

TOSHIBA THYRISTOR SILICON PLANAR TYPE

## SF10G48, SF10J48, USF10G48, USF10J48

### MEDIUM POWER CONTROL APPLICATIONS

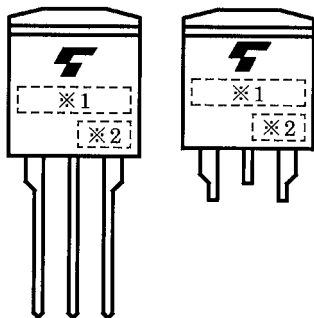
- Repetitive Peak Off-State Voltage :  $V_{DRM} = 400,600V$
- Repetitive Peak Reverse Voltage :  $V_{RRM} = 400,600V$
- Average On-State Current :  $I_T (AV) = 10A$
- Gate Trigger Current :  $I_{GT} = 10mA \text{ MAX.}$

Unit: mm

SF10G48-SF10J48	USF10G48-USF10J48
<p>1. CATHODE 2. ANODE 3. GATE</p>	<p>1. CATHODE 2. ANODE (BACK SIDE) 3. GATE</p>
JEDEC —	JEDEC —
JEITA —	JEITA —
TOSHIBA 13-10J1B	TOSHIBA 13-10J2B

Weight: 1.7g

### MARKING



*1	MARK	F10G48	TYPE NAME	SF10G48, USF10G48
		F10J48		ASF10J48, USF10J48
*2	Lot Number 			

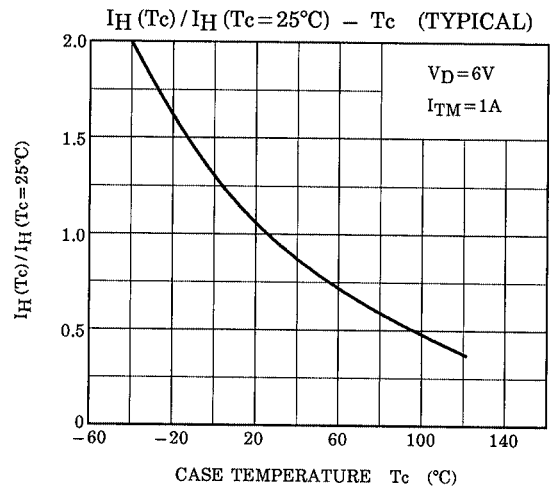
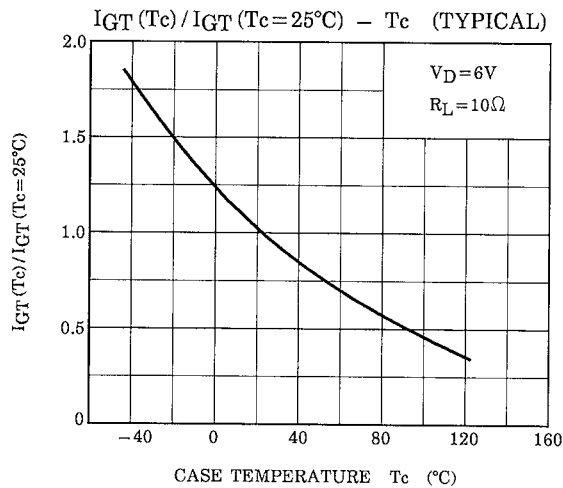
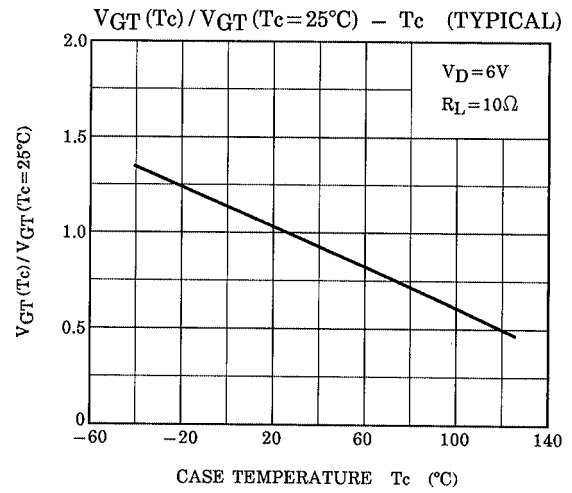
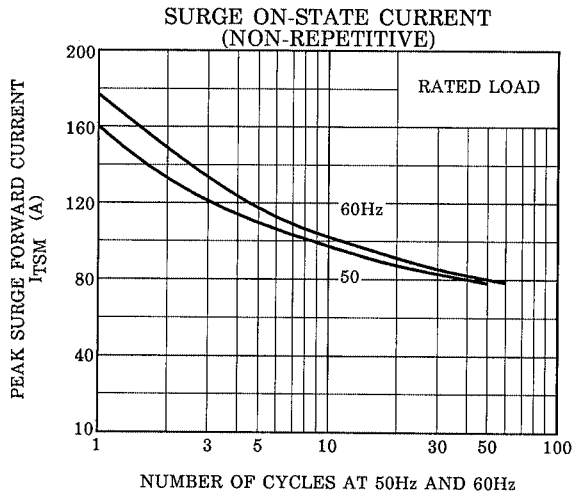
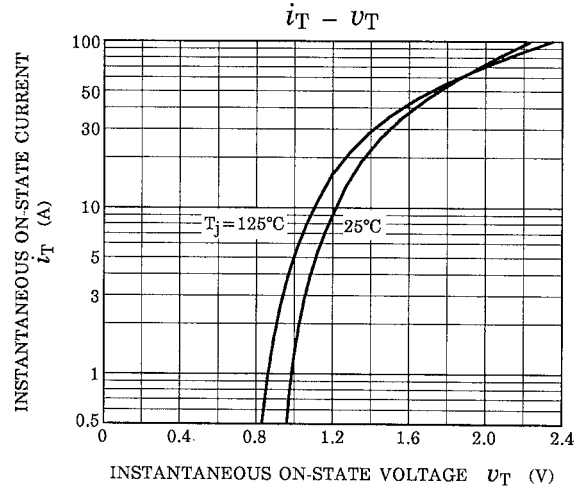
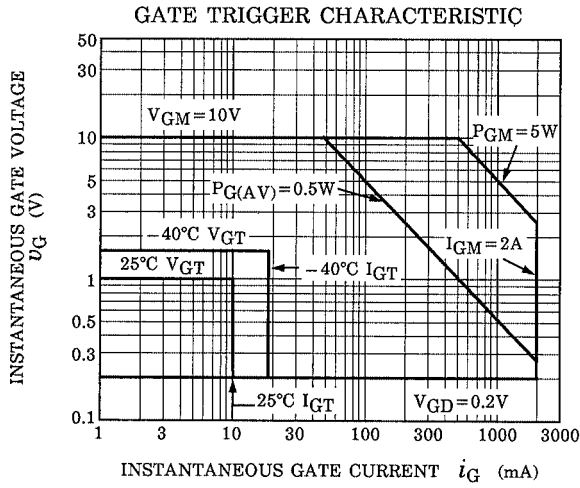
## MAXIMUM RATINGS

