

## TOSHIBA SOLID STATE AC RELAY

**TSS1G45, TSS1J45, TSS1G47, TSS1J47**

OPTICALLY ISOLATED, ZERO VOLTAGE TURN-ON,  
ZERO CURRENT TURN-OFF, NORMALLY OPEN SSR

Unit in mm

COMPUTER PERIPHERALS  
MACHINE TOOL CONTROLS  
PROCESS CONTROL SYSTEMS  
TRAFFIC CONTROL SYSTEMS

- R.M.S On-State Current :  $I_T(\text{RMS}) = 1\text{A}$
- Repetitive Peak Off-State Voltage :  $V_{\text{DRM}} = 400, 600\text{V}$
- TTL Compatible
- Isolation Voltage : 2060V AC ( $t = 1\text{min.}$ )

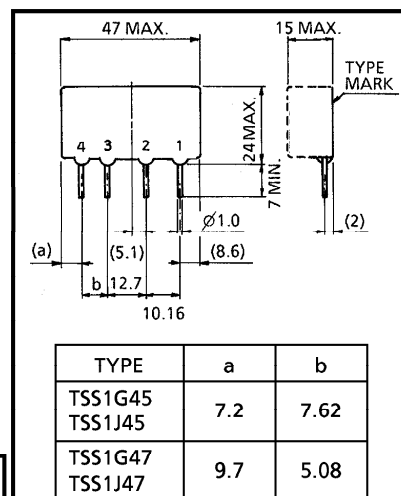
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

INPUT (CONTROL)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Control Input Voltage (DC) (Note 1)	$V_F(\text{IN})$	6	V
Control Input Current (DC)	$I_F(\text{IN})$	20	mA

OUTPUT (LOAD)

Repetitive Peak Off-State Voltage	TSS1G45 TSS1G47	V <sub>DRM</sub>	400	V
	TSS1J45 TSS1J47		600	
Nominal AC Line Voltage	TSS1G45 TSS1G47	V <sub>AC</sub>	120	V
	TSS1J45 TSS1J47		240	
R.M.S On-State Current		I <sub>T</sub> (RMS)	1	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I <sub>TSM</sub>	12 (50Hz)	A
Operating Frequency Range		f	45~65	Hz
Isolation Voltage (t=1min., Input to Output)		BV <sub>S</sub> / AC	2060	V
Operating Temperature Range		T <sub>opr</sub>	−30~80	°C
Storage Temperature Range		T <sub>stg</sub>	−30~80	°C



1. OUTPUT (AC)
2. OUTPUT (AC)
3. INPUT (+)
4. INPUT (-)

JEDEC —

EIAJ —

TOSHIBA	TSS1G45 TSS1J45	10-45A1A
	TSS1G47 TSS1J47	10-45A2A

Weight : 10g

Note 1 : Driving input rating : Insert an external resistance into SSR when the power supply over 6V is used.

Note 2 : Snubber network (C-R) is necessary to protect from surge voltage and  $dv/dt$  fire.  
Snubber network is to be connected between #1 and #2 terminal.

Note 3 : Mounting : Soldering of printed wiring board should be used under  $260^\circ\text{C}$  and 10 second.

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)  
INPUT (CONTROL)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Pick Up Voltage	$V_{FT}$	$V_{AC}=100V_{rms}$ Resistive Load ( $R_L=100\Omega$ )	—	—	4.5	V
Drop Out Voltage	$V_{FD}$		1.0	—	—	V
Input Resistance	$R(IN)$		—	300	—	$\Omega$

OUTPUT (LOAD)

Off-State Leakage Current	TSS1G45 TSS1G47	$I_{OL}$	$V_{AC}=100V_{rms}, f=50Hz$	—	—	1	mA
	TSS1J45 TSS1J47		$V_{AC}=200V_{rms}, f=50Hz$	—	—	2	
Peak On-State Voltage	$V_{TM}$	$I_{TM}=6A$		—	—	2.6	V
Peak Turn-On Voltage	$V_{ON}$	$V_{AC}=100V_{rms}$	(Fig.2)	—	—	5	V
dv / dt (Off-State)	dv / dt	$V_{DRM}=0.7\times Rated$		50	—	—	V / $\mu s$
dv / dt (Commutating)	(dv / dt) c	$V_{DRM}=0.7\times Rated, I_T=1A$		2	—	—	V / $\mu s$
Turn-On Time	$t_{on}$	$V_{AC}=100V_{rms}$ Resistive Load ( $R_L=100\Omega$ )		—	—	1 / 2	Cycle
Turn-Off Time	$t_{off}$			—	—	1 / 2	Cycle
Isolation Resistance	$R_S$	$V=1kV, R.H=40\sim60\%$		—	$10^9$	—	$\Omega$

EQUIVALEN CIRCUIT

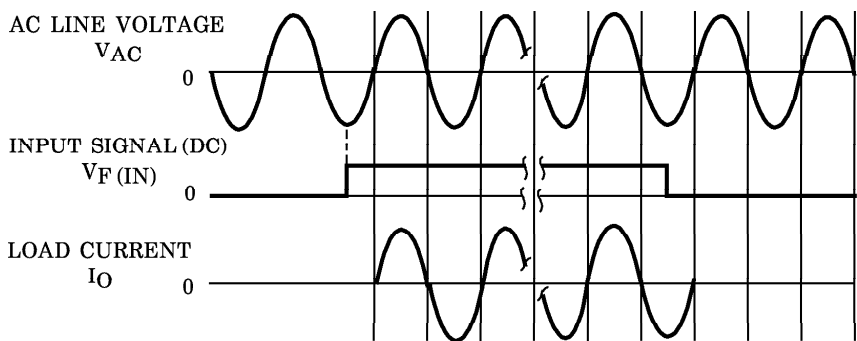
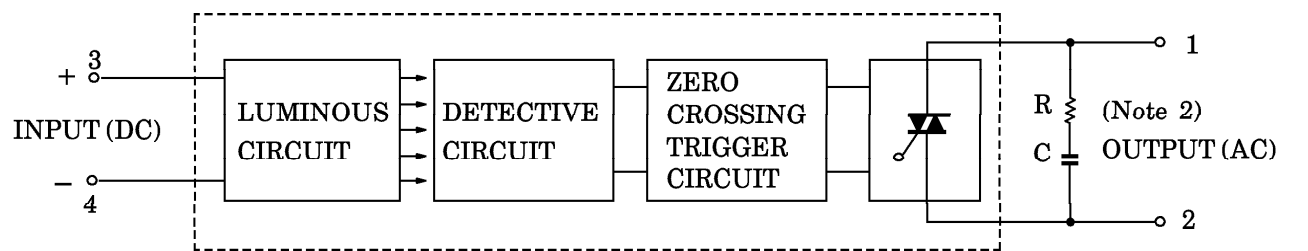


Fig.1 ZERO VOLTAGE SWITCHING WAVEFORM

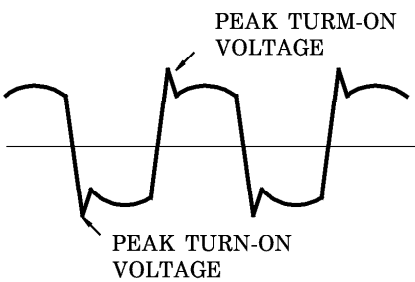


Fig.2 PEAK TURN-ON VOLTAGE WAVEFORM

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