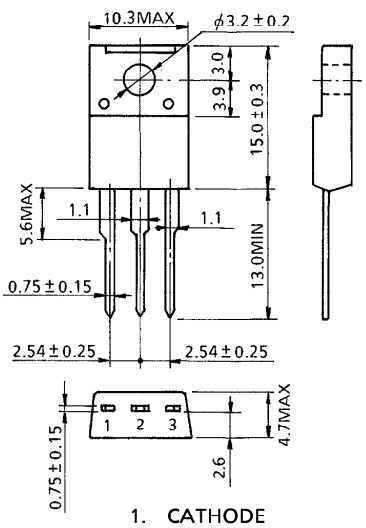
TOSHIBA THYRISTOR SILICON DIFFUSED TYPE

SF3GZ47, SF3JZ47

MEDIUM POWER CONTROL APPLICATIONS

Unit in mm

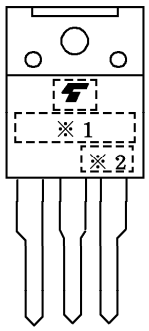
- Repetitive Peak Off-State Voltage : V_{DRM} } =400, 600V
  Repetitive Peak Reverse Voltage : V_{RRM} }
- Average On-State Current : $I_{T(AV)}$=3A
- Isolation Voltage : V_{ISOL}=1500V AC



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	

961001EAA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

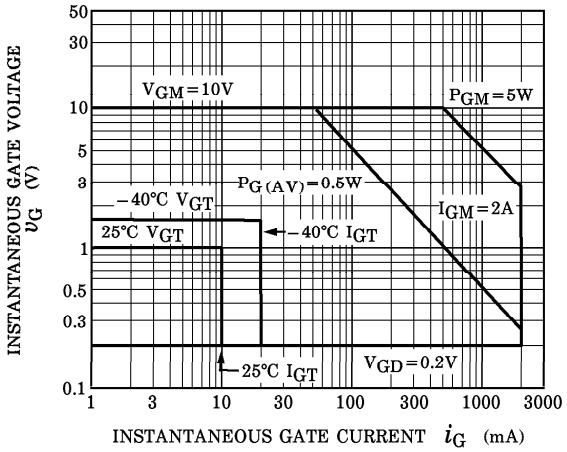
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

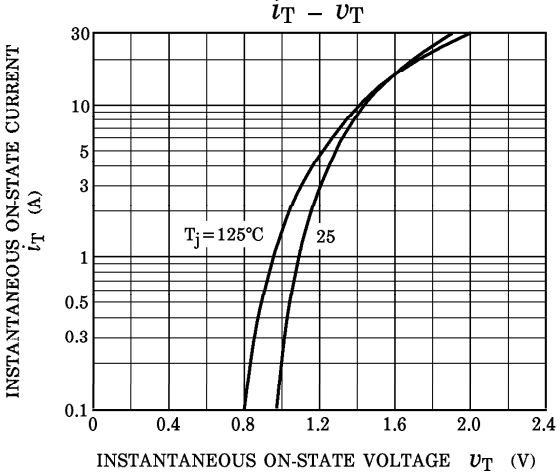
961001EAA2'

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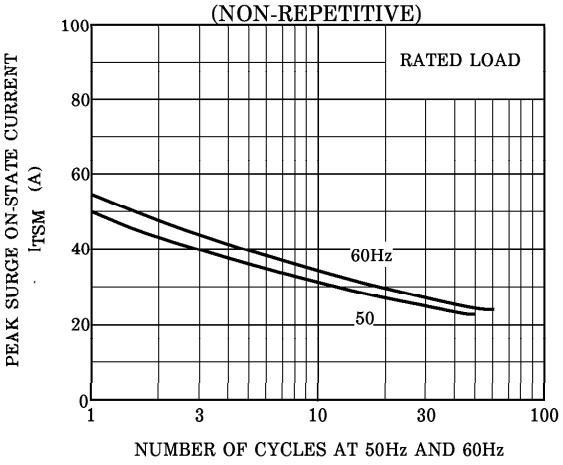
GATE TRIGGER CHARACTERISTIC