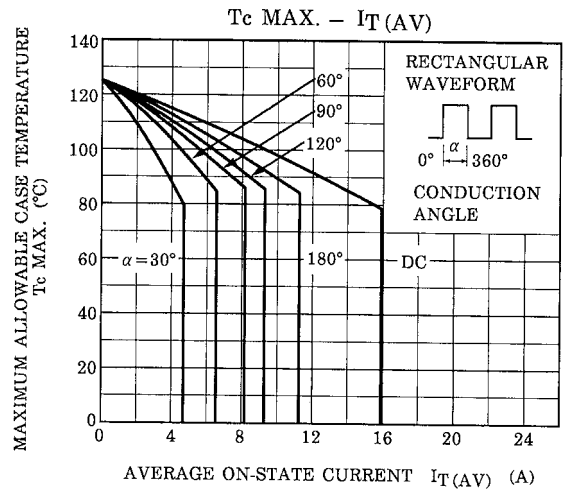
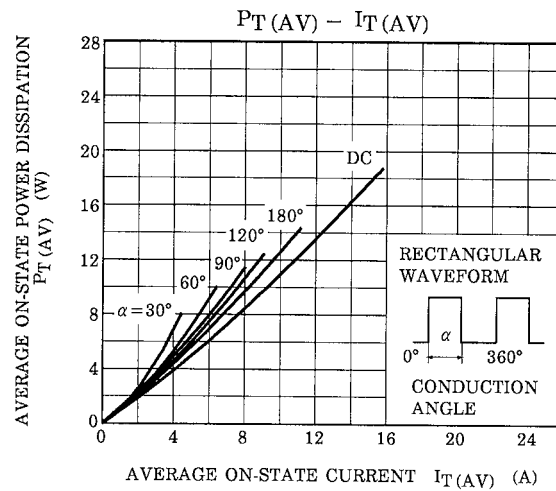
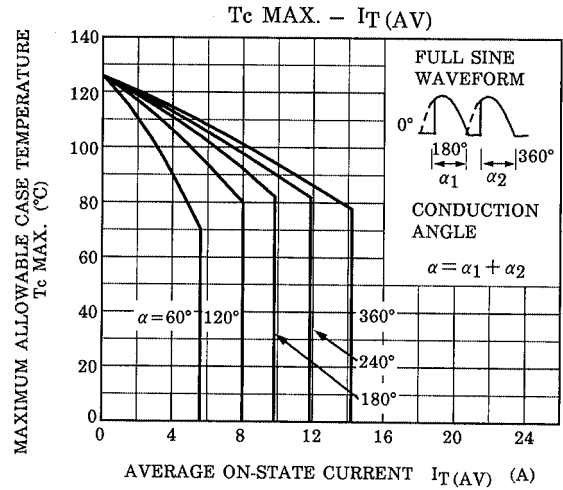
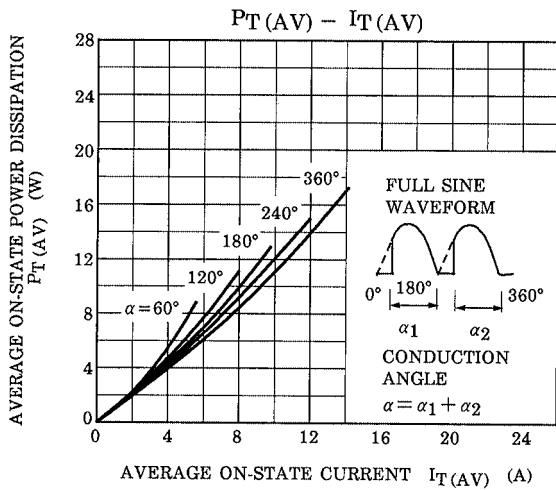
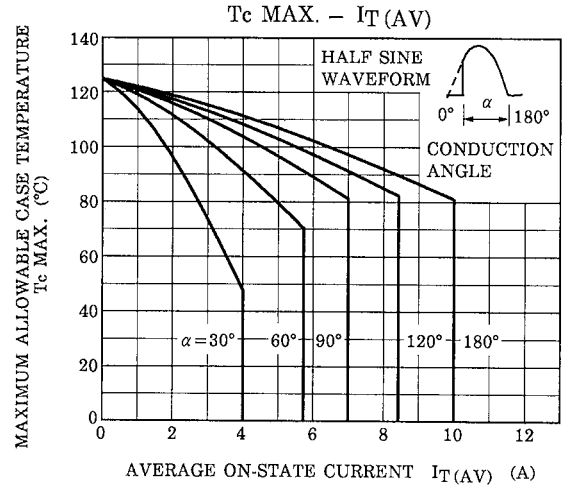
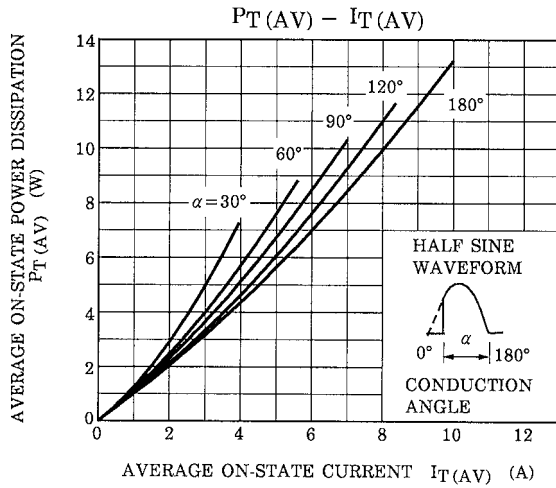
CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF10G48 USF10G48	400	V
	SF10J48 USF10J48	600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive <5ms, T <sub>j</sub> = 0~125°C)	SF10G48 USF10G48	500	V
	SF10J48 USF10J48	720	
Average On-State Current	I <sub>T (AV)</sub>	10	A
R.M.S On-State Current	I <sub>T (RMS)</sub>	16	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I <sub>TSM</sub>	160 (50Hz)	A
		176 (60Hz)	
I <sup>2</sup> <sub>t</sub> Limit Value	I <sup>2</sup> <sub>t</sub>	125	A <sup>2</sup> s
Critical Rate of Rise of On-State Current (Note 1)	di / dt	100	A / μs
Peak Gate Power Dissipation	P <sub>GM</sub>	5	W
Average Gate Power Dissipation	P <sub>G (AV)</sub>	0.5	W
Peak Forward Gate Voltage	V <sub>FGM</sub>	10	V
Peak Reverse Gate Voltage	V <sub>RGM</sub>	-5	V
Peak Forward Gate Current	I <sub>GM</sub>	2	A
Junction Temperature	T <sub>j</sub>	-40~125	°C
Storage Temperature Range	T <sub>stg</sub>	-40~125	°C

