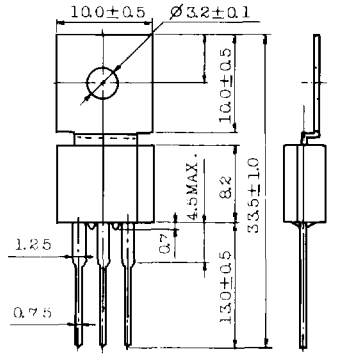
THYRISTOR
SILICON DIFFUSED TYPE

SF3(B,D,G,J)42

LOW POWER CONTROL APPLICATIONS.

- Repetitive Peak Off-State Voltage : V_{DRM} } =100 ~ 600V
  Repetitive Peak Reverse Voltage : V_{RRM}
- Average On-State Current : $I_{T(AV)}$=3A
- Gate Trigger Current : I_{GT}=200μA (Max.)
- Plastic Mold Package

Unit in mm



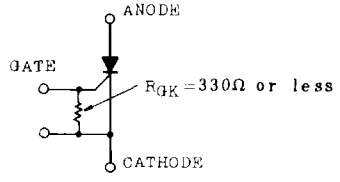
JEDEC	—
EIAJ	—
TOSHIBA	13-10A1A

Weight : 1.5g

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage (R_{GK}=330Ω)	SF3B42	V_{DRM} V_{RRM}	100	V
	SF3D42		200	
	SF3G42		400	
	SF3J42		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive ≤5ms, T_j=0 ~ 125°C, R_{GK}=330Ω)	SF3B42	V_{RSM}	150	V
	SF3D42		300	
	SF3G42		500	
	SF3J42		720	
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}	65(50Hz)	A
			70(60Hz)	
I^2t Limit Value (t=1 ~ 10ms)		I^2t	20	A^2s
Peak Gate Power Dissipation		P_{GM}	0.5	W
Average Gate Power Dissipation		$R_{G(AV)}$	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

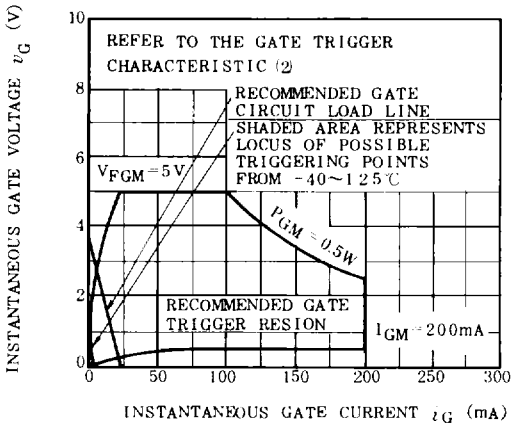
Note : Should be used with gate resistance as follows.



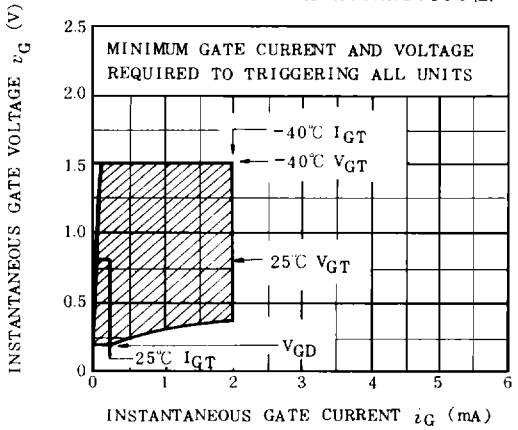
ELECTRICAL CHARACTERISTICS (Ta=25°C)

