_{T(AV)}$



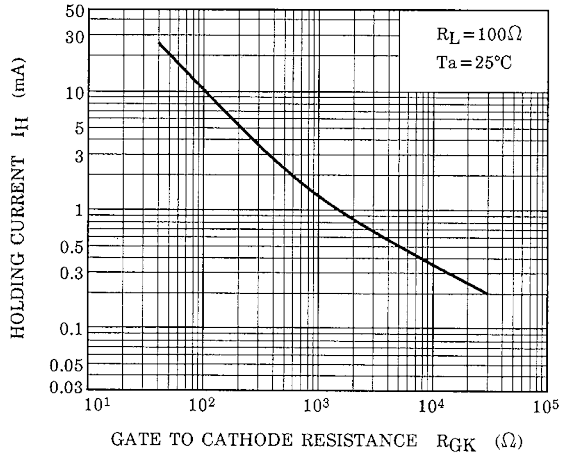
$P_{T(AV)} - I_{T(AV)}$



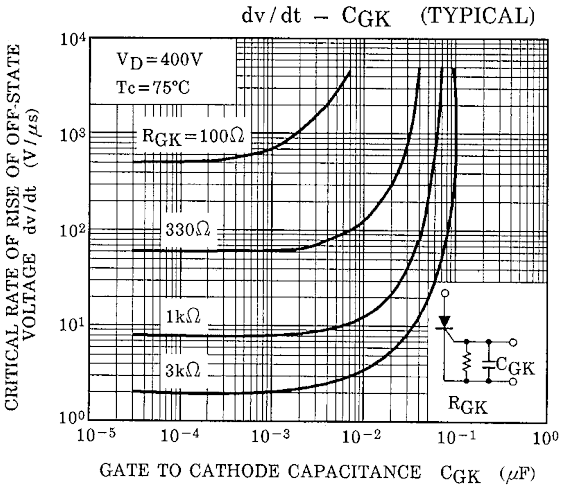
T_C MAX. $- I_{T(AV)}$



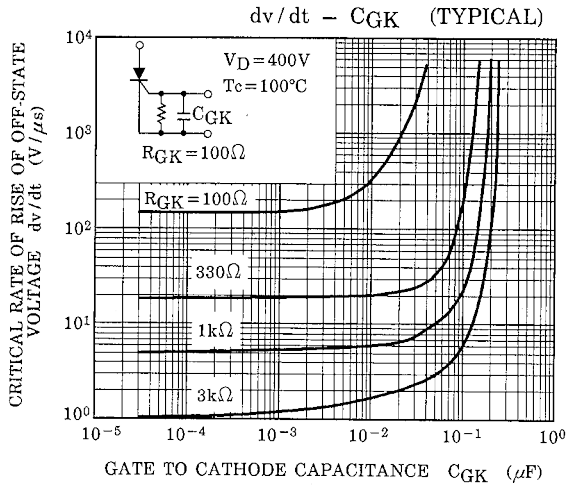
I_H – R_{GK}



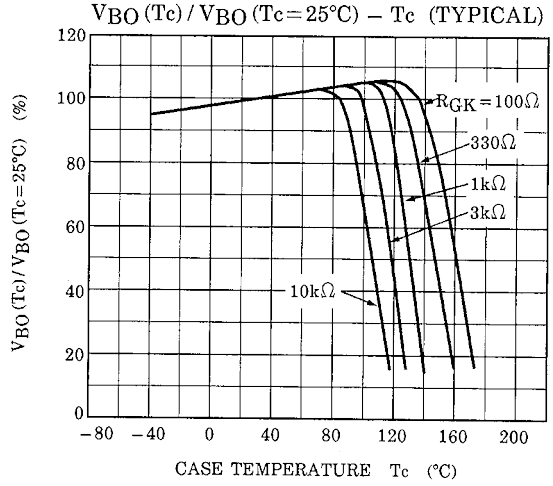
dv/dt – C_{GK} (TYPICAL)



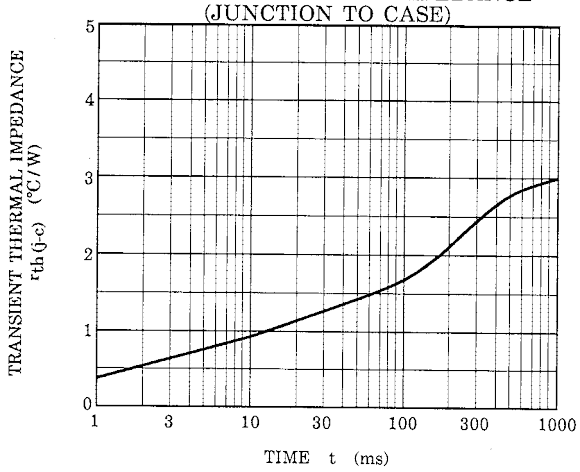
dv/dt – C_{GK} (TYPICAL)



V_{BO} (Tc) / V_{BO} (Tc = 25°C) – Tc (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



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