

TOSHIBA THYRISTOR SILICON PLANAR TYPE

# SF10G48,SF10J48,USF10G48,USF10J48

## MEDIUM POWER CONTROL APPLICATIONS

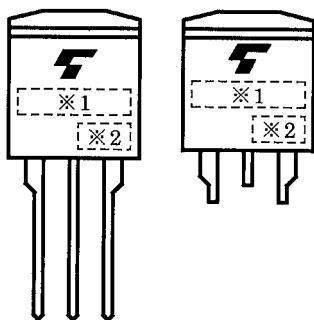
- Repetitive Peak Off-State Voltage :  $V_{DRM} = 400,600V$
- Repetitive Peak Reverse Voltage :  $V_{RRM} = 400,600V$
- Average On-State Current :  $I_T (AV) = 10A$
- Gate Trigger Current :  $I_{GT} = 10mA \text{ MAX.}$

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 			

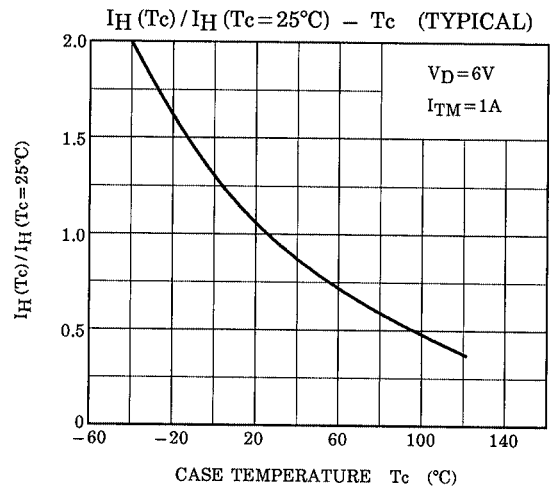
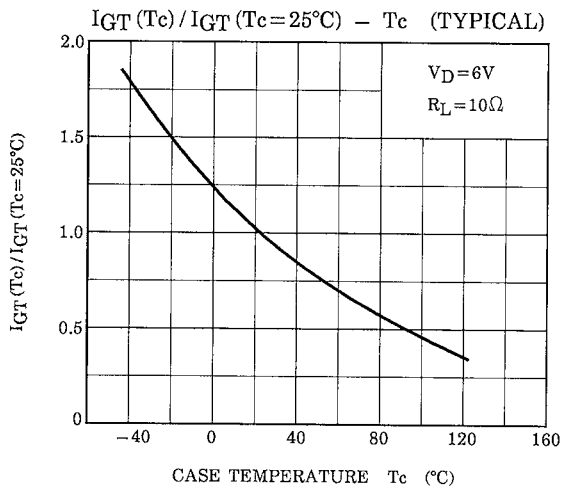
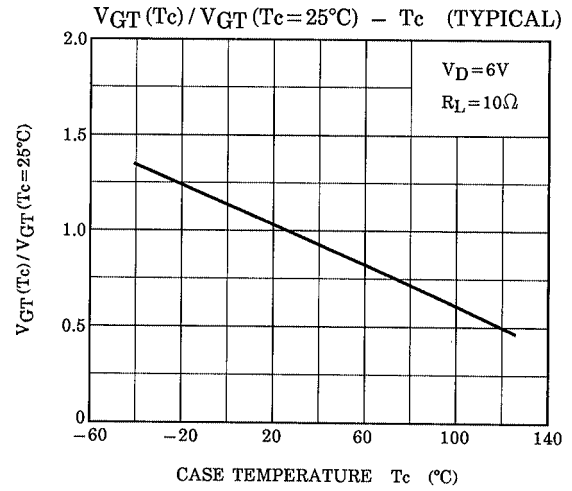
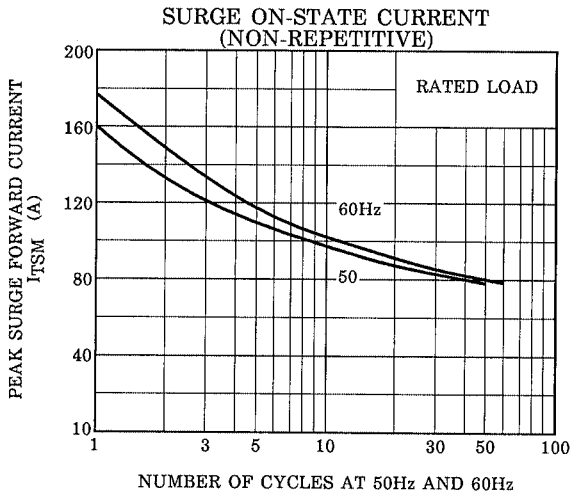
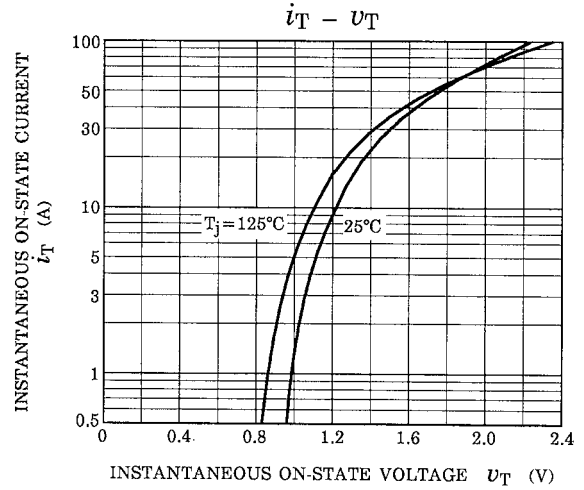
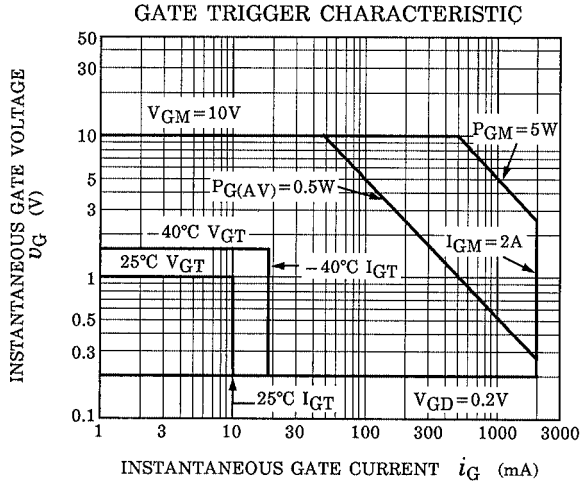
**MAXIMUM RATINGS**