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 $R_{GK}=330\Omega$, $T_j=125°C$	-	-	2	mA
Peak On-State Voltage	V_{TM}	$I_{TM}=12A$	-	-	1.6	V
Gate Trigger Voltage	V_{GT}	$V_D=6V$, $R_L=100\Omega$ $R_{GK}=330\Omega$	-	-	0.8	V
Gate Trigger Current	I_{GT}		-	-	200	μA
Gate Non-Trigger Voltage	V_{GD}	V_D=2/3 Rated, $T_j=125°C$ $R_{GK}=330\Omega$	0.2	-	-	V
Critical Rate of Rise of Off-State Voltage	dv/dt	V_D=2/3 Rated, $T_j=75°C$ $R_{GK}=330\Omega$ Exponential rise	-	50	-	V/μs
Holding Current	I_H	$R_L=100\Omega$, $R_{GK}=330\Omega$	-	4	-	mA
Thermal Resistance	$R_{th(j-c)}$	Junction to Case	-	-	6	°C/W

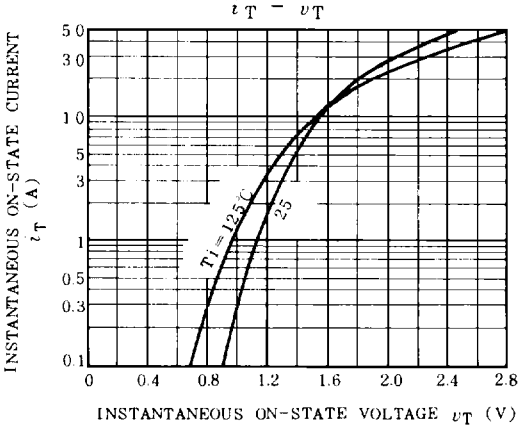
GATE TRIGGER CHARACTERISTIC(1)



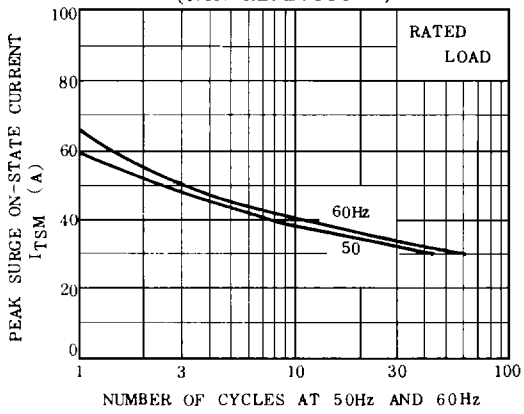
GATE TRIGGER CHARACTERISTIC(2)



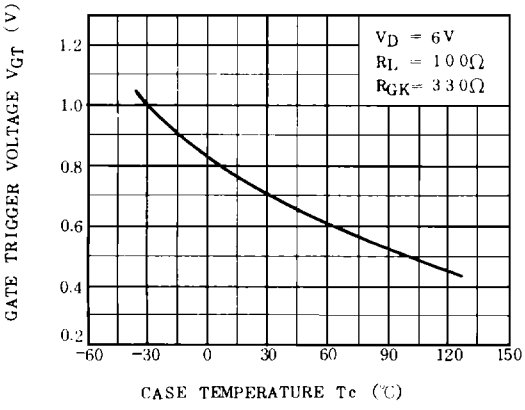
iT - vT



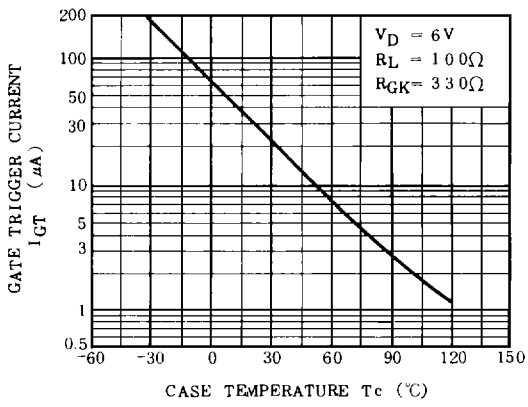
SURGE ON-STATE CURRENT (NON-REPETITIVE)



