

TOSHIBA SM8(G,J)48, USM8(G,J)48, SM8(G,J)48A, USM8(G,J)48A

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
: $I_{GT}=30mA \text{ MAX.}$
: $I_{GT}=20mA \text{ MAX. ("A"Type)}$

Unit : mm

SM8G48, SM8J48, SM8G48A, SM8J48A	
JEDEC	—
EIAJ	—
TOSHIBA	13-10J1A

USM8G48, USM8J48, USM8G48A, USM8J48A	
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	$I_T(RMS)$	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	$A/\mu s$
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	$^{\circ}C$
Storage Temperature Range	T_{stg}	-40~125	$^{\circ}C$

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

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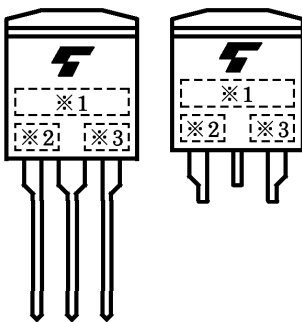
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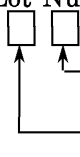


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Repetitive Peak Off-State Current		I_{DRM}	$V_{DRM} = \text{Rated}$	—	—	20	μA	
Gate Trigger Voltage	I	V_{GT}	$V_D = 12\text{V}$ $R_L = 20\Omega$	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_{GT}	$V_D = 12\text{V}$ $R_L = 20\Omega$	T2(+), GATE(+)	—	—	30	mA
				T2(+), GATE(-)	—	—	30	
				T2(-), GATE(-)	—	—	30	
				T2(-), GATE(+)	—	—	—	
	(U)SM8G48A (U)SM8J48A			T2(+), GATE(+)	—	—	20	
				T2(+), GATE(-)	—	—	20	
				T2(-), GATE(-)	—	—	20	
				T2(-), GATE(+)	—	—	—	
Peak On-State Voltage		V_{TM}	$I_{TM} = 12\text{A}$	—	—	1.5	V	
Gate Non-Trigger Voltage		V_{GD}	$V_D = \text{Rated}, T_c = 125^\circ\text{C}$	0.2	—	—	V	
Holding Current		I_H	$V_D = 12\text{V}, I_{TM} = 1\text{A}$	—	—	50	mA	
Thermal Resistance		$R_{th(j-c)}$	Junction to Case, AC	—	—	2.8	$^\circ\text{C}/\text{W}$	
Critical Rate of Rise of Off-State Voltage	(U)SM8G48 (U)SM8J48	dv/dt	$V_{DRM} = \text{Rated}, T_j = 125^\circ\text{C}$ Exponential Rise	—	300	—	$\text{V}/\mu\text{s}$	
	(U)SM8G48A (U)SM8J48A			—	200	—		
Critical Rate of Rise of Off-State Voltage at Commutation	(U)SM8G48 (U)SM8J48	$(dv/dt)_c$	$V_{DRM} = 400\text{V}, T_j = 125^\circ\text{C}$ $(di/dt)_c = -4.5\text{A}/\text{ms}$	10	—	—	$\text{V}/\mu\text{s}$	
	(U)SM8G48A (U)SM8J48A			4	—	—		

MARKING



NUMBER	SYMBOL	MARK
※ 1	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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