

TOSHIBA SOLID STATE AC RELAY

TSS1G45S, TSS1J45S, TSS1G47S, TSS1J47S

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

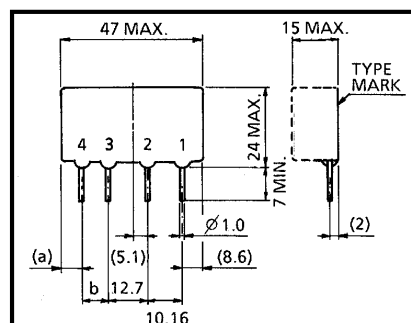
- R.M.S On-State Current : $I_T(\text{RMS}) = 1\text{A}$
- Repetitive Peak Off-State Voltage : $V_{\text{DRM}} = 400, 600\text{V}$
- TTL Compatible
- Isolation Voltage : $2060\text{V AC (}t=1\text{min.)}$
- Including Snubber Network

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	TSS1G45S TSS1G47S	V _{DRM}	400	V
	TSS1J45S TSS1J47S		600	
Nominal AC Line Voltage	TSS1G45S TSS1G47S	V _{AC}	120	V
	TSS1J45S TSS1J47S		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



TYPE	a	b
TSS1G45S TSS1J45S	7.2	7.62
TSS1G47S TSS1J47S	9.7	5.08

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

JEDEC

EIAJ

TOSHIBA	TSS1G45S TSS1J45S	10-45B1A
	TSS1G47S TSS1J47S	10-45B2A

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.

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	TSS1G45S TSS1G47S	I_{OL}	$V_{AC} = 100V_{rms}, f = 50Hz$	—	—	1	mA
	TSS1J45S TSS1J47S		$V_{AC} = 200V_{rms}, f = 50Hz$	—	—	2	
Peak On-State Voltage	V_{TM}	$I_T(RMS) = 6A$		—	—	2.6	V
Peak Turn-On Voltage	V_{ON}	$V_{AC} = 100V_{rms}$ (Fig.2)		—	—	5	V
dv / dt (Off-State)	dv / dt	$V_{DRM} = 0.7 \times \text{Rated}$		50	—	—	V / μs
dv / dt (Commutating)	(dv / dt) c	$V_{DRM} = 0.7 \times \text{Rated}, I_T = 1A$		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	$V = 1kV, R.H = 40 \sim 60\%$		—	10^9	—	Ω

EQUIVALENT CIRCUIT

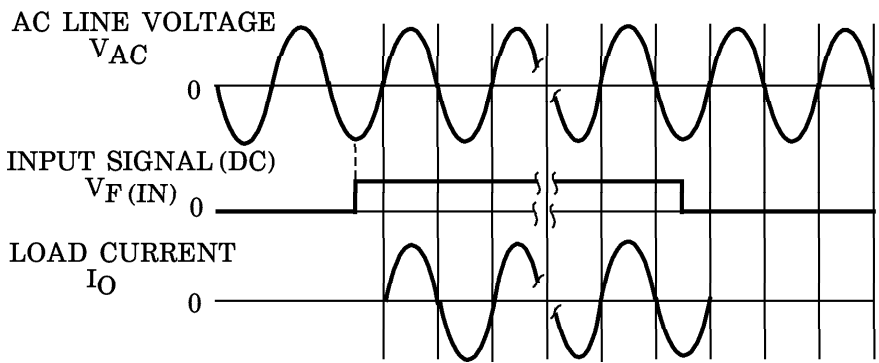
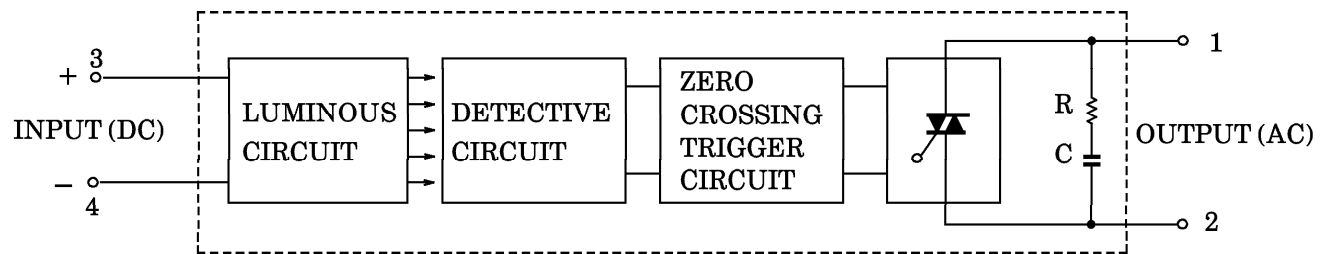