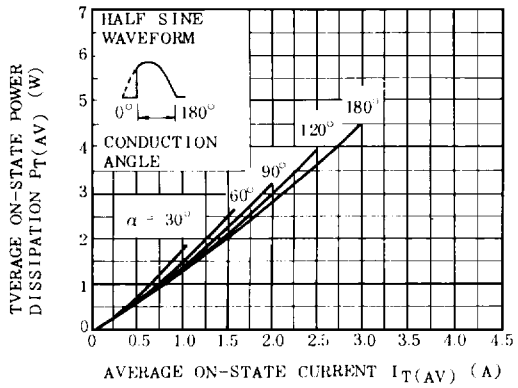
VGT - Tc (TYPICAL)



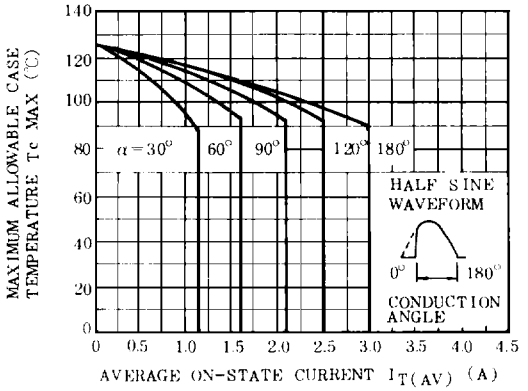
IGT - Tc (TYPICAL)



