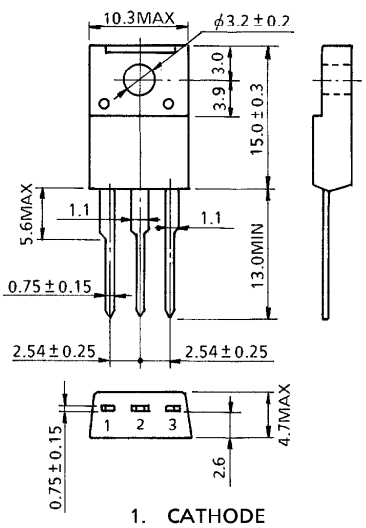
TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF3GZ47, SF3JZ47

MEDIUM POWER CONTROL APPLICATIONS

Unit in mm

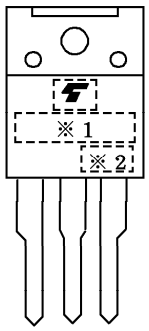
- Repetitive Peak Off-State Voltage : V_{DRM} } =400, 600V
  Repetitive Peak Reverse Voltage : V_{RRM} }
- Average On-State Current : $I_{T(AV)}$=3A
- Isolation Voltage : V_{ISOL}=1500V AC



JEDEC	—
EIAJ	—
TOSHIBA	13-10H1B

Weight : 1.7g

MARK



MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF3GZ47	V_{DRM} V_{RRM}	400	V
	SF3JZ47		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive<5ms, T_j=0~125°C)	SF3GZ47	V_{RSM}	500	V
	SF3JZ47		720	
Average On-State Current (Half Sine Waveform Tc=98°C)		$I_{T(AV)}$	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}	50 (50Hz)	A
			55 (60Hz)	
I^2t Limit Value (t=1~10ms)		I^2t	18	A^2s
Critical Rate of Rise of On-State Current (Note 1)		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}	−40~150	°C
Isolation Voltage (AC, t=1min.)		V_{ISOL}	1500	V

Note 1 : di / dt Test Condition
V_{DRM}=0.5×Rated
$I_{TM} \leqq 12A$
$t_{gw} \geqq 10\mu s$
$t_{gr} \leqq 250ns$
$i_{gp}=I_{GT}\times 2.0$

※1	MARK	F3GZ47	TYPE NAME	SF3GZ47
		F3JZ47		SF3JZ47
※2	Lot Number □□ Month (Starting from Alphabet A) Year (Last Number of the Christian Era)		Example 9A : January 1989 9B : Febrary 1989 9L : December 1989	

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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	—	—	10	μA
Peak On-State Voltage	V_{TM}	I_{TM}=12A	—	—	1.5	V
Gate Trigger Voltage	V_{GT}	V_D=6V, R_L=10Ω	—	—	1.0	V
Gate Trigger Current	I_{GT}		—	—	10	mA
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=125°C Exponential Rise	—	50	—	V/μs
Holding Current	I_H	V_D=6V, I_{TM}=1A	—	—	40	mA
Latching Current	I_L	V_D=6V, f=50Hz, t_{gw}=50μs i_G=30mA	—	—	50	mA
Thermal Resistance	$R_{th\ (j\text{-}c)}$	Junction to Case	—	—	4.5	°C/W

