

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM8G48,USM8G48,SM8J48,USM8J48 SM8G48A,USM8G48A,SM8J48A,USM8J48A

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : $V_{DRM} = 400, 600V$
- R.M.S On-State Current : $I_T (RMS) = 8A$
- Gate Trigger Current
 - : $I_{GT} = 30mA$ Max.
 - : $I_{GT} = 20mA$ Max. ("A"Type)

Unit: mm

SM8G48, SM8J48, SM8G48A, SM8J48A	USM8G48, USM8J48, USM8G48A, USM8J48A
JEDEC —	JEDEC —
JEITA —	JEITA —
TOSHIBA 13-10J1A	TOSHIBA 13-10J2A

Weight: 1.7g

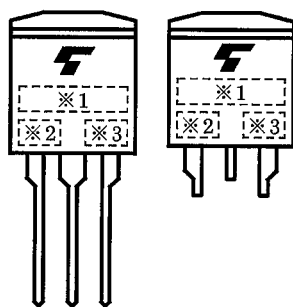
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	400	V
		600	
R.M.S On-State Current	$I_T (RMS)$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	80 (50Hz)	A
		88 (60Hz)	
I^2t Limit Value	I^2t	32	A^2s
Critical Rate of Rise of On-State Current (Note 1)	di / dt	50	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_{GM}	10	V
Peak Forward Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	°C
Storage Temperature Range	T_{stg}	-40~125	°C

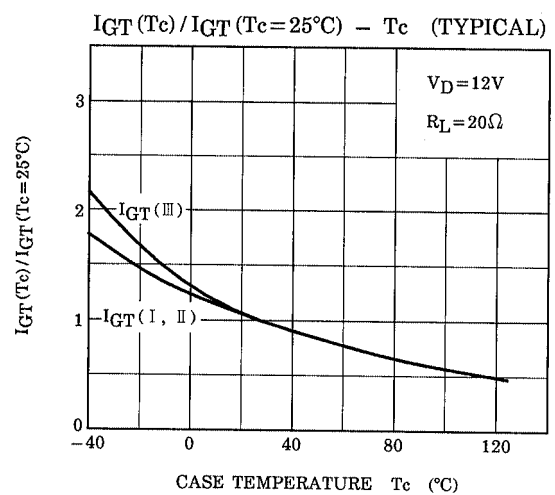
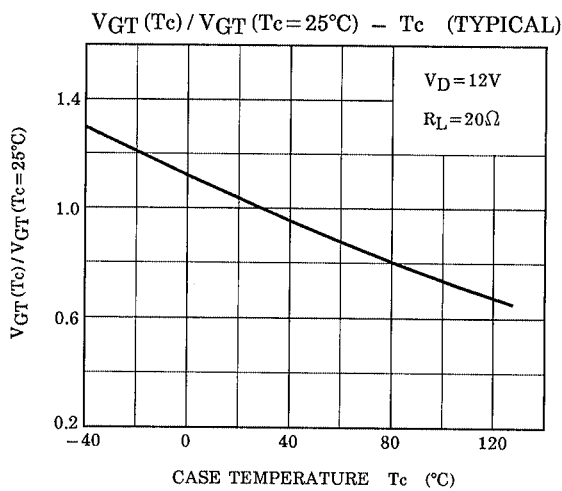
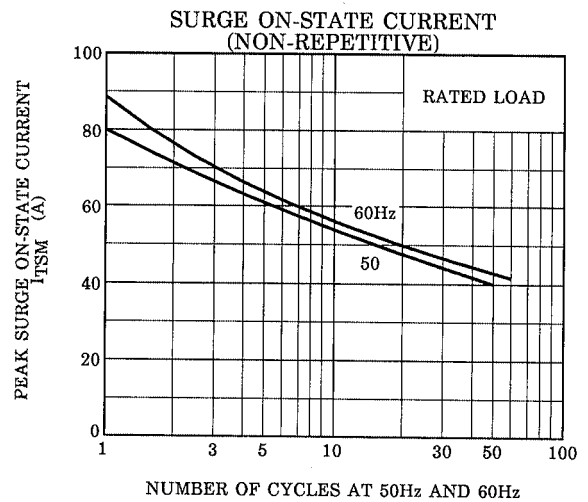
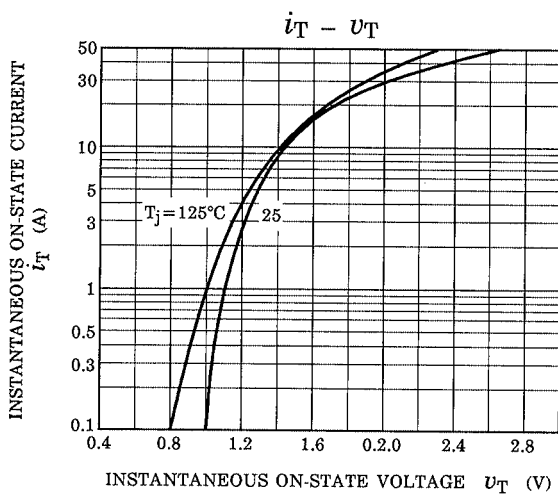
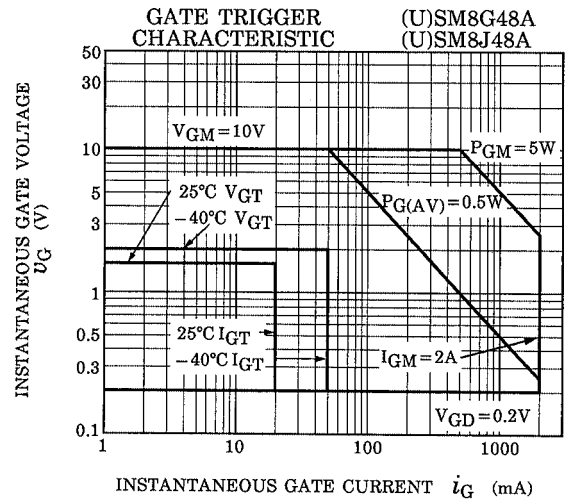
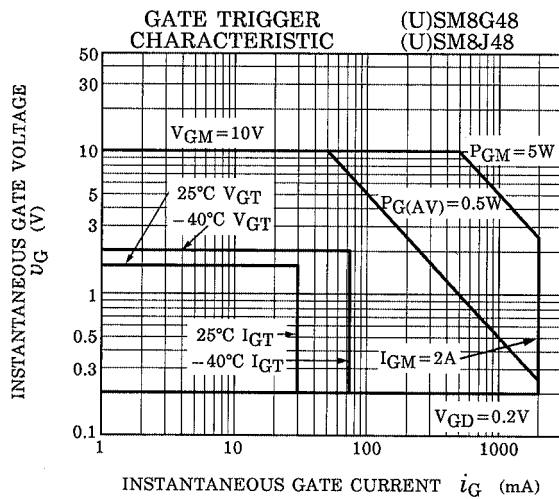
Note 1: $V_{DRM} = 0.5 \times \text{Rated}$
 $I_{TM} \leq 12A$
 $t_{gw} \geq 10\mu s$
 $t_{gr} \leq 250ns$
 $i_{gp} = I_{GT} \times 2.0$