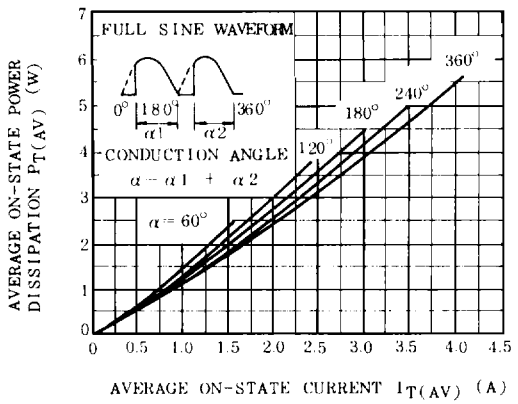
$P_{T(AV)}-I_{T(AV)}$



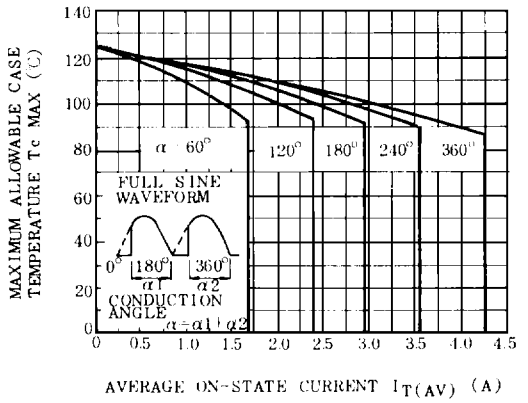
Tc MAX — $I_{T(AV)}$



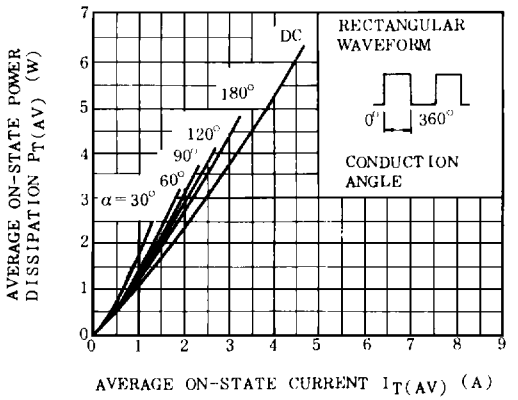
$P_{T(AV)}$ — $I_{T(AV)}$



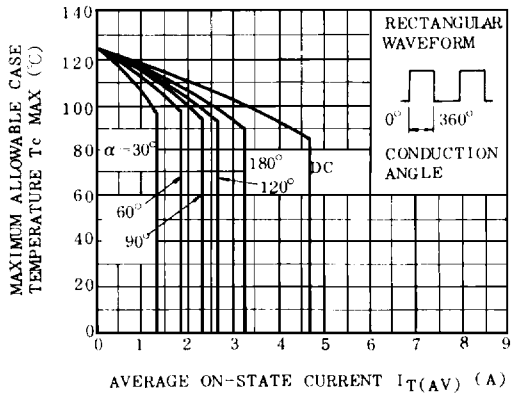
Tc MAX — $I_{T(AV)}$



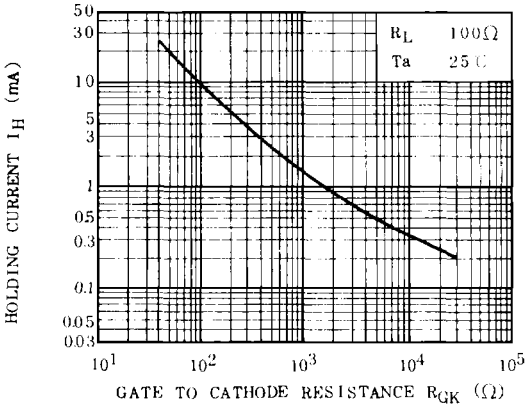
$P_{T(AV)}$ — $I_{T(AV)}$



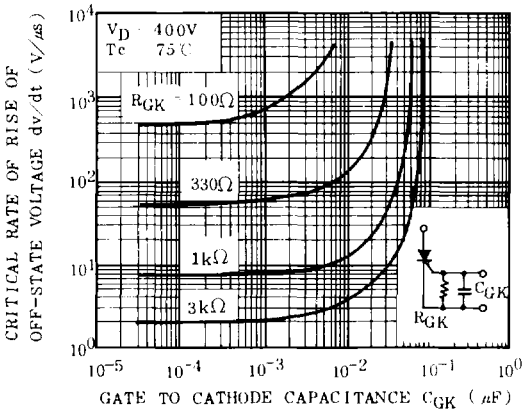
Tc MAX — $I_{T(AV)}$



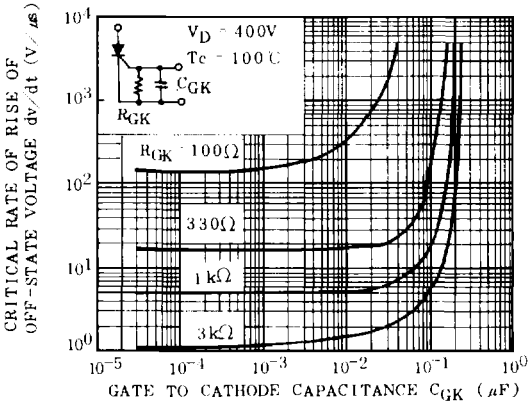
I_H — R_{GK}



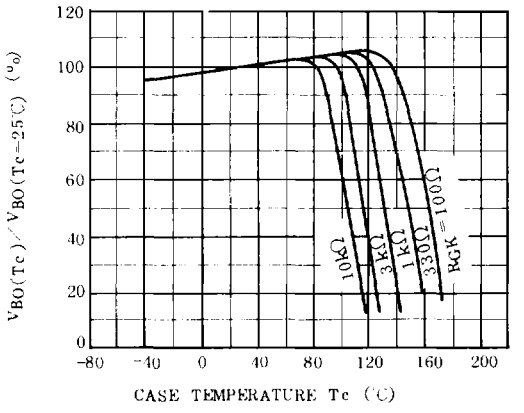
dv/dt — C_{GK} (TYPICAL)



dv/dt — C_{GK} (TYPICAL)



$V_{BO(Tc)}/V_{BO(Tc=25℃)}$ — Tc (TYPICAL)



TRANSIENT THERMAL IMPEDANCE
(JUNCTION TO CASE)