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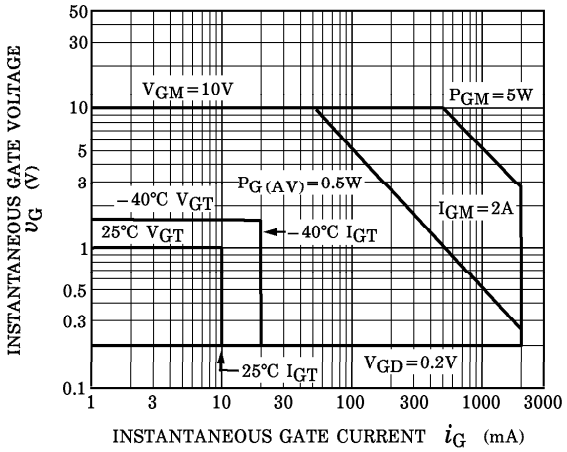
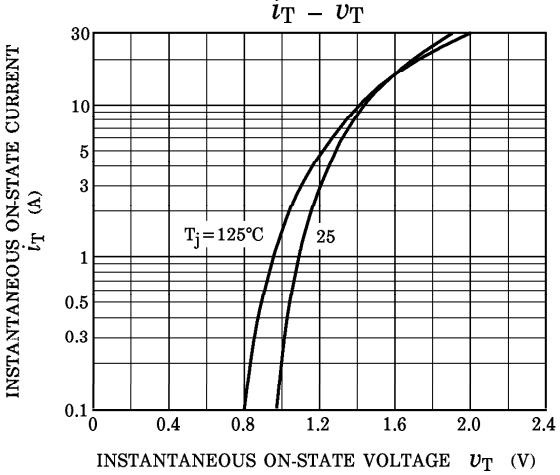
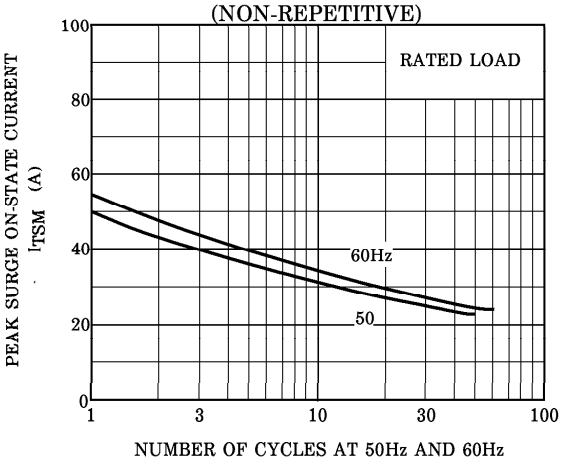
GATE TRIGGER CHARACTERISTIC



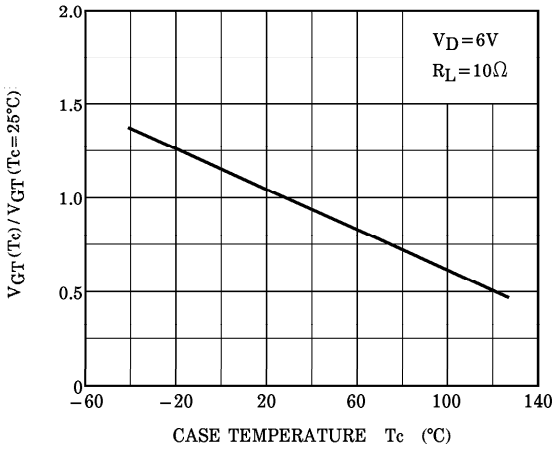
$i_T - v_T$



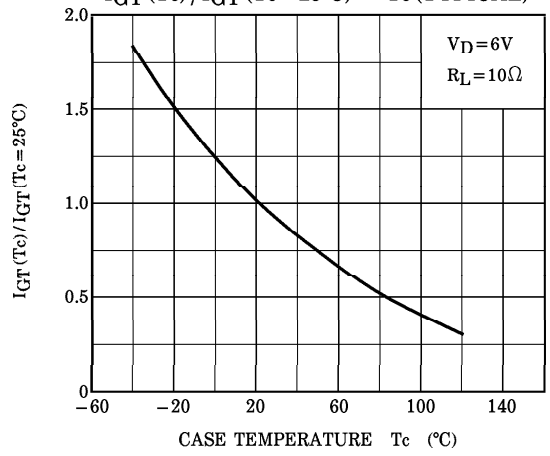
SURGE ON-STATE CURRENT (NON-REPETITIVE)



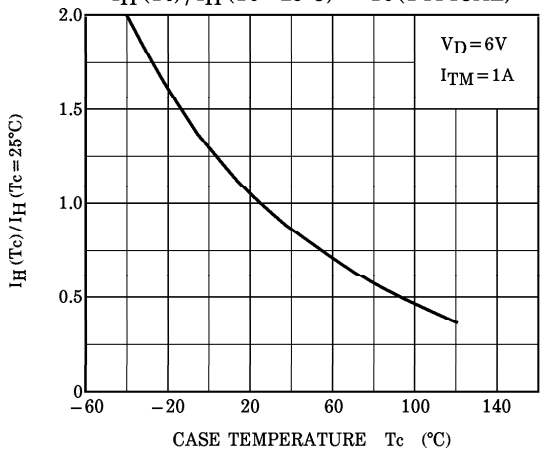
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



