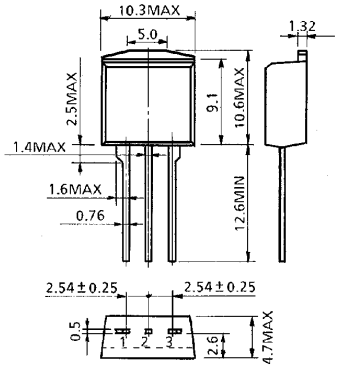
TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

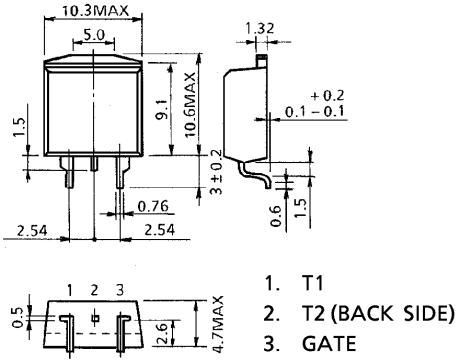
SM6G48, USM6G48, SM6J48, USM6J48
SM6G48A, USM6G48A, SM6J48A, USM6J48A

AC POWER CONTROL APPLICATIONS

- Repetitive Peak Off-State Voltage : V_{DRM}=400, 600V
- R.M.S On-State Current : $I_{T\,(RMS)}$=6A
- Gate Trigger Current
  : I_{GT}=30mA Max.
  : I_{GT}=20mA Max. ("A"Type)

Unit : mm

SM6G48, SM6J48, SM6G48A, SM6J48A	
 1. T1 2. T2 3. GATE	
JEDEC	—
EIAJ	—
TOSHIBA	13-10J1A

USM6G48, USM6J48, USM6G48A, USM6J48A	
 1. T1 2. T2 (BACK SIDE) 3. GATE	
JEDEC	—
EIAJ	—
TOSHIBA	13-10J2A

Weight : 1.7g

MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	(U)SM6G48 (U)SM6G48A	V_{DRM}	400	V
	(U)SM6J48 (U)SM6J48A		600	
R. M. S On-State Current		$I_{T\,(RMS)}$	6	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	60 (50Hz)	A
			66 (60Hz)	
I^2t Limit Value		I^2t	18	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×Rated
$I_{TM} \leqq 9A$
$t_{gw} \geqq 10\mu s$
$t_{gr} \leqq 250ns$
$i_{gp}=I_{GT}\times 2.0$

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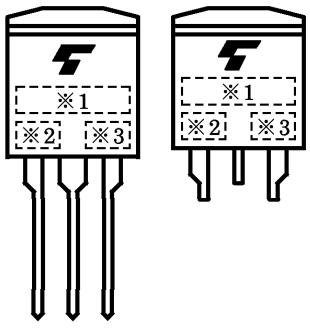
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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)SM6G48 (U)SM6J48	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)SM6G48A (U)SM6J48A	Ⅰ			T2(+), GATE (+)	—	—	20	
		Ⅱ			T2(+), GATE (−)	—	—	20	
		Ⅲ			T2(−), GATE (−)	—	—	20	
		Ⅳ			T2(−), GATE (+)	—	—	—	
Peak On-State Voltage			V_{TM}	I_{TM} = 9A		—	—	1.5	V
Gate Non-Trigger Voltage			V_{GD}	V_D = Rated, Tc = 125°C		0.2	—	—	V
Holding Current			I_H	V_D = 12V, I_{TM} = 1A		—	—	50	mA
Thermal Resistance			$R_{th\ (j\text{-}c)}$	Junction to Case, AC		—	—	3.2	°C / W
Critical Rate of Rise of Off-State Voltage	(U)SM6G48 (U)SM6J48		dv / dt	V_{DRM} = Rated, T_j = 125°C Exponential Rise		—	300	—	V / μs
	(U)SM6G48A (U)SM6J48A					—	200	—	
Critical Rate of Rise of Off-State Voltage at Commutation	(U)SM6G48 (U)SM6J48		(dv / dt) c	V_{DRM} = 400V, T_j = 125°C (di / dt) c = −3.3A / ms		10	—	—	V / μs
	(U)SM6G48A (U)SM6J48A					4	—	—	

MARKING



NUMBER	SYMBOL		MARK
※ 1	TYPE	SM6G48, SM6G48A, USM6G48, USM6G48A	M6G48
		SM6J48, SM6J48A, USM6J48, USM6J48A	M6J48
※ 2		SM6G48A, SM6J48A, USM6G48A, USM6J48A	A
※ 3	Lot Number □ □ — Month (Starting from Alphabet A) — Year (Last Decimal Digit of the Currnet Year)		Example 8A: January 1998 8B: February 1998 8L: December 1998

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