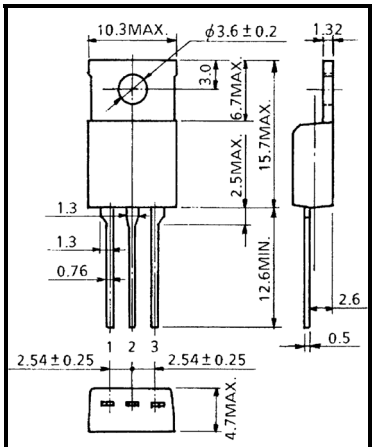
TOSHIBA THYRISTOR SILICON PLANAR TYPE

SF10G41A, SF10J41A

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: $I_{T\ (AV)}$ = 10A
- Gate Trigger Current: I_{GT} = 15mA (Max.)

Unit: mm



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

JEDEC	TO-220AB
JEITA	SC-46
TOSHIBA	13-10G1B

Weight: 2.0 g (typ.)

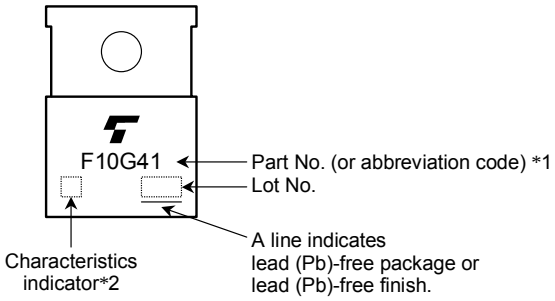
MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off−State Voltage and Repetitive Peak Reverse Voltage	SF10G41A	V_{DRM} V_{RRM}	400	V
	SF10J41A		600	
Non−Repetitive Peak Reverse Voltage (Non-Repetitive<5ms, T_j = 0~125°C)	SF10G41A	V_{RSM}	500	V
	SF10J41A		720	
Average On−State Current (Half Sine Waveform Tc = 79°C)		$I_{T\ (AV)}$	10	A
R.M.S On−State Current		$I_{T\ (RMS)}$	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	160 (50Hz)	A
			176 (60Hz)	
I^2t Limit Value		I^2t	125	A^2s
Critical Rate of Rise of On-State Curret		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}	−40~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

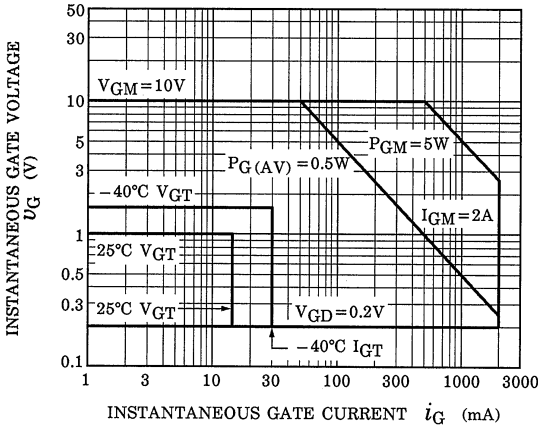
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Repetitive Peak Off−State Current and Repetitive Peak Reverse Current	I_{DRM} I_{RRM}	V_{DRM} = V_{RRM} = Rated	—	10	μA
Peak On−State Voltage	V_{TM}	I_{TM} = 30A	—	1.6	V
Gate Trigger Voltage	V_{GT}	V_D = 6V, R_L = 10Ω	—	1.0	V
Gate Trigger Current	I_{GT}		—	15	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	100	—	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	—	60	mA
Thermal Resistance	$R_{th\ (j-c)}$	Junction to Case	—	2.0	°C / W

MARKING

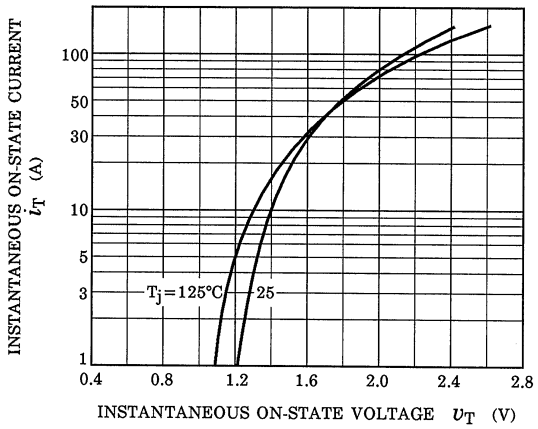


	Part No. (or abbreviation code)	Part No.
*1	F10G41	SF10G41A
	F10J41	SF10J41A
*2	A	SF10G41A, SF10J41A

