

# S101S05V/S101S06V S201S05V/S201S06V

## SIP Type SSR with Mounting Capability for External Heat Sink

### ■ Features

- High radiation resin mold package.
- RMS ON-state current  
 $I_T$ : MAX. 3Arms at  $T_c \leq 100^\circ\text{C}$   
 (With heat sink)
- Isolation voltage between input and output  
 $(V_{iso}: 3\,000\ V_{rms})$
- Built-in zero-cross circuit  
 (S101S06V/S201S06V)
- Recognized by UL, file No. E94758  
 Approved by CSA, No. LR63705

### ■ Applications

- OA equipment such as copiers
- FA equipment

### ■ Model Line-ups

	For 100V lines	For 200V lines
No built-in zero-cross circuit	<b>S101S05V</b>	<b>S201S05V</b>
Built-in zero-cross circuit	<b>S101S06V</b>	<b>S201S06V</b>

### ■ Absolute Maximum Ratings

Parameter	Symbol	Rating		Unit	
		S101S05V / S101S06V	S201S05V / S201S06V		
Input	Forward current	$I_F$	50	mA	
	Reverse voltage	$V_R$	6	V	
	RMS ON-state current	$I_T$	*43	A <sub>rms</sub>	
Output	*1 Peak one cycle surge current	$I_{surge}$	30	A	
	Repetitive peak OFF-state voltage	$V_{DRM}$	400	600	V
	Non-repetitive peak OFF-state voltage	$V_{DSM}$	400	600	V
	Critical rate of rise of ON-state current	$dI_T / dt$	40		A/ $\mu$ s
	Operating frequency	$f$	45 to 65		Hz
	*2 Isolation voltage	$V_{iso}$	3 000	V <sub>rms</sub>	
	Operating temperature	$T_{opr}$	- 25 to + 100	$^\circ\text{C}$	
	Storage temperature	$T_{stg}$	- 30 to + 125	$^\circ\text{C}$	
	*3 Soldering temperature	$T_{sol}$	260	$^\circ\text{C}$	

\*1 60Hz sine wave, start at  $T_j = 25^\circ\text{C}$

\*2 60Hz AC for 1 minute, 40 to 60% RH. Apply voltages between input and output, by the dielectric withstand voltage tester with zero-cross circuit. (Input and output shall be shorted respectively)

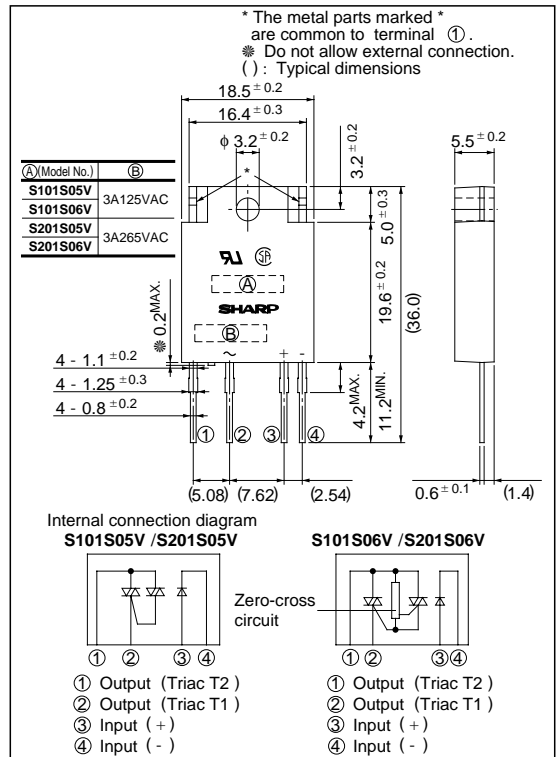
(Note) When the isolation voltage is necessary at using external heat sink, please use the insulation sheet.