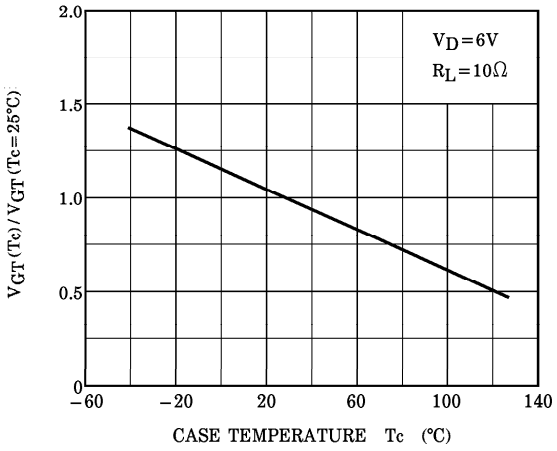
$i_T - v_T$



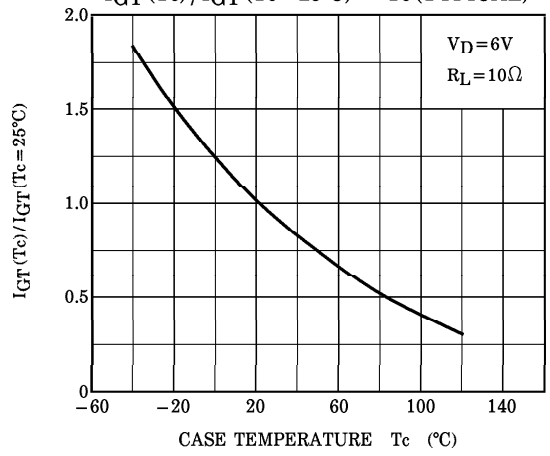
SURGE ON-STATE CURRENT (NON-REPETITIVE)



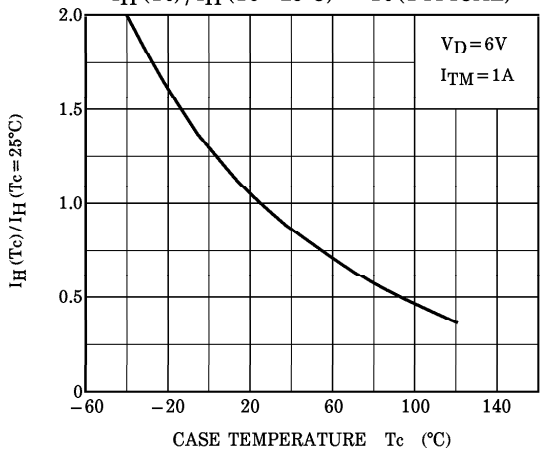
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



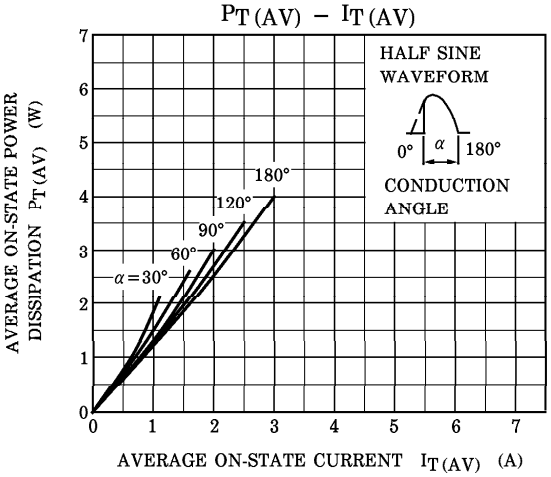
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



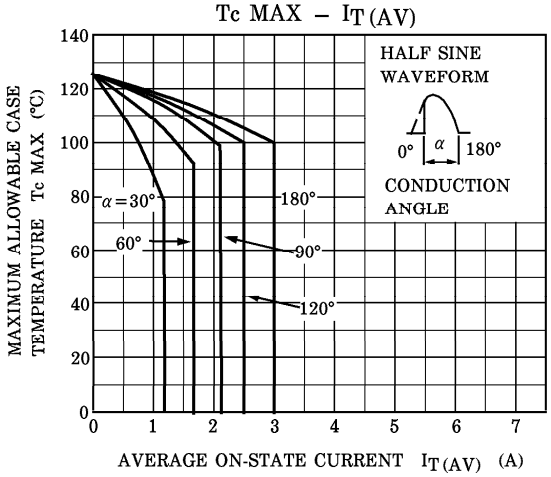
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