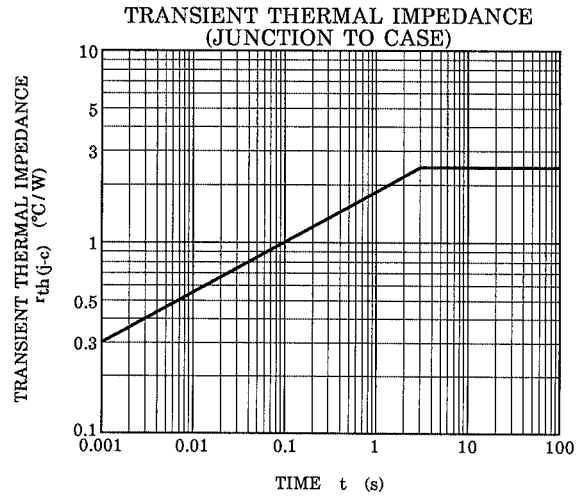
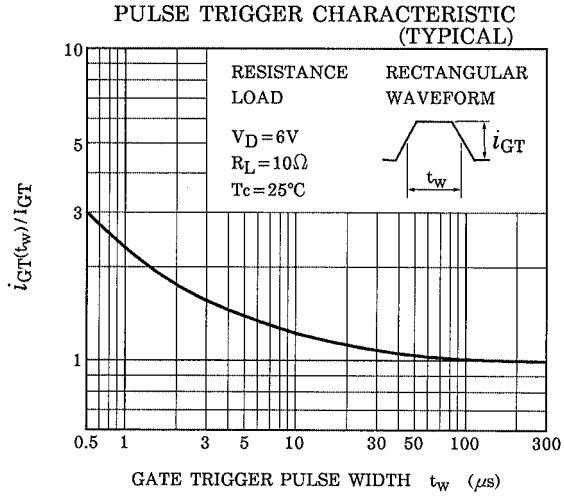
Note 1: V<sub>DRM</sub> = 0.5 × Rated, I<sub>TM</sub> ≤ 30A, t<sub>gw</sub> ≥ 10μs, t<sub>gr</sub> ≤ 250ns, i<sub>gp</sub> = I<sub>GT</sub> × 2.0