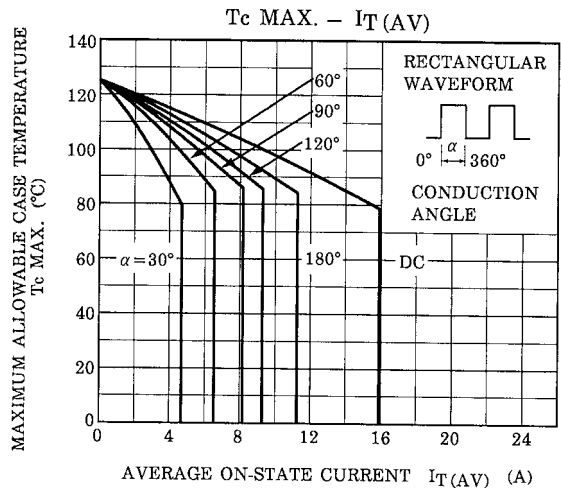
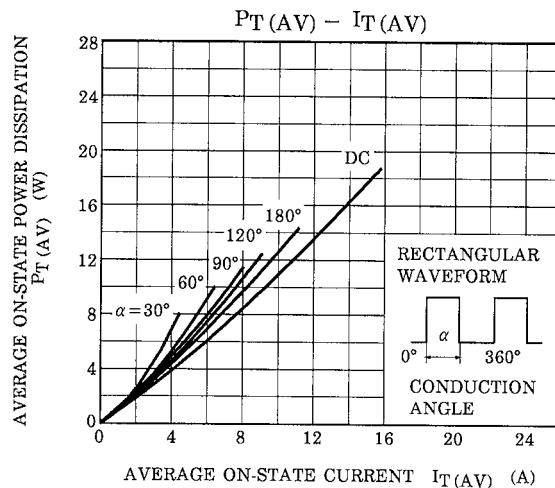
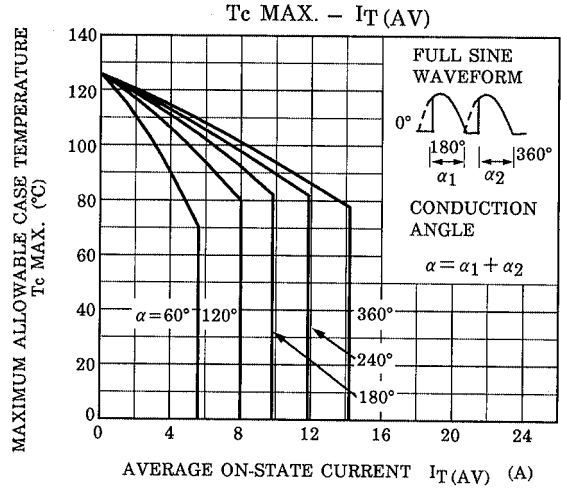
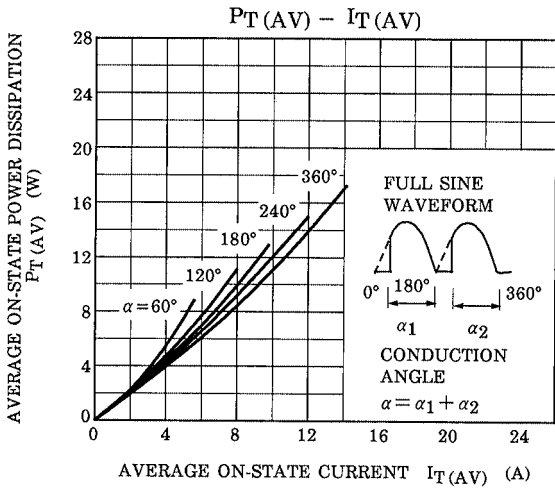
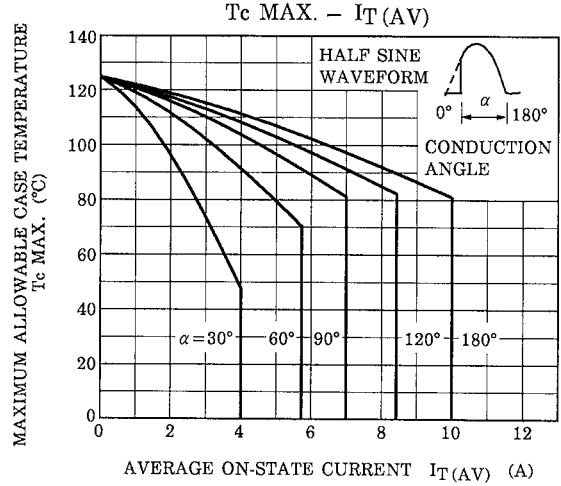
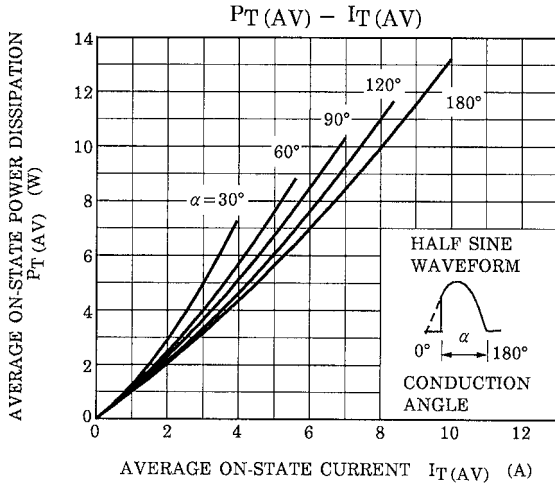
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage	SF10G48 USF10G48	$V_{DRM}$ $V_{RRM}$	400	V
	SF10J48 USF10J48		600	
Non-Repetitive Peak Reverse Voltage (Non-Repetitive <5ms, $T_j = 0\sim 125^\circ\text{C}$ )	SF10G48 USF10G48	$V_{RSM}$	500	V
	SF10J48 USF10J48		720	
Average On-State Current		$I_T (AV)$	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	$\text{A}^2\text{s}$
Critical Rate of Rise of On-State Current (Note 1)		$di / dt$	100	$\text{A} / \mu\text{s}$
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	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-40~125	$^\circ\text{C}$

