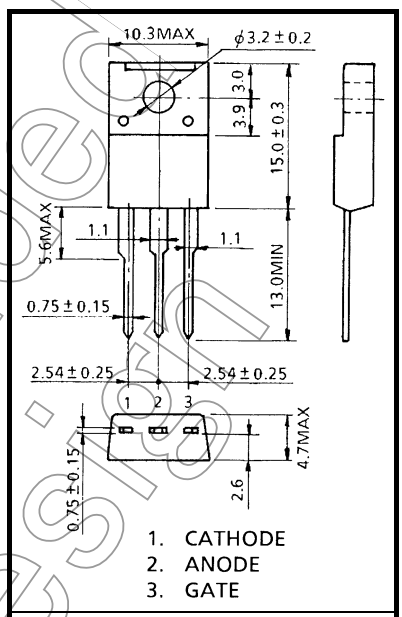
TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF3GZ47, SF3JZ47

MEDIUM POWER CONTROL APPLICATIONS

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

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	13-10H1B

Weight: 1.7 g (typ.)

MAXIMUM RATINGS

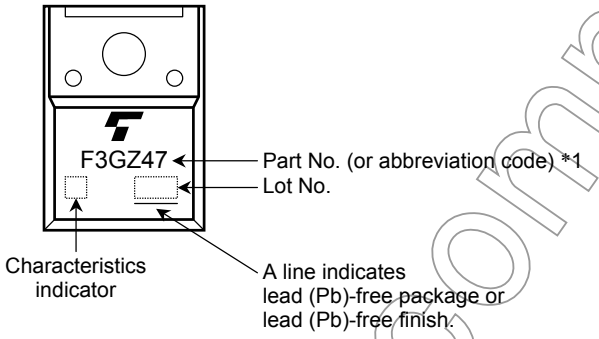
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off−State Voltage and Repetitive Peak Reverse Voltage	SF3GZ47	V_{DRM} V_{RRM}	400	V
	SF3JZ47		600	
Non−Repetitive Peak Reverse Voltage (Non−Repetitive < 5ms, T_j = 0~125°C)	SF3GZ47	V_{RSM}	500	V
	SF3JZ47		720	
Average On−State Current (Half Sine Waveform 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		I^2t	12.5	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} ≤ 12A, t_{gw} ≥ 10μs, t_{gr} ≤ 250ns, i_{gp} = I_{GT} × 2.0

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

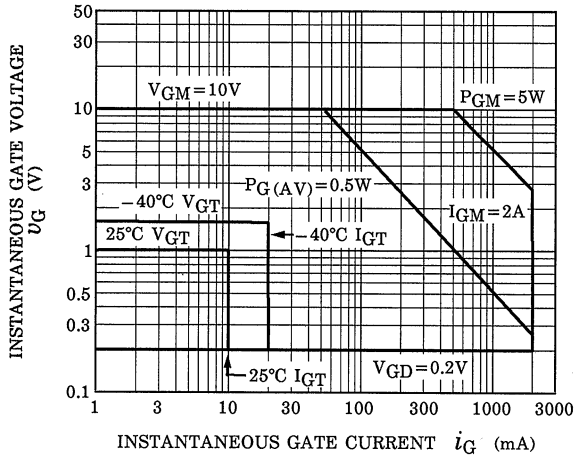
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off−State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	V_{DRM} = V_{RRM} = Rated	—	—	10	μA
Peak On−State Voltage	V_{TM}	I_{TM} = 12A	—	—	1.5	V
Gate Trigger Voltage	V_{GT}	V_D = 6V, R_L = 10Ω	—	—	1.0	V
Gate Trigger Current	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, 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	$R_{th\ (j-c)}$	Junction to Case	—	—	4.5	°C / W

