

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	
JEDEC	—
EIAJ	—
TOSHIBA	13-10J1A

USM6G48, USM6J48, USM6G48A, USM6J48A	
JEDEC	—
EIAJ	—
TOSHIBA	13-10J2A

MAXIMUM RATINGS

Weight : 1.7g

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	400	V
		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	$A/\mu s$
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: $V_{DRM}=0.5 \times \text{Rated}$
 $I_{TM} \leq 9A$
 $t_{gw} \geq 10\mu s$
 $t_{gr} \leq 250ns$
 $i_{gp} = I_{GT} \times 2.0$

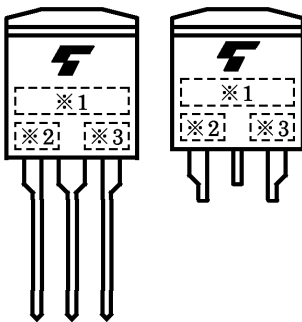
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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
					T2(+), GATE (—)		—	—	1.5	
					T2(—), GATE (—)		—	—	1.5	
					T2(—), GATE (+)		—	—	—	
Gate Trigger Current	(U)SM6G48 (U)SM6J48	I	I _{GT}	V _D = 12V R _L = 20Ω	T2(+), GATE (+)		—	—	30	mA
					T2(+), GATE (—)		—	—	30	
					T2(—), GATE (—)		—	—	30	
					T2(—), GATE (+)		—	—	—	
	(U)SM6G48A (U)SM6J48A	I			T2(+), GATE (+)		—	—	20	
					T2(+), GATE (—)		—	—	20	
					T2(—), GATE (—)		—	—	20	
					T2(—), GATE (+)		—	—	—	
Peak On-State Voltage		V _{TM}	I _{TM} = 9A		—	—	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		—	—	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 Current Year)		Example 8A: January 1998 8B: February 1998 8L: December 1998

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