

TOSHIBA SOLID STATE AC RELAY

TSS12G47S, TSS12J47S

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

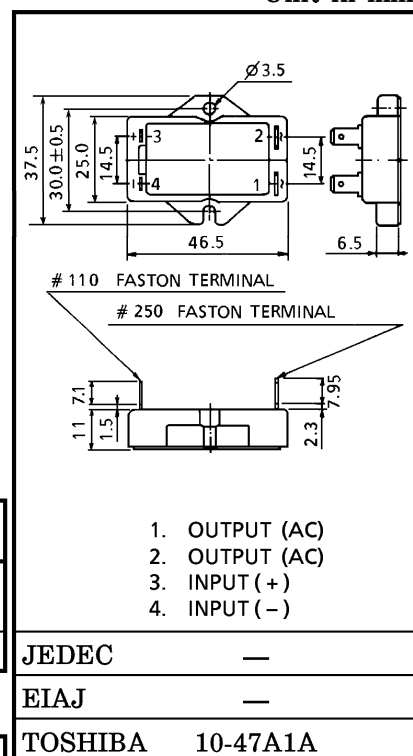
- R.M.S On-State Current : $I_T(\text{RMS}) = 12\text{A}$
- Repetitive Peak Off-State Voltage : $V_{\text{DRM}} = 400, 600\text{V}$
- TTL Compatible
- Isolation Voltage : $2060\text{V AC (}t=1\text{min.)}$
- Including Snubber Network

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)	$I_F(\text{IN})$	25	mA

OUTPUT (LOAD)

Repetitive Peak Off-State Voltage	TSS12G47S	V_{DRM}	400	V
	TSS12J47S		600	
Nominal AC Line Voltage	TSS12G47S	V_{AC}	120	V
	TSS12J47S		240	
R.M.S On-State Current (with Heat Sink $R_{\text{th}} = 1.0^\circ\text{C/W}$)	$T_a = 40^\circ\text{C}$	$I_T(\text{RMS})$	12	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	100 (50Hz)	A
Operating Frequency Range		f	45~65	Hz
Isolation Voltage ($t=1\text{min.}$, Input to Output and Input/Output to Base)		BV_S/AC	2060	V
Operating Temperature Range		T_{opr}	-30~80	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-30~80	$^\circ\text{C}$
Screw Torque (M3)			6	kg-cm



Weight : 31g

- Note 1 : Driving input rating : Insert an external resistance into SSR when the power supply over 6V is used.
- Note 2 : Don't dip the SSR body into the organic solvent like Trichloroethylene, when washing the flux on the terminal.
- Note 3 : For installation of SSR, use spring-wahers, etc., to prevent screws from loosening.

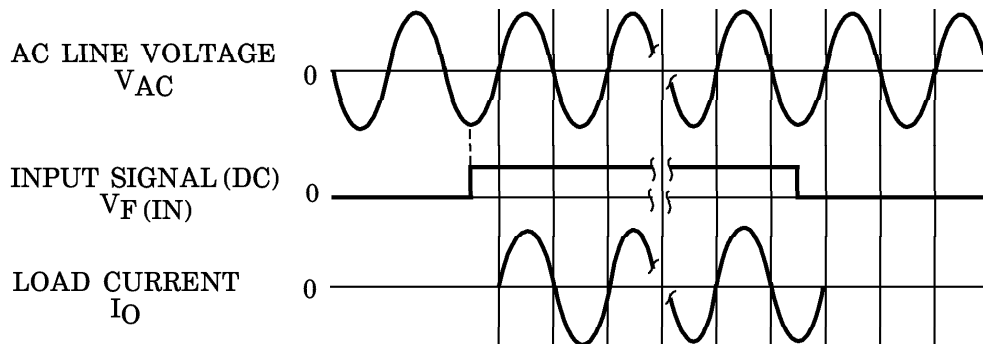
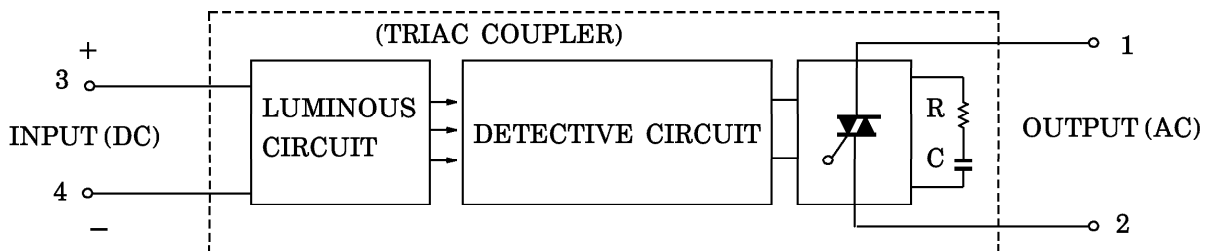
ELECTRICAL CHARACTERISTICS (Ta = 25°C)
INPUT (CONTROL)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Pick Up Voltage	V_{FT}	$V_{AC} = 100V_{rms}$ Resistive Load ($R_L = 100\Omega$)	—	—	4.0	V
Drop Out Voltage	V_{FD}		1.0	—	—	V
Input Resistance	$R(IN)$		—	200	—	Ω