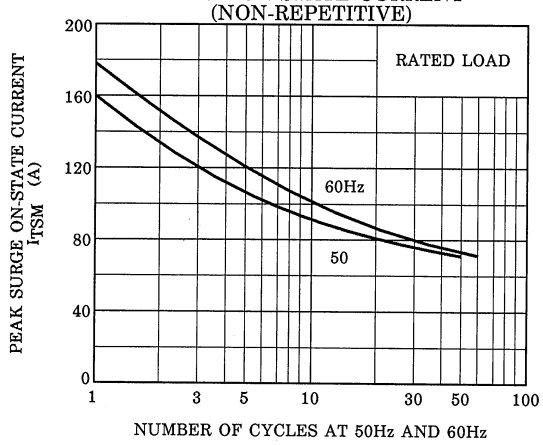
GATE TRIGGER CHARACTERISTIC



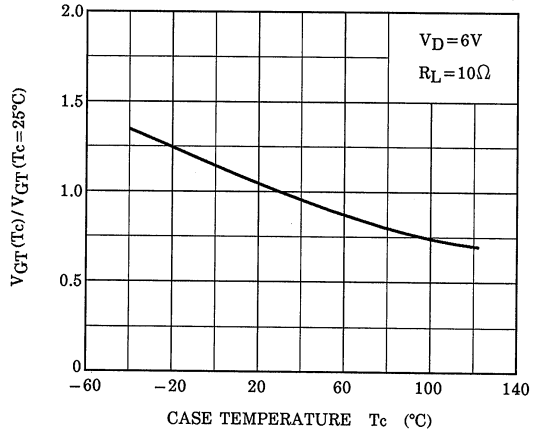
$i_T - v_T$



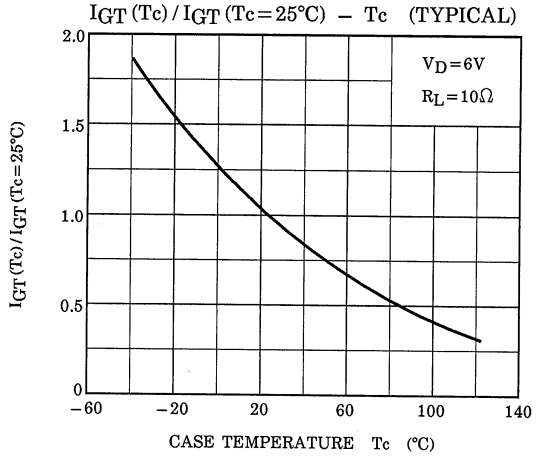
SURGE ON-STATE CURRENT
(NON-REPETITIVE)



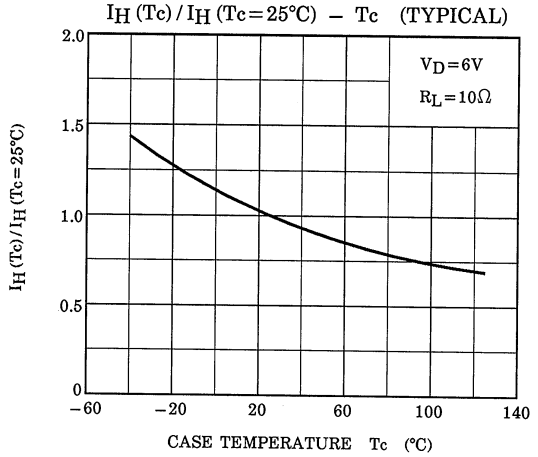
V_{GT} (Tc) / V_{GT} (Tc=25°C) − Tc (TYPICAL)