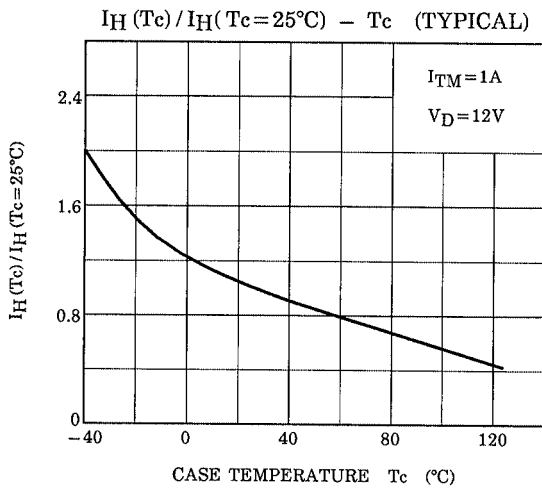
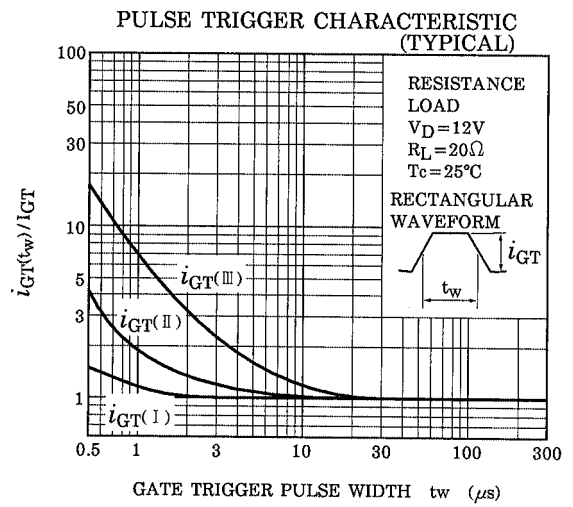
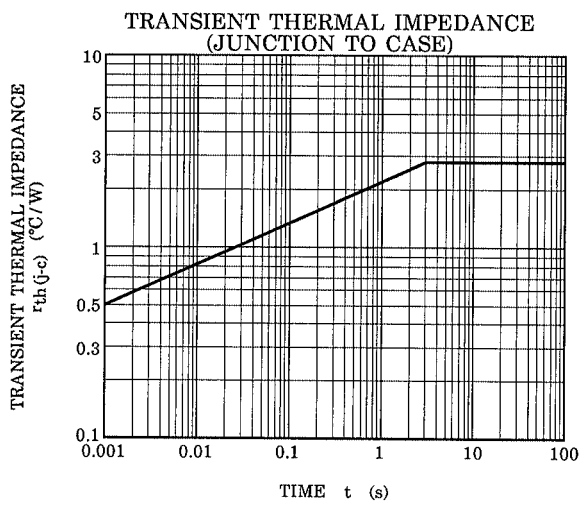
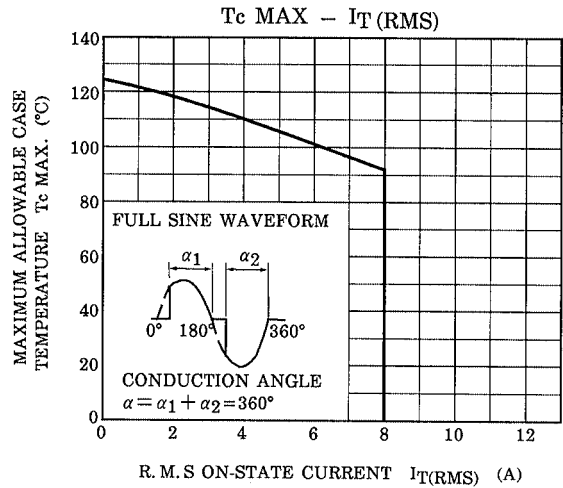
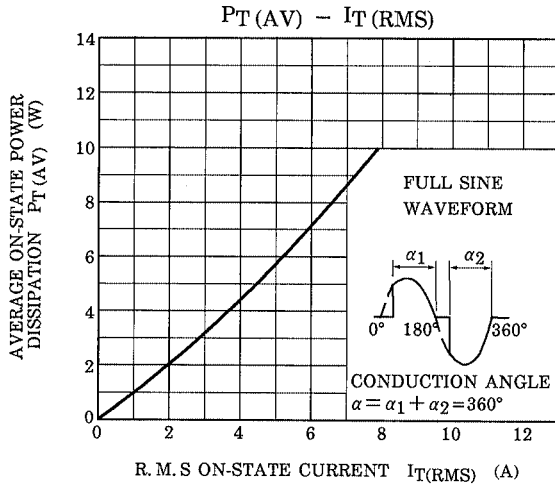
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC			SYMBOL	TEST CONDITION		MIN	TYP.	MAX	UNIT
Repetitive Peak Off-State Current			I _{DRM}	V _{DRM} = Rated		—	—	20	μA
Gate Trigger Voltage		I	V _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	1.5	V
		II			T2 (+), Gate (–)	—	—	1.5	
		III			T2 (–), Gate (–)	—	—	1.5	
		IV			T2 (–), Gate (+)	—	—	—	
Gate Trigger Current	(U)SM8G48 (U)SM8J48	I	I _{GT}	V _D = 12V R _L = 20Ω	T2 (+), Gate (+)	—	—	30	mA
		II			T2 (+), Gate (–)	—	—	30	
		III			T2 (–), Gate (–)	—	—	30	
		IV			T2 (–), Gate (+)	—	—	—	
	(U)SM8G48A (U)SM8J48A	I			T2 (+), Gate (+)	—	—	20	
		II			T2 (+), Gate (–)	—	—	20	
		III			T2 (–), Gate (–)	—	—	20	
		IV			T2 (–), Gate (+)	—	—	—	
Peak On-State Voltage			V _{TM}	I _{TM} = 12A		—	—	1.5	V
