

TOSHIBA SOLID STATE AC RELAY

**TSZ1G45S, TSZ1J45S, TSZ1G47S, TSZ1J47S**

OPTICALLY ISOLATED, NORMALLY OPEN SSR

Unit in mm

COMPUTER PERIPHERALS  
MACHINE TOOL CONTROLS  
PROCESS CONTROL SYSTEMS  
TRAFFIC CONTROL SYSTEMS

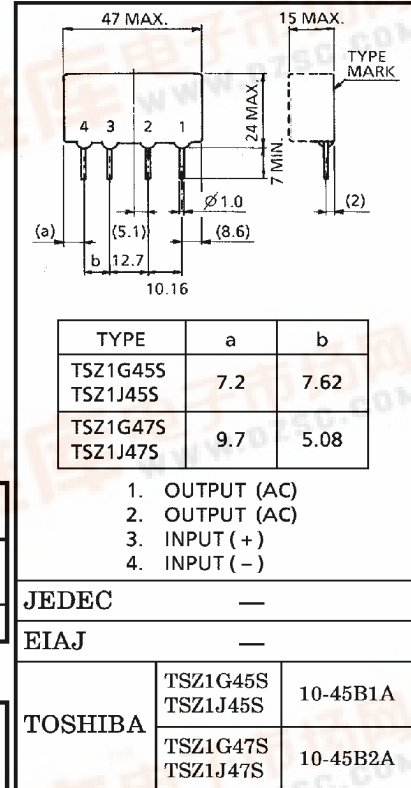
- R.M.S On-State Current :  $I_T$  (RMS) = 1A
- Repetitive Peak Off-State Voltage :  $V_{DRM}$  = 400, 600V
- TTL Compatible
- Isolation Voltage : 2060V AC (t=1min.)
- Including Snubber Network

MAXIMUM RATINGS (Ta = 25°C)  
INPUT (CONTROL)

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

OUTPUT (LOAD)

Repetitive Peak Off-State Voltage	TSZ1G45S TSZ1G47S	$V_{DRM}$	400	V
	TSZ1J45S TSZ1J47S		600	
Nominal AC Line Voltage	TSZ1G45S TSZ1G47S	$V_{AC}$	120	V
	TSZ1J45S TSZ1J47S		240	
R.M.S On-State Current	$I_T$ (RMS)	1	A	
Peak One Cycle Surge On-State Current (Non-Repetitive)	$I_{TSM}$	12 (50Hz)	A	
Operating Frequency Range	f	45~65	Hz	
Isolation Voltage (t=1min., Input to Output)	$BV_S$ / AC	2060	V	
Operating Temperature Range	$T_{opr}$	-30~80	°C	
Storage Temperature Range	$T_{stg}$	-30~80	°C	



Weight : 11g

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

Note 2 : Mounting : Soldering of printed wiring board should be used under 260°C and 10 second.

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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.



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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Pick Up Voltage	V <sub>FT</sub>	V <sub>AC</sub> = 100V <sub>rms</sub> Resistive Load (R <sub>L</sub> = 100Ω)	—	—	4.5	V
Drop Out Voltage	V <sub>FD</sub>		1.0	—	—	V
Input Resistance	R (IN)		—	300	—	Ω

OUTPUT (LOAD)

Off-State Leakage Current	TSZ1G45S TSZ1G47S	I <sub>OL</sub>	V <sub>AC</sub> = 100V <sub>rms</sub> , f = 50Hz	—	—	1	mA
	TSZ1J45S TSZ1J47S		V <sub>AC</sub> = 200V <sub>rms</sub> , f = 50Hz	—	—	2	
Peak On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> = 6A	—	—	2.6	V	
Peak Turn-On Voltage	V <sub>ON</sub>	V <sub>AC</sub> = 100V <sub>rms</sub> (Fig.2)	—	—	10	V	
dv / dt (Off-State)	dv / dt	V <sub>DRM</sub> = 0.7 × Rated	10	—	—	V / μs	
dv / dt (Commutating)	(dv / dt) <sub>c</sub>	V <sub>DRM</sub> = 0.7 × Rated, I <sub>T</sub> = 1A	2	—	—	V / μs	
Turn-On Time	t <sub>on</sub>	V <sub>AC</sub> = 100V <sub>rms</sub>	—	—	1	Cycle	
Turn-Off Time	t <sub>off</sub>	Resistive Load (R <sub>L</sub> = 100Ω)	—	—	1 / 2	Cycle	
Isolation Resistance	R <sub>S</sub>	V = 1kV, R.H = 40 ~ 60%	—	10 <sup>9</sup>	—	Ω	

EQUIVALENT CIRCUIT

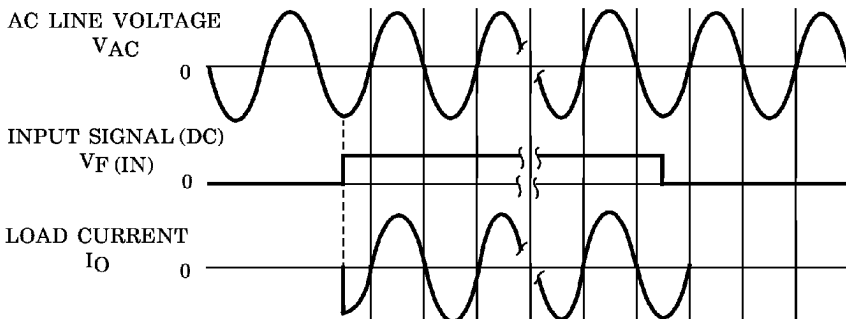
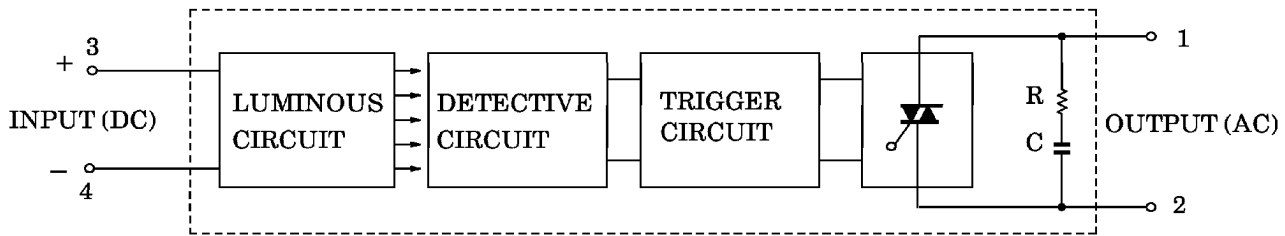


Fig.1 SWITCHING WAVEFORM

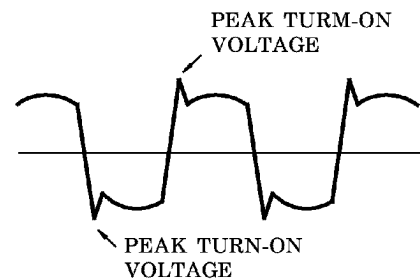


Fig.2 PEAK TURN-ON VOLTAGE WAVEFORM

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