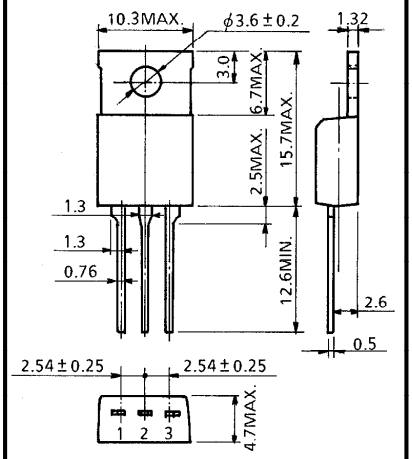
TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF5G42, SF5J42

MEDIUM POWER CONTROL APPLICATIONS.

Unit in mm

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



1. CATHODE
2. ANODE (HEAT SINK)
3. GATE

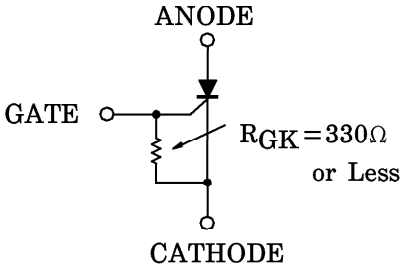
JEDEC	TO-220AB
EIAJ	—
TOSHIBA	13-10G1B

Weight : 2g

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage (R_{GK} = 330Ω)	SF5G42	V_{DRM} V_{RRM}	400	V
	SF5J42		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive < 5ms, T_j = 0~125°C, R_{GK} = 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 (t = 1~10ms)		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.



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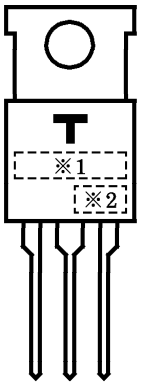
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

MARK



NUMBER	SYMBOL		MARK
※1	TYPE	SF5G42	SF5G42
		SF5J42	SF5J42
※2	Lot Number □ □ Month (Starting from Alphabet A) Year (Last Number of the Christian Era)		Example 2A : January 1992 2B : February 1992 2L : December 1992

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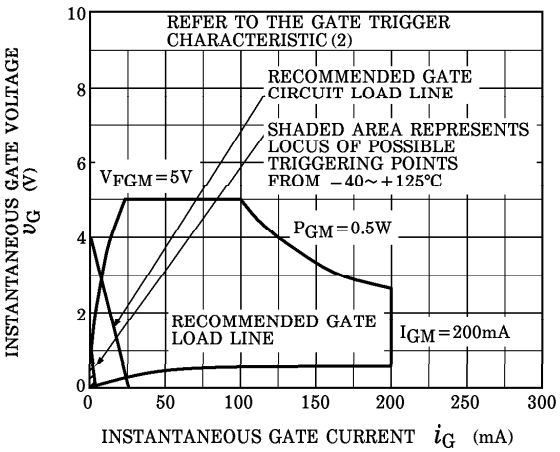
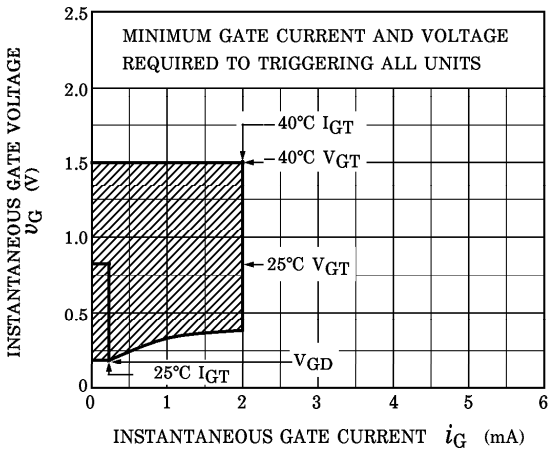
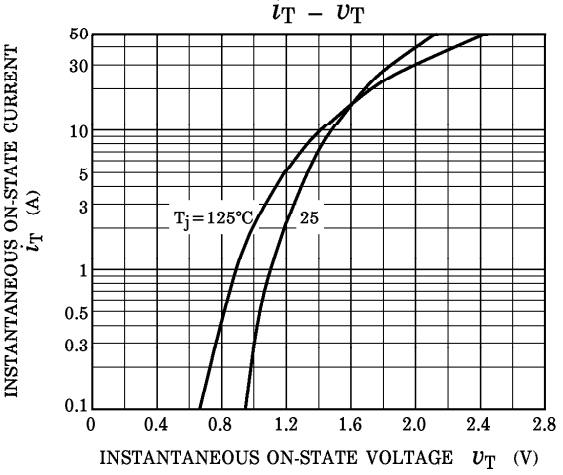
GATE TRIGGER CHARACTERISTIC (1)