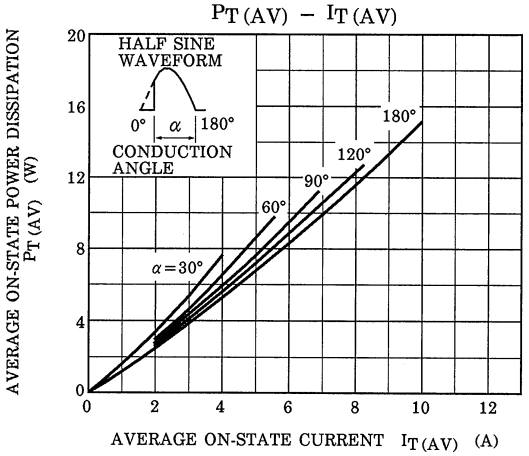
I_{GT} (Tc) / I_{GT} (Tc=25°C) − Tc (TYPICAL)



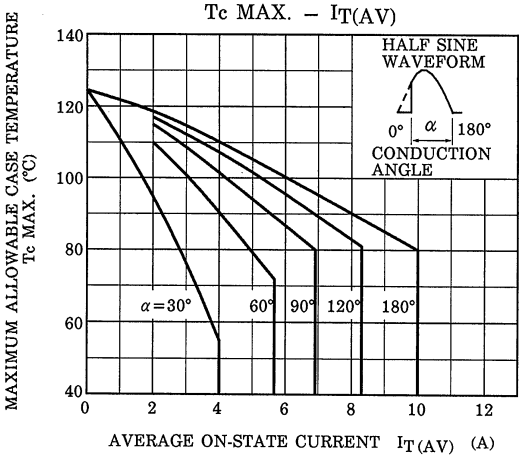
I_H (Tc) / I_H (Tc=25°C) − Tc (TYPICAL)



