

TOSHIBA SOLID STATE AC RELAY

TSS2G45, TSS2J45, TSS2G47, TSS2J47

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

COMPUTER PERIPHERALS
MACHINE TOOL CONTROLS
PROCESS CONTROL SYSTEMS
TRAFFIC CONTROL SYSTEMS

- R.M.S On-State Current : $I_T(\text{RMS}) = 2\text{A}$
- Repetitive Peak Off-State Voltage : $V_{\text{DRM}} = 400, 600\text{V}$
- TTL Compatible
- Isolation Voltage : 2060V AC ($t = 1\text{min.}$)

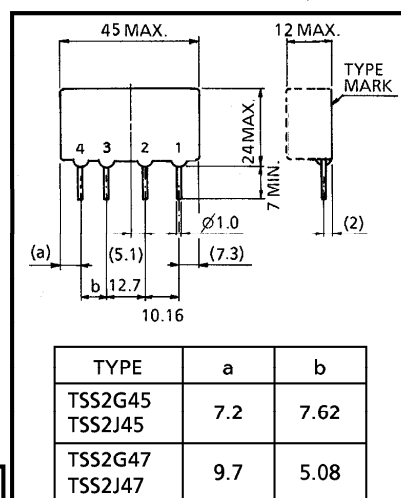
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)
INPUT (CONTROL)

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)

Non-Repetitive Peak Off-State Voltage	TSS2G45 TSS2G47	V _{DRM}	400	V
	TSS2J45 TSS2J47		600	
Nominal AC Line Voltage	TSS2G45 TSS2G47	V _{AC}	120	V
	TSS2J45 TSS2J47		240	
R.M.S On-State Current (with air velocity 5m/s)		I _T (RMS)	2	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I _{TSM}	27 (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

Unit in mm



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

JEDEC —

EIAJ —

TOSHIBA	TSS2G45 TSS2J45	10-45A1A
	TSS2G47 TSS2J47	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°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	—	Ω

OUTPUT (LOAD)

Off-State Leakage Current	TSS2G45 TSS2G47	I_{OL}	$V_{AC}=100V_{rms}, f=50Hz$	—	—	1	mA
	TSS2J45 TSS2J47		$V_{AC}=200V_{rms}, f=50Hz$	—	—	2	
Peak On-State Voltage	V_{TM}	$I_{TM}=4.5A$		—	—	1.5	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 / μs
dv / dt (Commutating)	(dv / dt) c	$V_{DRM}=0.7\times Rated, I_T=2A$		2	—	—	V / μs
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	—	Ω

EQUIVALEN CIRCUIT

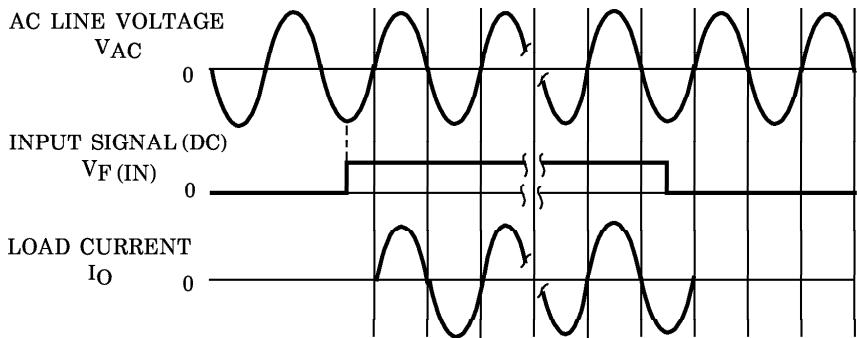
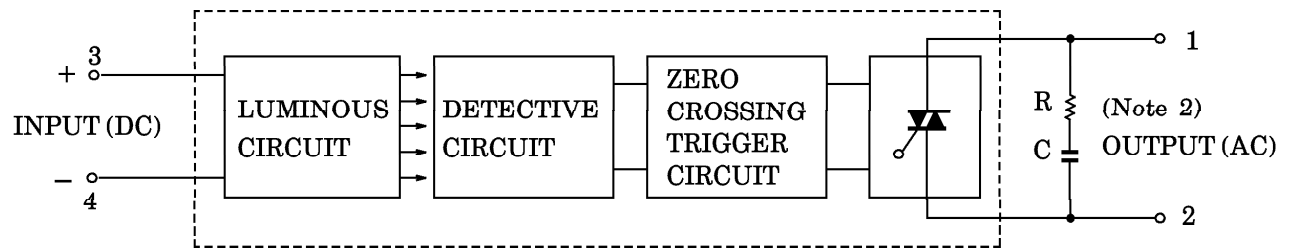


Fig.1 ZERO VOLTAGE SWITCHING WAVEFORM

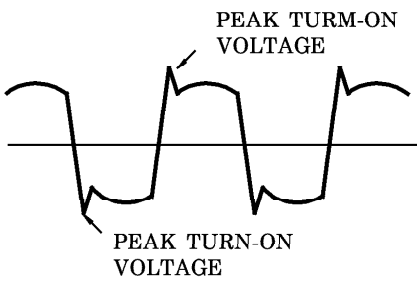


Fig.2 PEAK TURN-ON VOLTAGE WAVEFORM

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