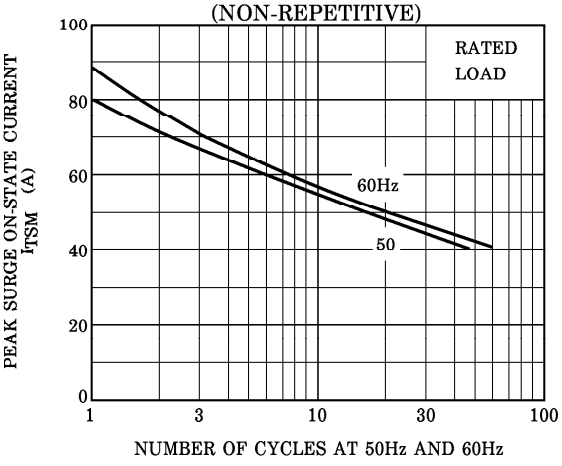
GATE TRIGGER CHARACTERISTIC (2)



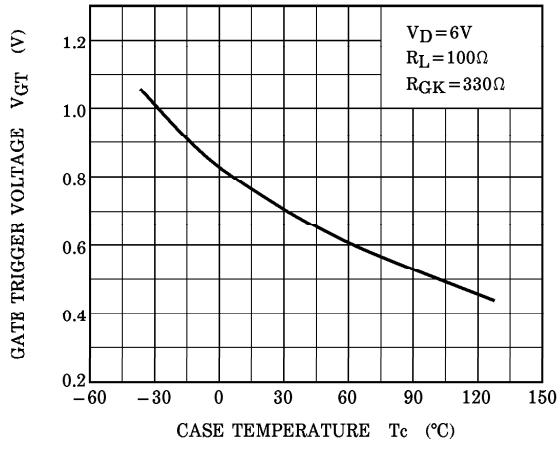
$i_T - v_T$



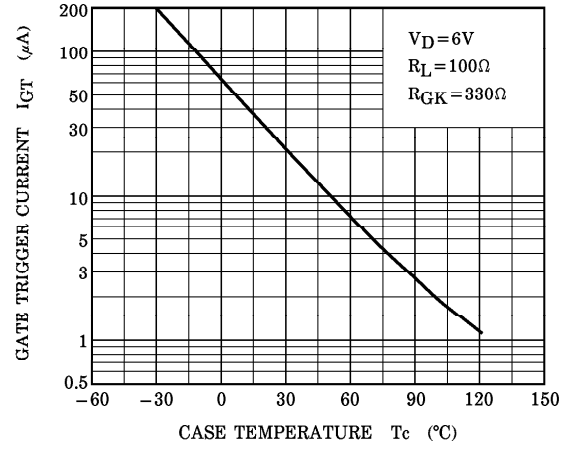
SURGE ON-STATE CURRENT (NON-REPETITIVE)



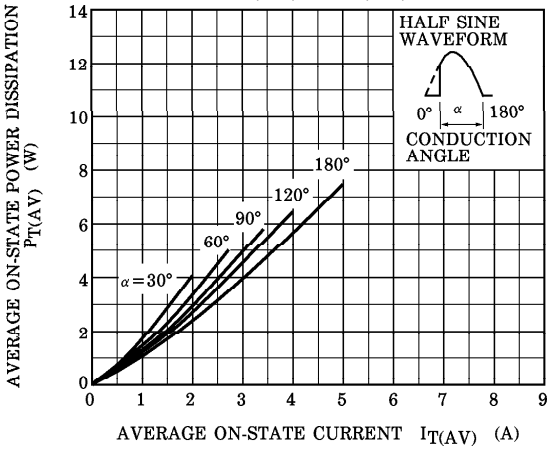
V_{GT} − Tc (TYPICAL)