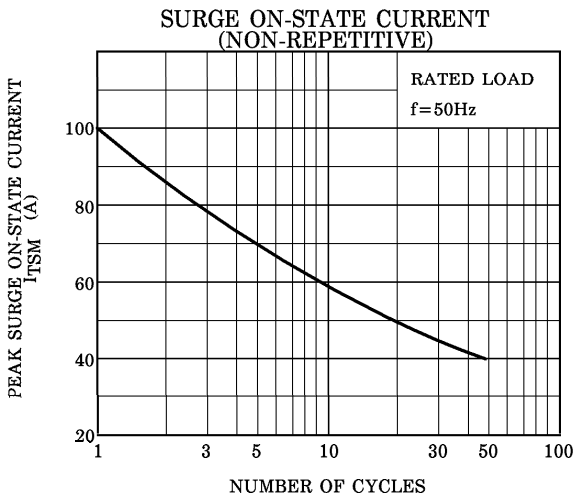
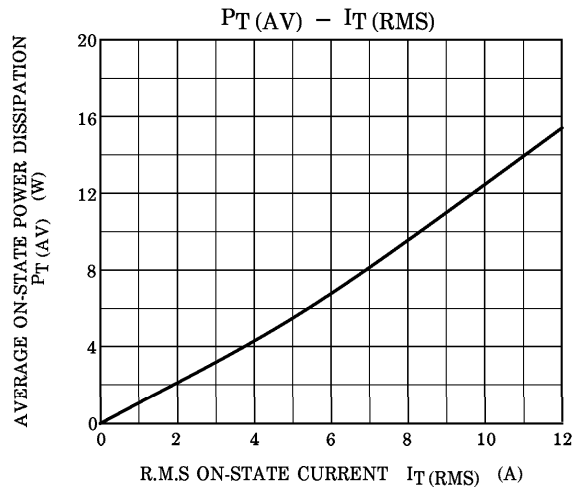
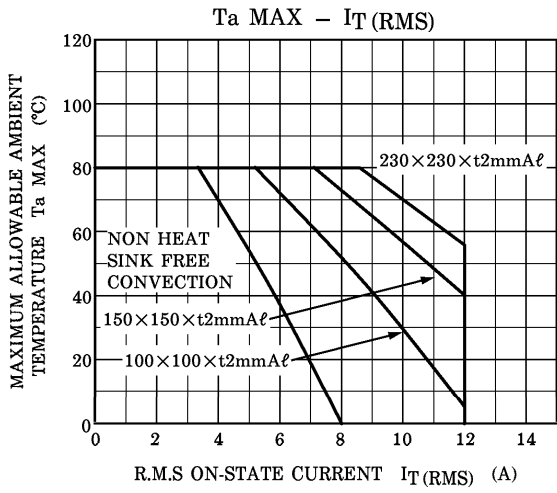
OUTPUT (LOAD)

Off-State Leakage Current	TSS12G47S	I_{OL}	$V_{AC} = 100V_{rms}, f = 50Hz$	—	—	3.0	mA
	TSS12J47S						
Peak On-State Voltage	V_{TM}	$I_{TM} = 12A$	—	—	1.8	V	
dv / dt (Off-State)	dv / dt	$V_{DRM} = 0.7 \times \text{Rated}$	50	—	—	V / μs	
dv / dt (Commutaing)	(dv / dt) c	$V_{DRM} = 0.7 \times \text{Rated}, I_T = 12A$	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		
Isolation Resistance	R_S	$V = 1kV, R.H = 40 \sim 60\%$	10^{10}	—	—	Ω	
Thermal Resistance	$R_{th(j-c)}$	AC	—	—	2.3	$^{\circ}C / W$	

EQUIVALEN CIRCUIT



ZERO VOLTAGE SWITCHING WAVEFORM



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