Fig.1 ZERO VOLTAGE SWITCHING WAVEFORM

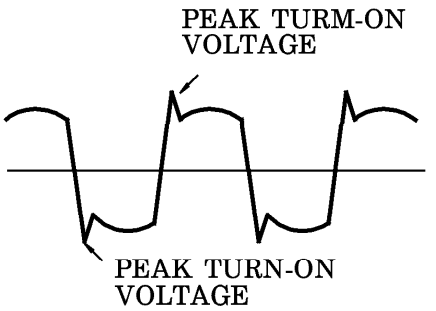
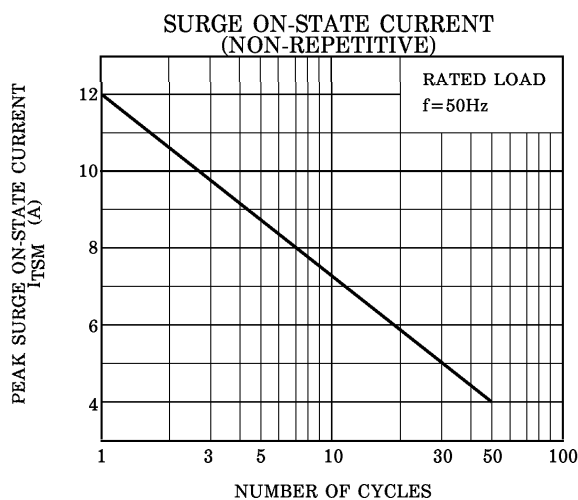
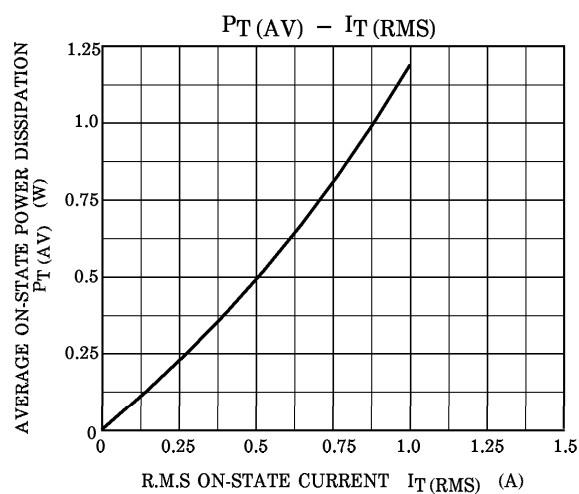
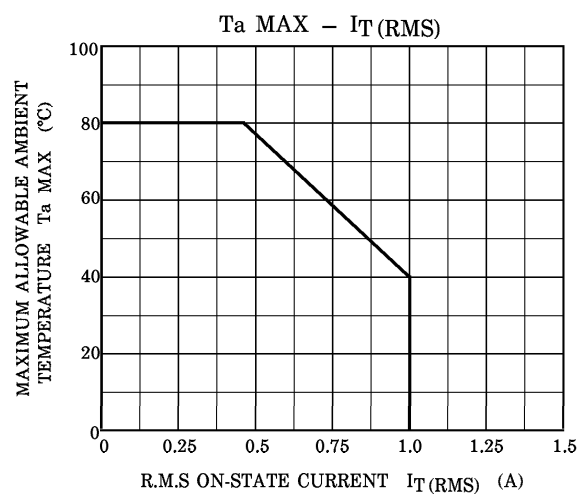


Fig.2 PEAK TURN-ON VOLTAGE WAVEFORM



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