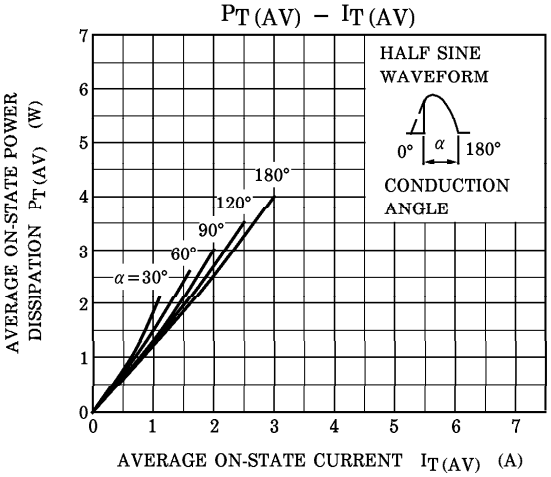
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



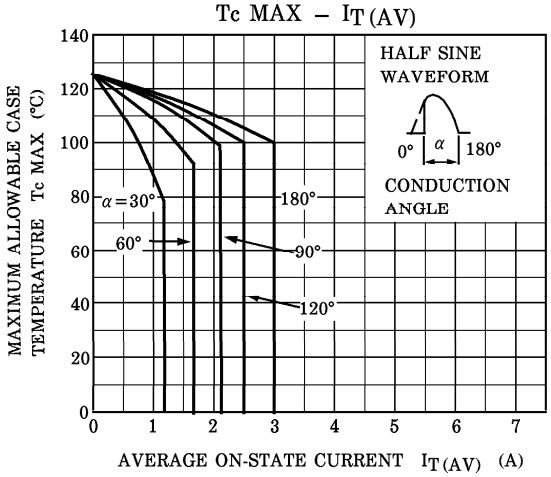
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