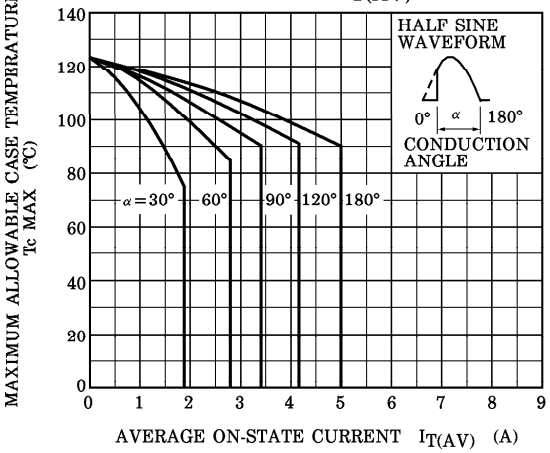
I_{GT} − Tc (TYPICAL)



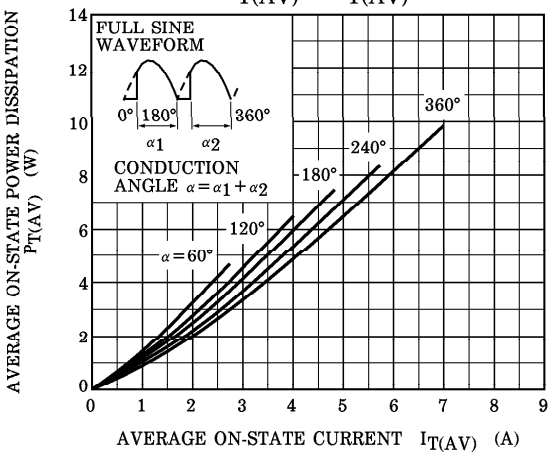
$P_{T(AV)} - I_{T(AV)}$



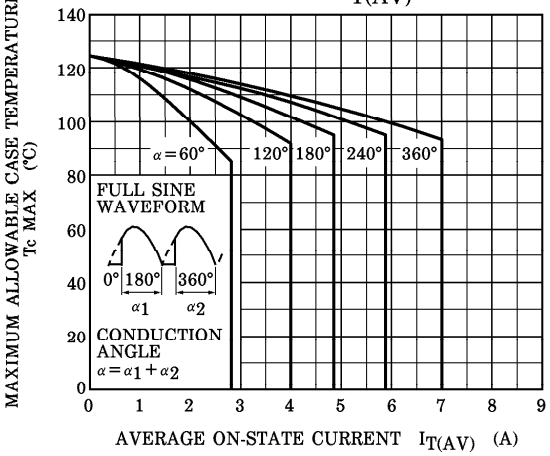
T_c MAX $- I_{T(AV)}$



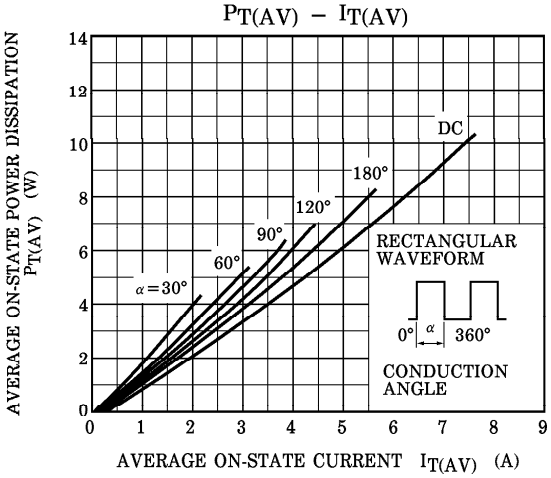
$P_{T(AV)} - I_{T(AV)}$



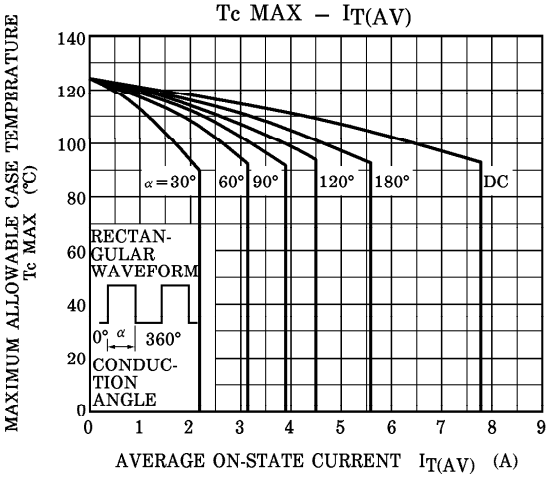
T_c MAX $- I_{T(AV)}$



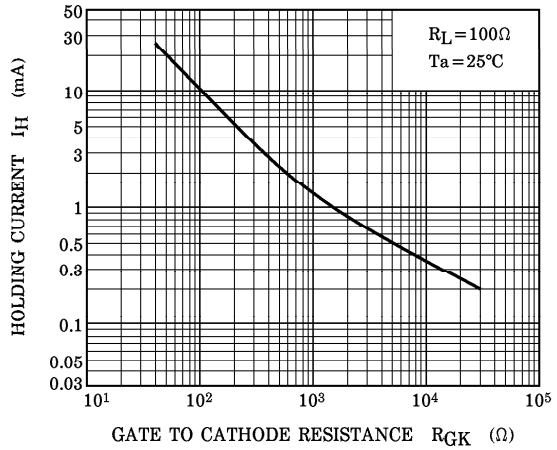