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	I <sub>DRM</sub> I <sub>RPM</sub>	V <sub>DRM</sub> = V <sub>RPM</sub> = Rated	—	—	10	μA
Peak On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> = 30A	—	—	1.5	V
Gate Trigger Voltage	V <sub>GT</sub>	V <sub>D</sub> = 6V, R <sub>L</sub> = 10Ω	—	—	1.0	V
Gate Trigger Current	I <sub>GT</sub>		—	—	10	mA
Gate Non-Trigger Voltage	V <sub>GD</sub>	V <sub>D</sub> = Rated × 2 / 3, T <sub>c</sub> = 125°C	0.2	—	—	V
Critical Rate of Rise of Off-State Voltage	dv / dt	V <sub>DRM</sub> = Rated, T <sub>c</sub> = 125°C Exponential Rise	—	50	—	V / μs
Holding Current	I <sub>H</sub>	V <sub>D</sub> = 6V, I <sub>TM</sub> = 1A	—	—	40	mA
Latching Current	I <sub>L</sub>	V <sub>D</sub> = 6V, f = 50Hz t <sub>gw</sub> = 50μs, i <sub>G</sub> = 30mA	—	—	50	mA
Thermal Resistance	R <sub>th (j-c)</sub>	Junction to Case, DC	—	—	2.5	°C / W







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