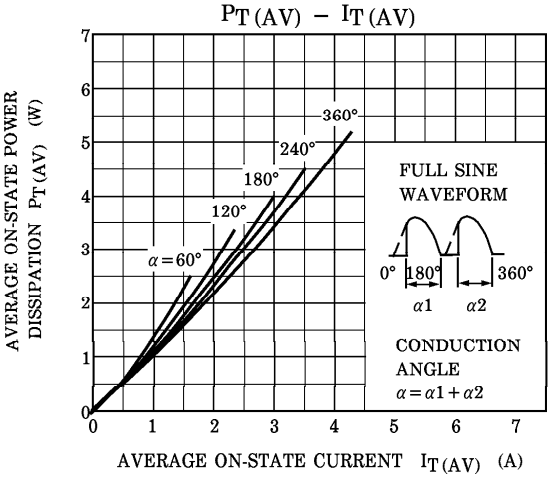
$P_{T(AV)}$ – $I_{T(AV)}$



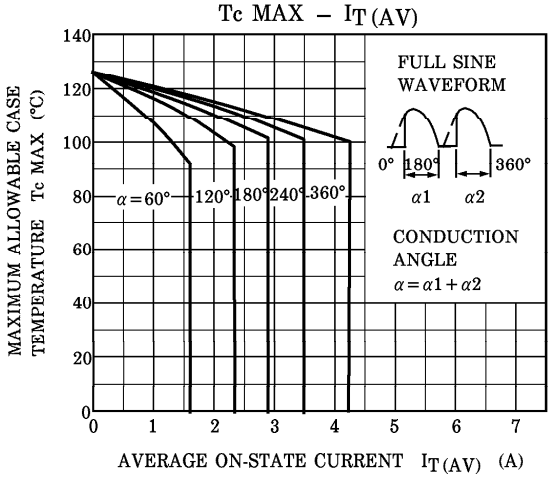
Tc MAX – $I_{T(AV)}$



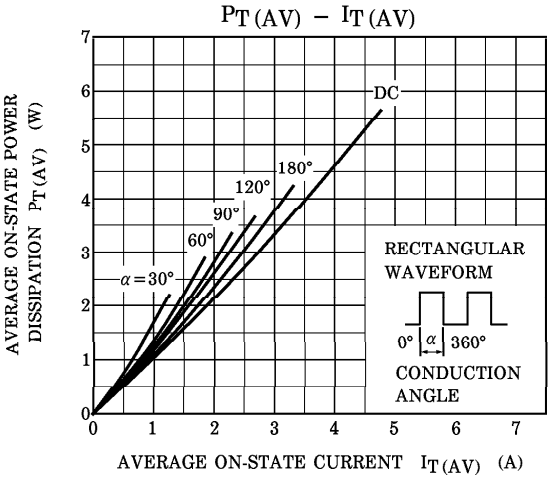
$P_{T(AV)}$ – $I_{T(AV)}$



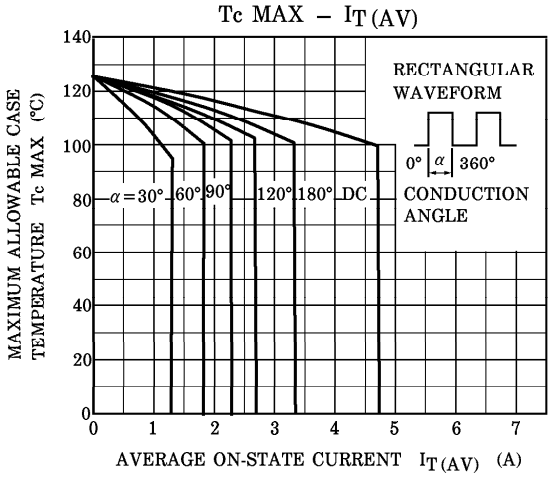
Tc MAX – $I_{T(AV)}$



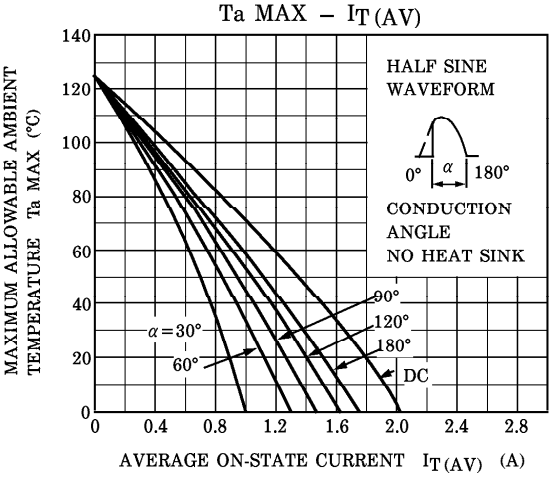
$P_{T(AV)}$ – $I_{T(AV)}$



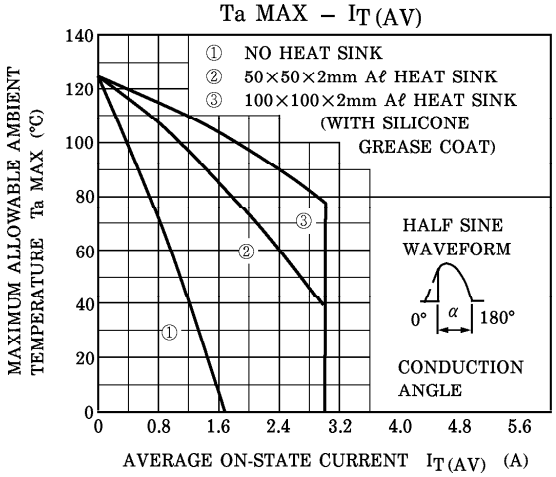
Tc MAX – $I_{T(AV)}$



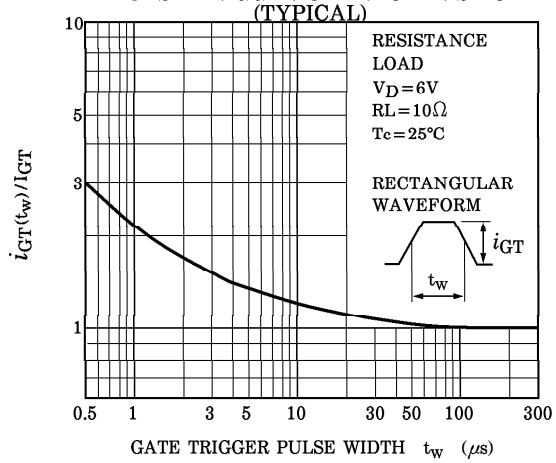
Ta MAX – $I_{T(AV)}$



Ta MAX – $I_{T(AV)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)