

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

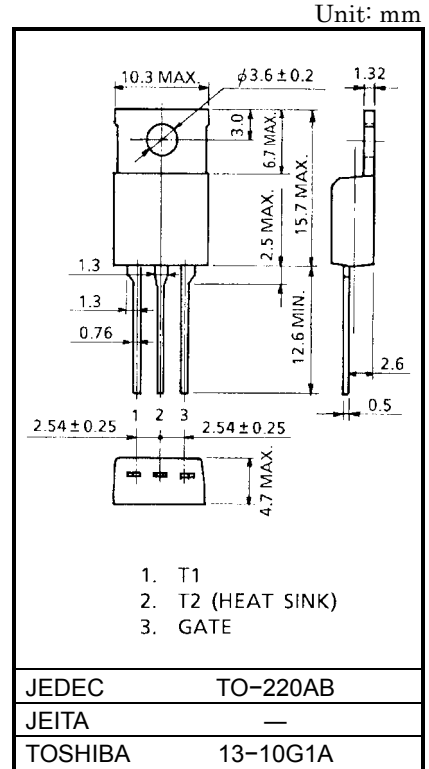
S6903G,S6903J

AC POWER CONTROL APPLICATIONS

- High Rush Current Capability
Optimal for controlling actuators where high rush current may flow.
: $I_{TRM} = 120A$ (n = 100k cycle, $T_c = 45^\circ C$)
- R.M.S On-State Current : I_T (RMS) = 20A
- Repetitive Peak Off-State Voltage : $V_{DRM} = 400V, 600V$

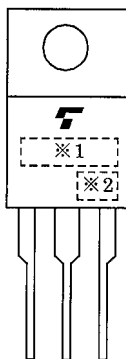
MAXIMUM RATINGS

CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	S6903G	V_{DRM}	400	V
	S6903J		600	
R.M.S On-State Current (Full Sine Waveform $T_c = 100^\circ C$)		I_T (RMS)	20	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	180 (50Hz)	A
			200 (60Hz)	
Repetitive Surge On-State Current (Note 1)		I_{TRM}	120	A
$I^2 t$ Limit Value		$I^2 t$	167	$A^2 s$
Critical Rate of Rise of On-State Current		di / dt	50	A / μs
Peak Gate Power Dissipation		P_{GM}	5	W
Average Gate Power Dissipation		$P_{G(AV)}$	0.5	W
Peak Gate Voltage		V_{GM}	10	V
Peak Gate Current		I_{GM}	2	A
Junction Temperature		T_j	-40~125	$^\circ C$
Storage Temperature Range		T_{stg}	-40~125	$^\circ C$



Weight: 2.0 g

MARKING

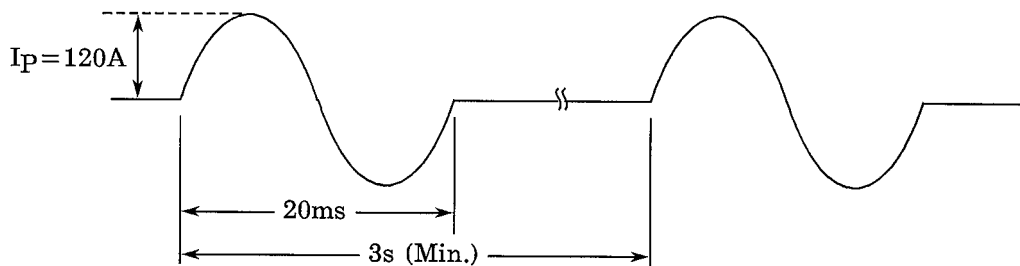


NUMBER	SYMBOL		MARK
*1	TYPE	S6903G	S6903G
		S6903J	S6903J
*2	Lot Number Month (Starting from Alphabet A) Year (Last Decimal Digit of the Current Year)		Example 8A: January 1998 8B: February 1998 8L: December 1998

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	$V_D = 12\text{V}$ $R_L = 20\Omega$		T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
	IV			T2 (-), Gate (+)	—	—	—	
Gate Trigger Current	I	$V_D = 12\text{V}$ $R_L = 20\Omega$		T2 (+), Gate (+)	—	—	30	mA
	II			T2 (+), Gate (-)	—	—	30	
	III			T2 (-), Gate (-)	—	—	30	
	IV			T2 (-), Gate (+)	—	—	—	
Peak On-State Voltage	V_{TM}	$I_{TM} = 30\text{A}$	—	—	1.6	V		
Gate Non-Trigger Voltage	V_{GD}	$V_D = \text{Rated}, T_c = 125^\circ\text{C}$	0.2	—	—	V		
Holding Current	I_H	$V_D = 12\text{V}, I_{TM} = 2\text{A}$	—	—	50	mA		
Thermal Resistance	$R_{th(j-c)}$	Junction to Case, AC	—	—	1.0	$^\circ\text{C} / \text{W}$		
Critical Rate of Rise of Off-State Voltage at Commutation	$(dv / dt)_c$	$V_{DRM} = 400\text{V}, T_j = 125^\circ\text{C}$ $(di / dt)_c = -8.7\text{A} / \text{ms}$	10	—	—	$\text{V} / \mu\text{s}$		

Note 1: Repetitive Surge On-State Current



$I_p = 120\text{A}$ ($f = 50\text{Hz}$) at $T_c = 45^\circ\text{C}$

Max. Repetitive Number of cycle $n = 100\text{k}$ cycle (Repetitive cycle $T = 3\text{s}$ Min.)

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