TOSHIBA SOLID STATE AC RELAY

TSS5G45S, TSS5J45S

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

COMPUTER PERIPHERALS

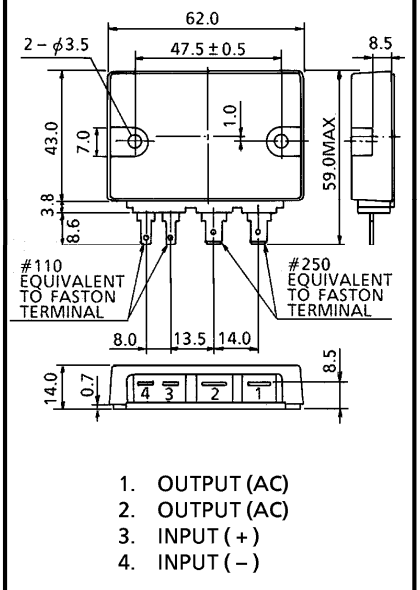
MACHINE TOOL CONTROLS

PROCESS CONTROL SYSTEMS

TRAFFIC CONTROL SYSTEMS

- R.M.S On-State Current : $I_{T(RMS)}$ = 5A
- Repetitive Peak Off-State Voltage : V_{DRM} = 400, 600V
- TTL Compatible
- Isolation Voltage : 1500V AC (t = 1min.)
- Including Snubber Network

Unit in mm



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

JEDEC	—
EIAJ	—
TOSHIBA	10-62A1A

Weight : 50g

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	TSS5G45S	V_{DRM}	400	V
	TSS5J45S		600	
Nominal AC Line Voltage	TSS5G45S	V_{AC}	120	V
	TSS5J45S		240	
R.M.S On-State Current		$I_{T(RMS)}$	5	A
Peak One Cycle Surge On-State Current (Non-Repetitive)		I_{TSM}	70 (50Hz)	A
Operating Frequency Range		f	45~65	Hz
Isolation Voltage (t = 1min., Input to Output and Input / Output to Base)		BV_S / AC	1500	V
Operating Temperature Range		T_{opr}	−30~80	°C
Storage Temperature Range		T_{stg}	−30~80	°C

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.

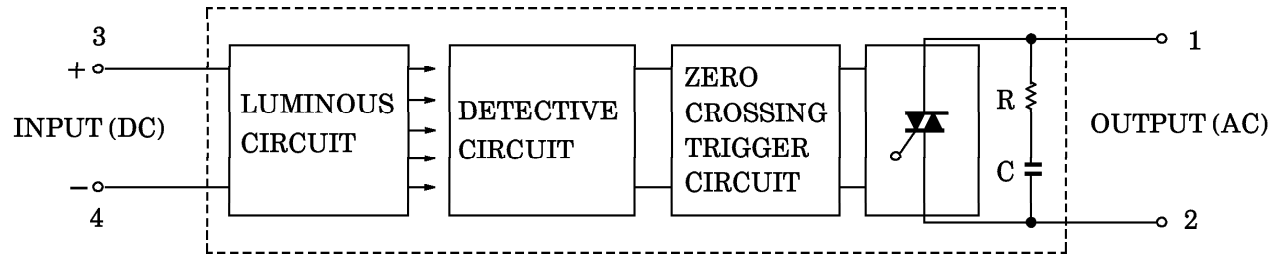
ELECTRICAL CHARACTERISTICS (Ta = 25°C)
INPUT (CONTROL)

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

OUTPUT (LOAD)

Off-State Leakage Current	TSS5G45S	I_{OL}	V_{AC}=100V_{rms}, f=50Hz	—	—	7	mA
	TSS5J45S		V_{AC}=200V_{rms}, f=50Hz	—	—	14	
Peak On-State Voltage		V_{TM}	I_{TM}=12A	—	—	1.9	V
Peak Turn-On Voltage		V_{ON}	V_{AC}=100V_{rms}, f=50Hz (Fig.2)	—	—	7	V
dv / dt (Off-State)		dv / dt	V_{DRM}=0.7×Rated	50	—	—	V / μs
dv / dt (Commutaing)		(dv / dt) c	V_{DRM}=0.7×Rated, I_T=8A	2	—	—	V / μs
Turn-On Time		t_{on}	V_{AC}=100Vrms Resistive Load (R_L=100Ω)	—	—	1 / 2	Cycle
Turn-Off Time		t_{off}		—	—	1 / 2	
Isolation Resistance		R_S	V=1kV, R.H=40~60%	—	10^9	—	Ω
Thermal Resistance		$R_{th\,(j\text{-}c)}$	AC	—	—	5	°C / W