Gate Non-Trigger Voltage			V _{GD}	V _D = Rated, T _c = 125°C		0.2	—	—	V
Holding Current			I _H	V _D = 12V, I _{TM} = 1A		—	—	50	mA
Thermal Resistance			R _{th (j-c)}	Junction to Case, AC		—	—	2.8	°C / W
Critical Rate of Rise of Off-State Voltage		(U)SM8G48 (U)SM8J48	dv / dt	V _{DRM} = Rated, T _j = 125°C Exponential Rise		—	300	—	V / μs
		(U)SM8G48A (U)SM8J48A				—	200	—	
Critical Rate of Rise of Off-State Voltage at Commutation		(U)SM8G48 (U)SM8J48	(dv / dt) c	V _{DRM} = 400V, T _j = 125°C (di / dt) c = -4.5A / ms		10	—	—	V / μs
		(U)SM8G48A (U)SM8J48A				4	—	—	

MARKING


NUMBER	SYMBOL		MARK
* 1	TYPE	SM8G48, SM8G48A, USM8G48, USM8G48A	M8G48
		SM8J48, SM8J48A, USM8J48, USM8J48A	M8J48
* 2		SM8G48A, SM8J48A, USM8G48A, USM8J48A	A
* 3	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A : January 1998 8B : February 1998 8L : December 1998





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