MARKING

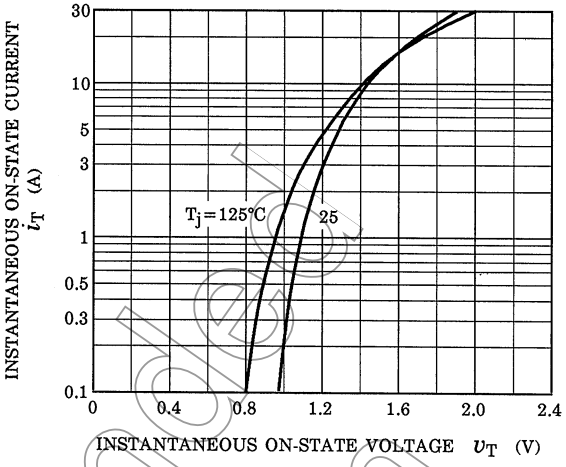


*1	Part No. (or abbreviation code)	Part No.
	F3GZ47	SF3GZ47
	F3JZ47	SF3JZ47

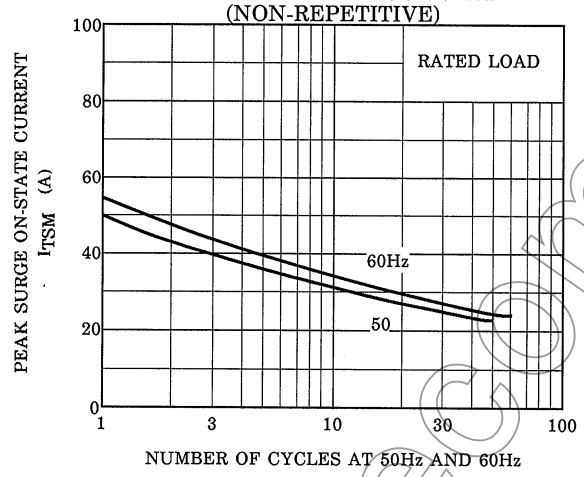
GATE TRIGGER CHARACTERISTIC



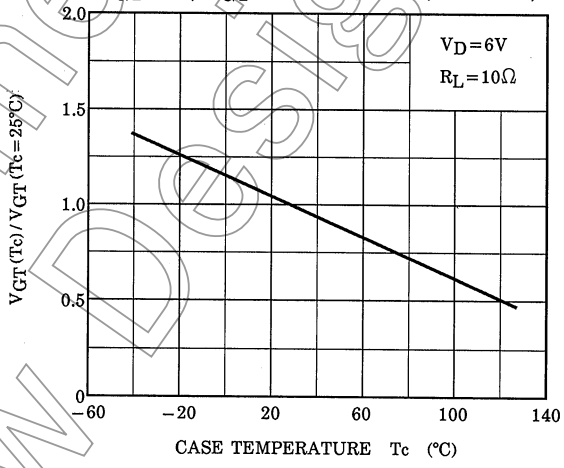
$i_T - v_T$



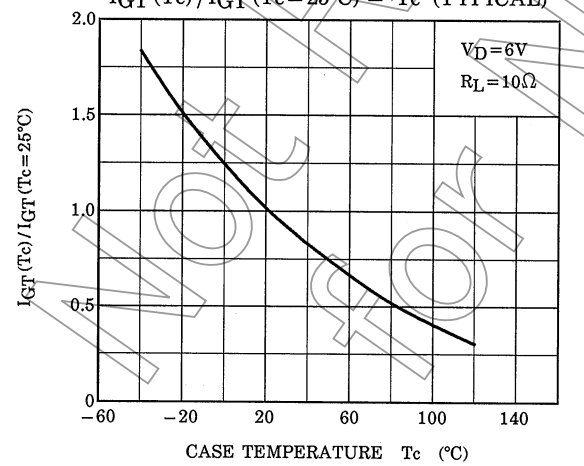
SURGE ON-STATE CURRENT (NON-REPETITIVE)



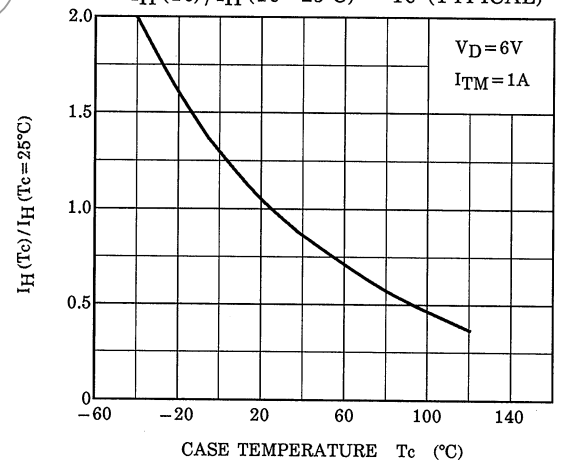
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



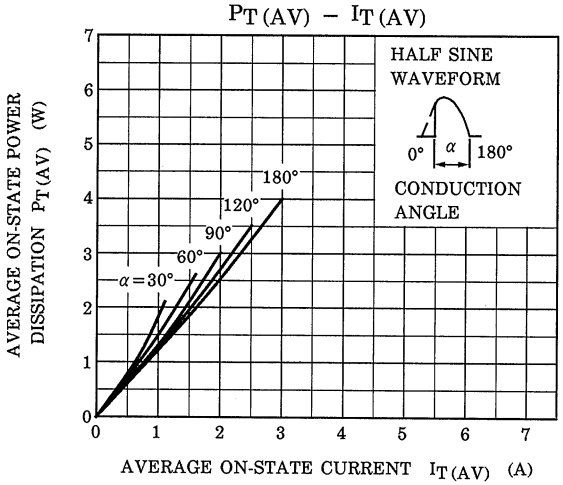
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