$P_{T(AV)} - I_{T(AV)}$



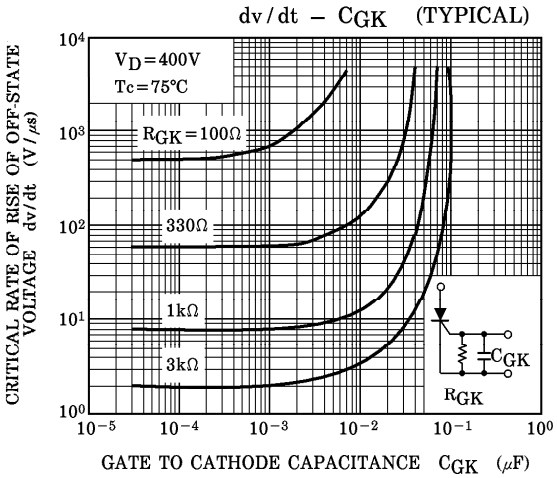
T_c MAX $- I_{T(AV)}$



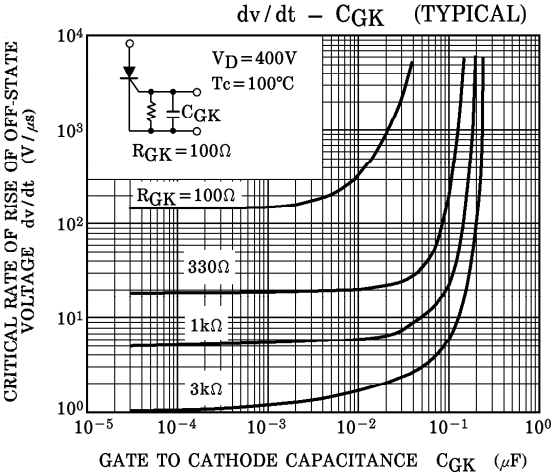
I_H – R_{GK}



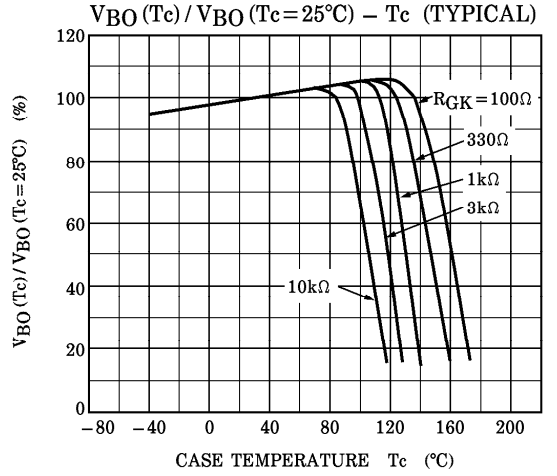
dv/dt – C_{GK} (TYPICAL)



dv/dt – C_{GK} (TYPICAL)



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



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)