EQUIVALEN CIRCUIT



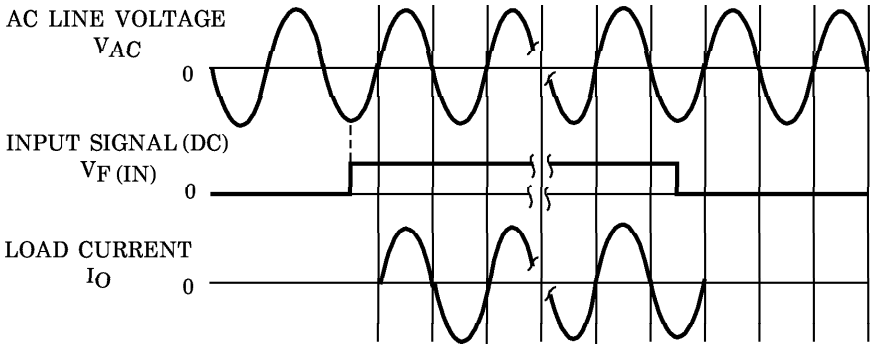


Fig.1 ZERO VOLTAGE SWITCHING WAVEFORM

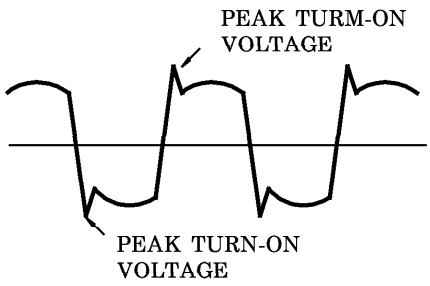
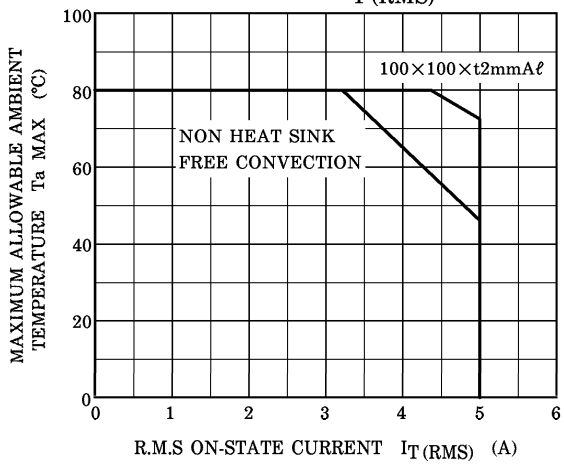
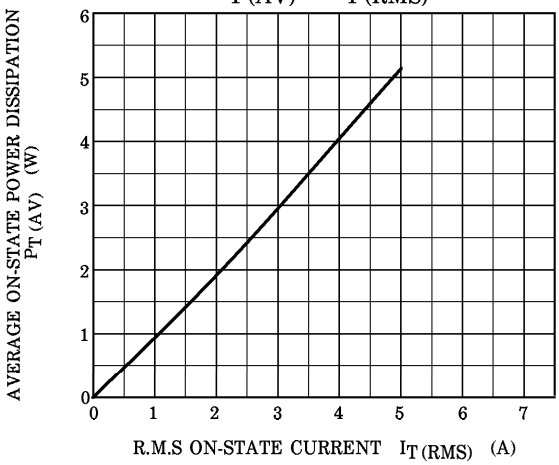


Fig.2 PEAK TURN-ON VOLTAGE WAVEFOM

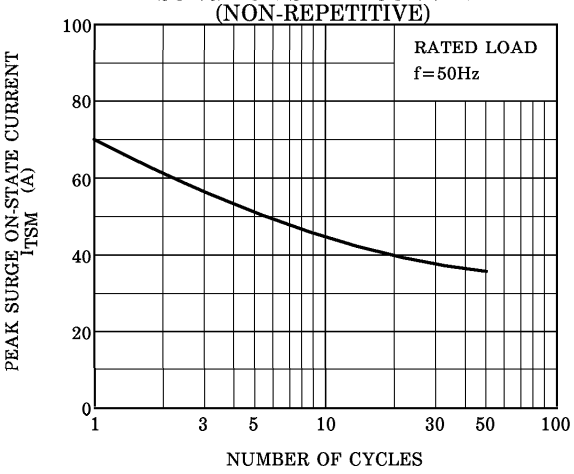
Ta MAX – $I_{T\,(RMS)}$



$P_{T\,(AV)}$ – $I_{T\,(RMS)}$



SURGE ON-STATE CURRENT (NON-REPETITIVE)



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