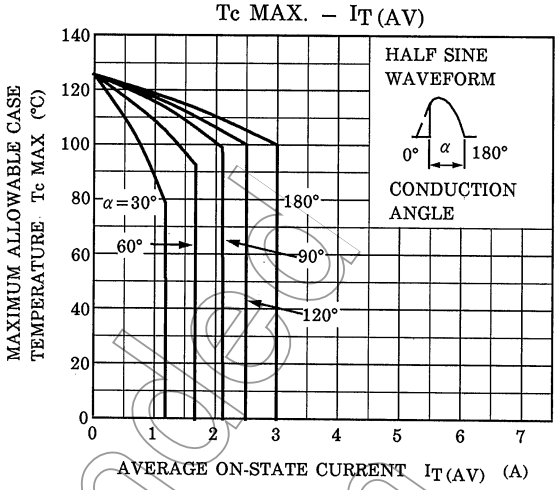
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



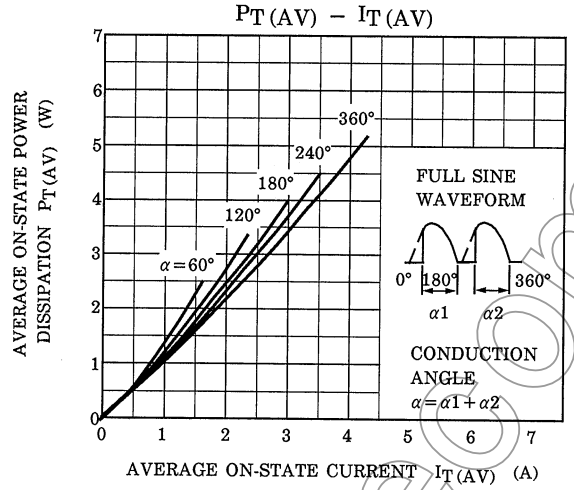
$P_{T(AV)}$ – $I_{T(AV)}$



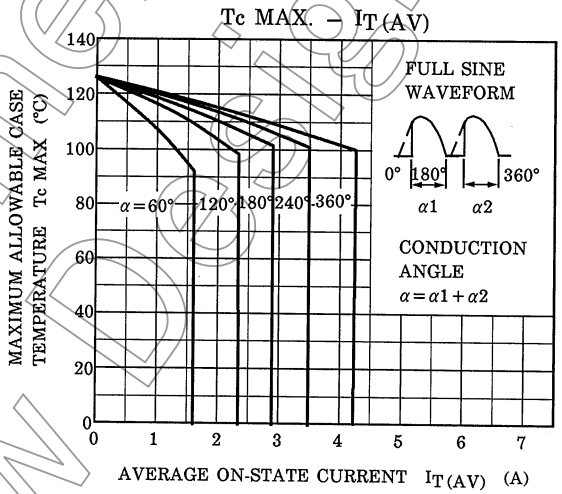
Tc MAX. – $I_{T(AV)}$



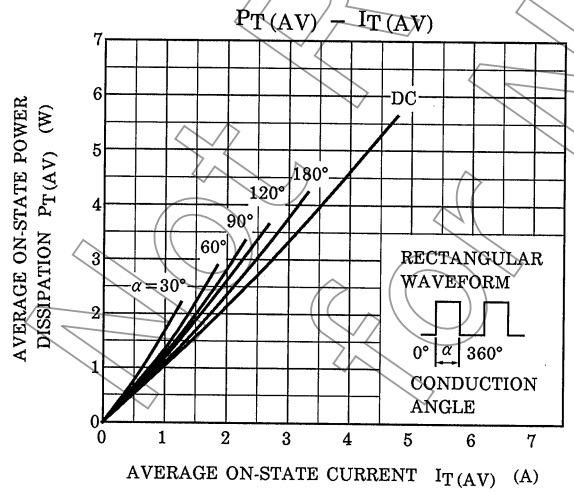
$P_{T(AV)}$ – $I_{T(AV)}$



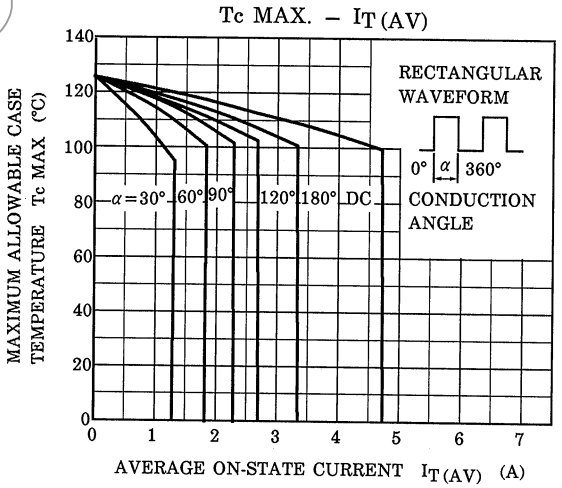
Tc MAX. – $I_{T(AV)}$