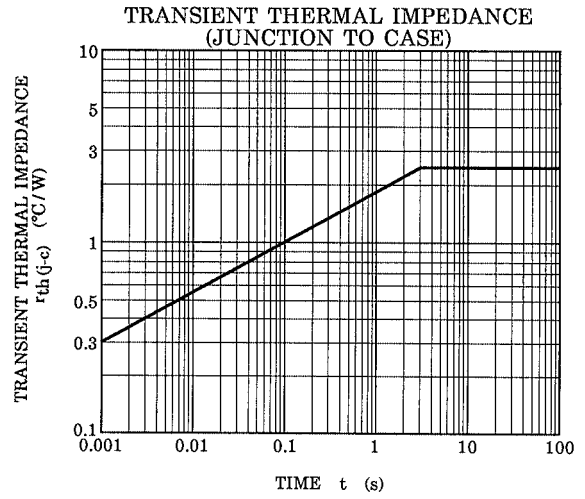
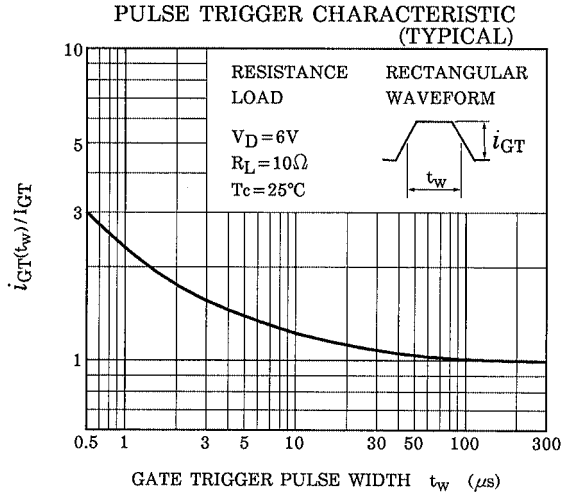
Note 1:  $V_{DRM} = 0.5 \times \text{Rated}$ ,  $I_{TM} \leq 30\text{A}$ ,  $t_{gw} \geq 10\mu\text{s}$ ,  $t_{gr} \leq 250\text{ns}$ ,  $i_{gp} = I_{GT} \times 2.0$