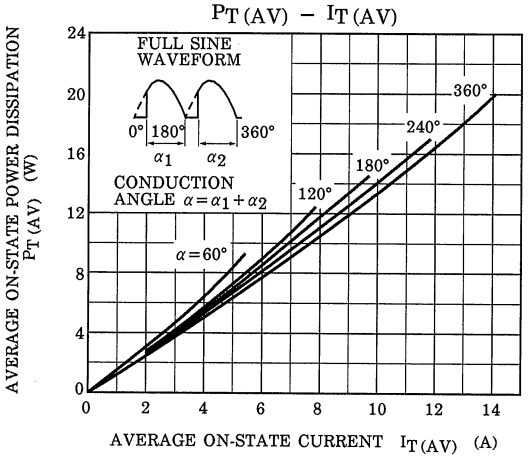
$P_{T(AV)} - I_{T(AV)}$



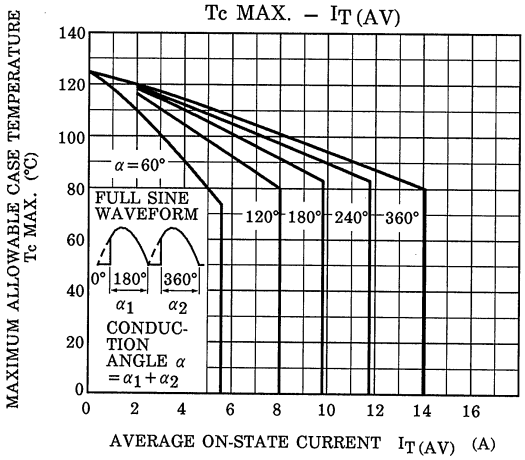
T_c MAX. $- I_{T(AV)}$



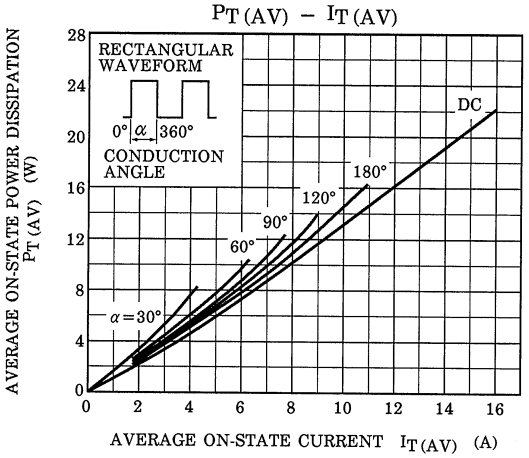
$P_{T(AV)} - I_{T(AV)}$



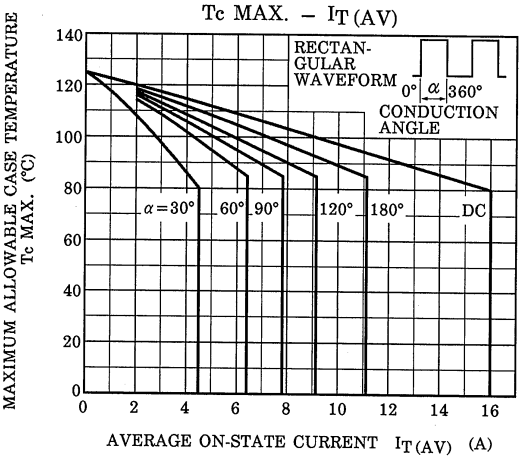
T_c MAX. $- I_{T(AV)}$



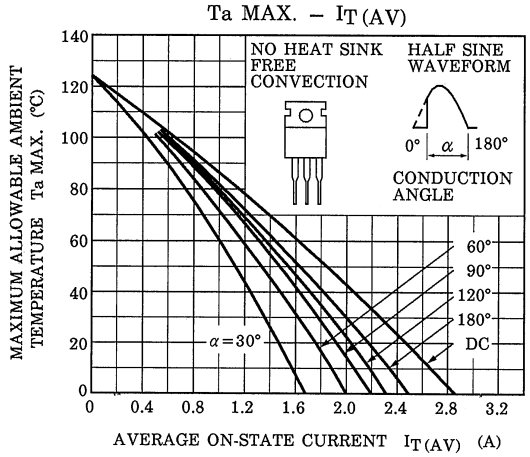
$P_{T(AV)} - I_{T(AV)}$



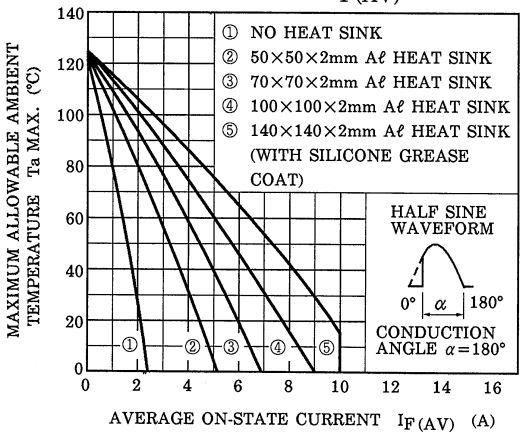
T_c MAX. $- I_{T(AV)}$



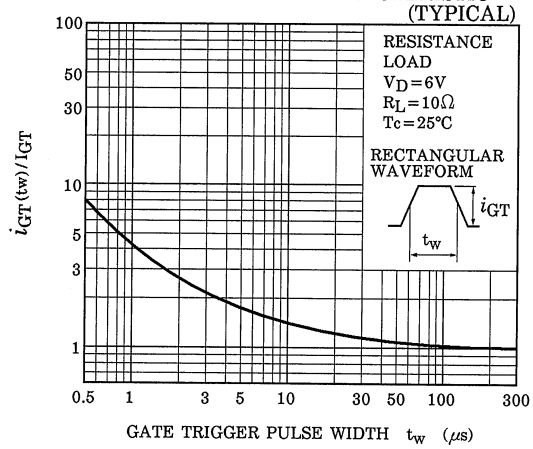
Ta MAX. – $I_{T(AV)}$



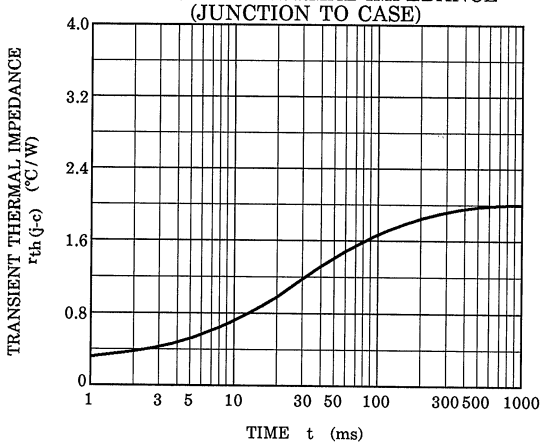
Ta MAX. – $I_{T(AV)}$



PULSE TRIGGER CHARACTERISTIC (TYPICAL)



TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



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