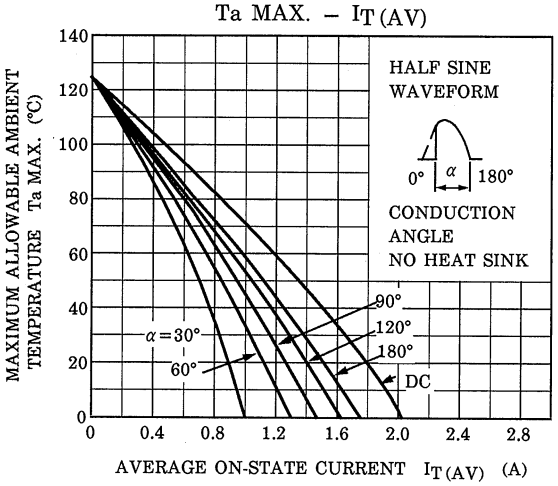
$P_{T(AV)}$ – $I_{T(AV)}$



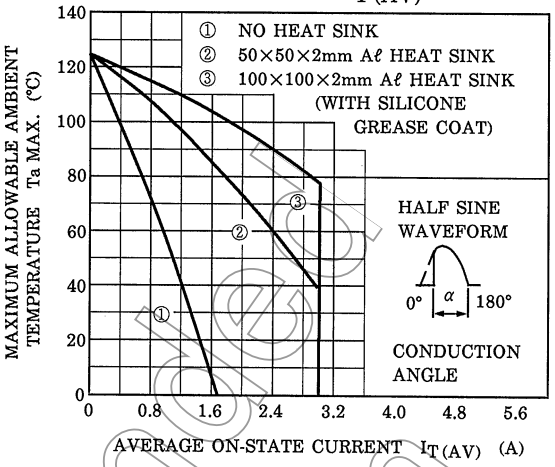
Tc MAX. – $I_{T(AV)}$



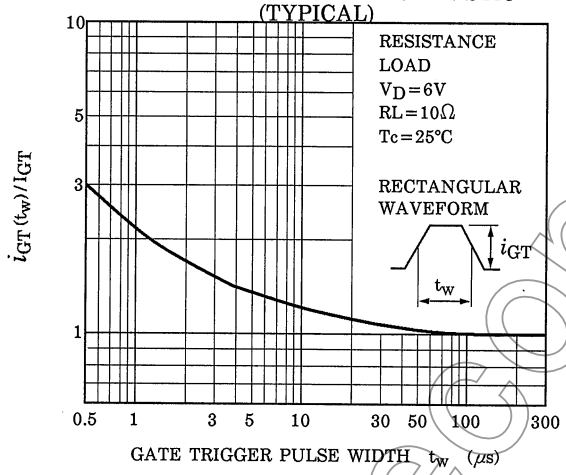
Ta MAX. – $I_{T(AV)}$



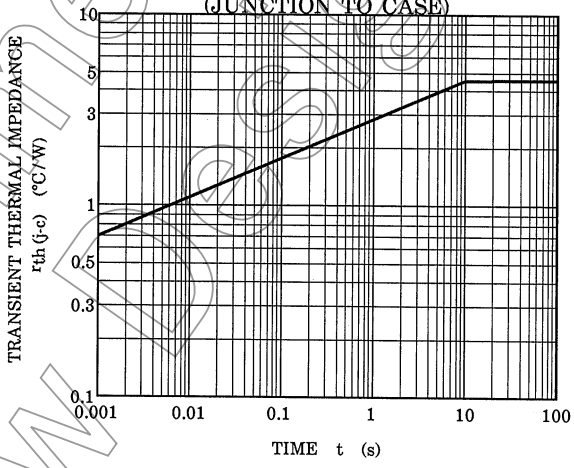
Ta MAX. – $I_{T(AV)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



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