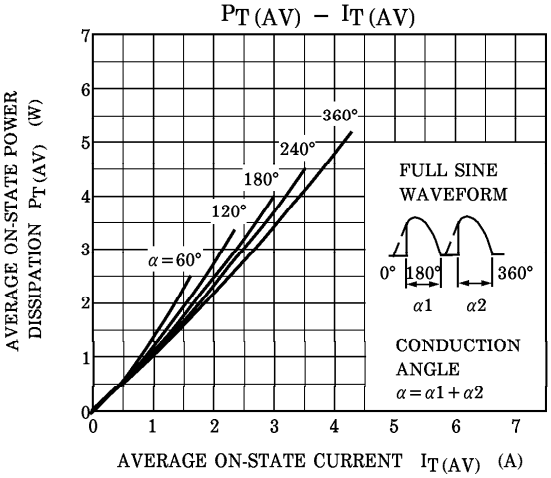
$P_{T(AV)}$ – $I_{T(AV)}$



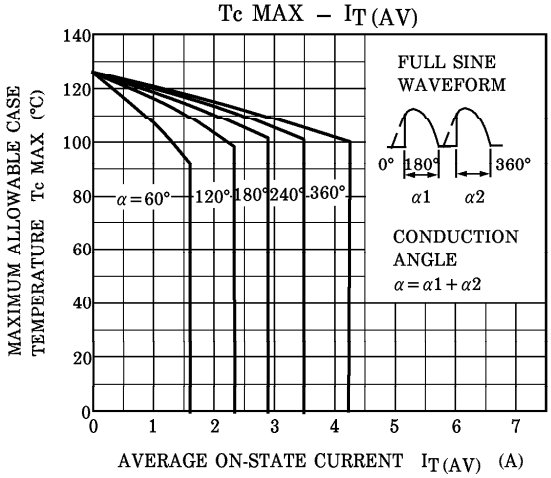
Tc MAX – $I_{T(AV)}$



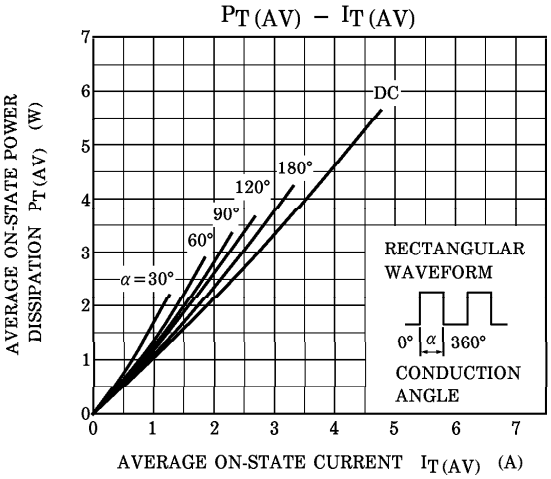
$P_{T(AV)}$ – $I_{T(AV)}$



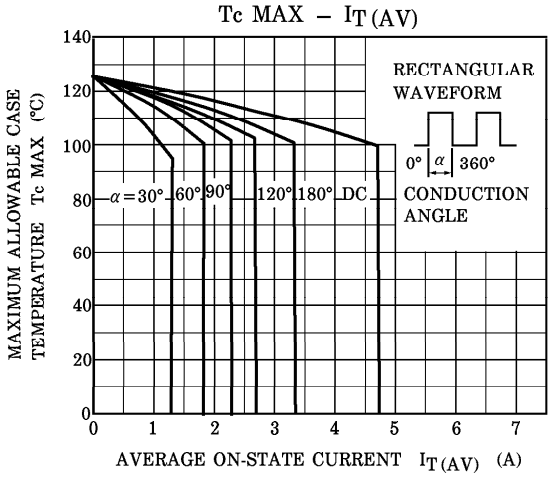
Tc MAX – $I_{T(AV)}$



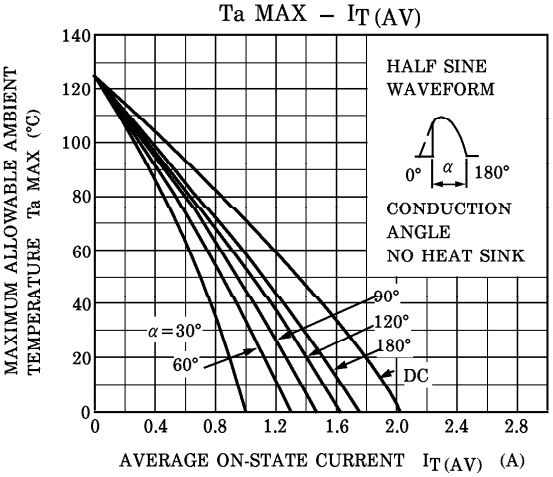
$P_{T(AV)}$ – $I_{T(AV)}$



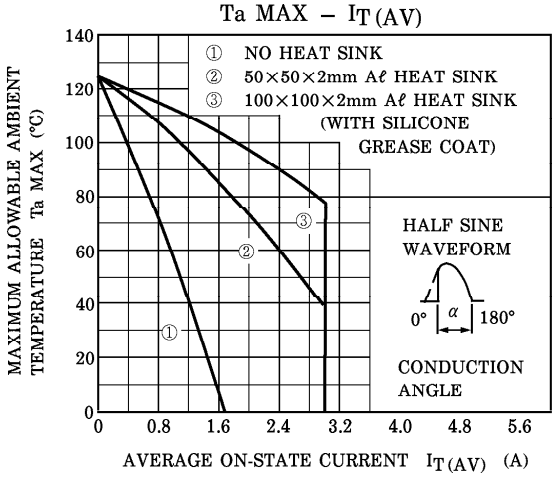
Tc MAX – $I_{T(AV)}$



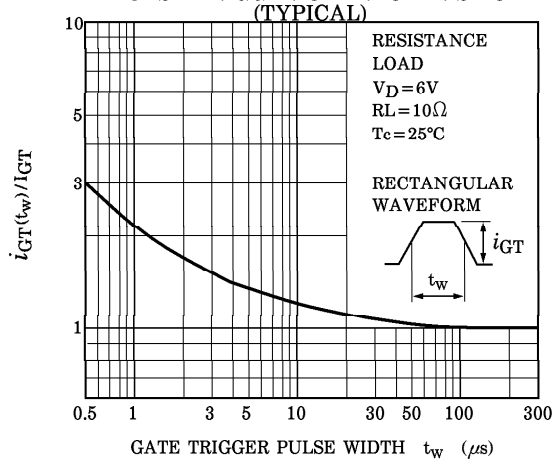
Ta MAX – $I_{T(AV)}$



Ta MAX – $I_{T(AV)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)