**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current and Repetitive Peak Reverse Current	$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = \text{Rated}$	—	—	10	$\mu\text{A}$
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 30\text{A}$	—	—	1.5	V
Gate Trigger Voltage	$V_{GT}$	$V_D = 6\text{V}$ , $R_L = 10\Omega$	—	—	1.0	V
Gate Trigger Current	$I_{GT}$		—	—	10	mA
Gate Non-Trigger Voltage	$V_{GD}$	$V_D = \text{Rated} \times 2 / 3$ , $T_c = 125^\circ\text{C}$	0.2	—	—	V
Critical Rate of Rise of Off-State Voltage	$dv / dt$	$V_{DRM} = \text{Rated}$ , $T_c = 125^\circ\text{C}$ Exponential Rise	—	50	—	$\text{V} / \mu\text{s}$
Holding Current	$I_H$	$V_D = 6\text{V}$ , $I_{TM} = 1\text{A}$	—	—	40	mA
Latching Current	$I_L$	$V_D = 6\text{V}$ , $f = 50\text{Hz}$ $t_{gw} = 50\mu\text{s}$ , $i_G = 30\text{mA}$	—	—	50	mA
Thermal Resistance	$R_{th (j-c)}$	Junction to Case, DC	—	—	2.5	$^\circ\text{C} / \text{W}$







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