\*3 For 10 seconds

\*4  $T_c \leq 100^\circ\text{C}$

### ■ Outline Dimensions

(Unit : mm)



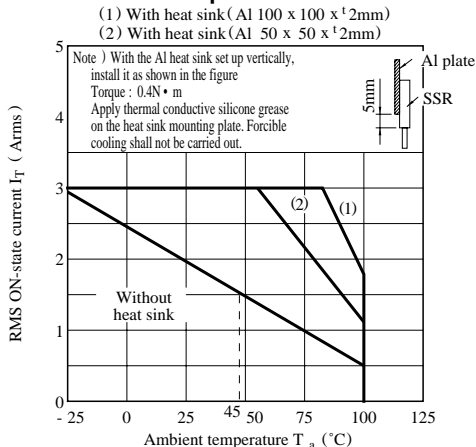
( $T_a = 25^\circ\text{C}$ )

## Electrical Characteristics

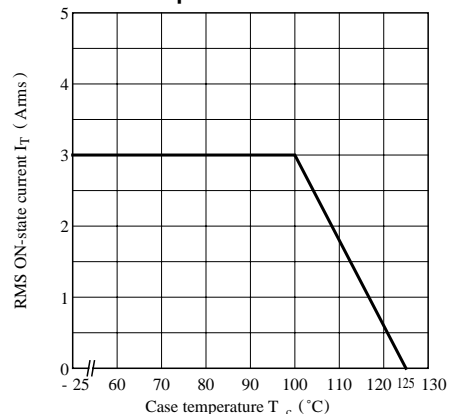
(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	1.4	V	
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	$10^{-4}$	A	
Repetitive peak OFF-state current		$I_{DRM}$	$V_D = V_{DRM}$	-	-	$10^{-4}$	A	
Output	RMS ON-state current	$V_T$	Resistance load, $I_F = 20\text{mA}$ $I_T = 1.5A_{rms}$	-	-	1.5	$V_{rms}$	
	Holding current	$I_H$	-	-	-	50	mA	
	Critical rate of rise of OFF-state voltage	$dV/dt$	$V_D = 2/3V_{DRM}$	30	-	-	$V/\mu s$	
	Critical rate of rise of commutating OFF-state voltage	$(dV/dt)_c$	$T_j = 125^\circ\text{C}$ , $V_D = 400\text{V}$ $dI/dt = -1.5\text{A/ms}$	4	-	-	$V/\mu s$	
Transfer characteristics	Minimum trigger current	S101S05V / S201S05V	$I_{FT}$	$V_D = 12\text{V}$ , $R_L = 30\Omega$	-	-	15	mA
		S101S06V / S201S06V			$V_D = 6\text{V}$ , $R_L = 30\Omega$	-	-	
	Isolation resistance		$R_{ISO}$	DC500V, 40 to 60 % RH	$10^{10}$	-	-	$\Omega$
	Zero-cross voltage		$V_{OX}$	$I_F = 15\text{mA}$	-	-	35	V
					-	-	35	
	Turn-on time	S101S05V / S201S05V	$t_{on}$	AC50Hz	-	-	1	ms
		S101S06V / S201S06V			-	-	10	
Turn-off time	S101S05V / S201S05V	$t_{off}$	AC50Hz	-	-	10	ms	
	S101S06V / S201S06V			-	-	10		
Thermal resistance (Between junction and case)		$R_{th(j-c)}$	-	-	6	-	$^\circ\text{C/W}$	
Thermal resistance (Between junction and ambience)		$R_{th(j-a)}$	-	-	45	-	$^\circ\text{C/W}$	

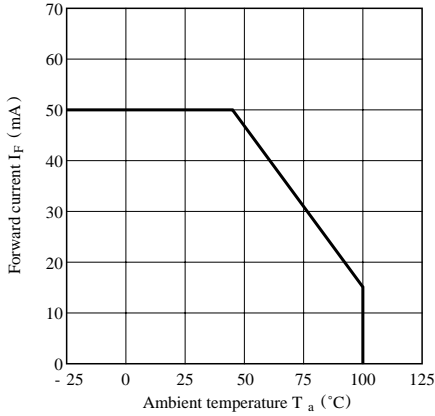
**Fig. 1 RMS ON-state Current vs. Ambient Temperature**



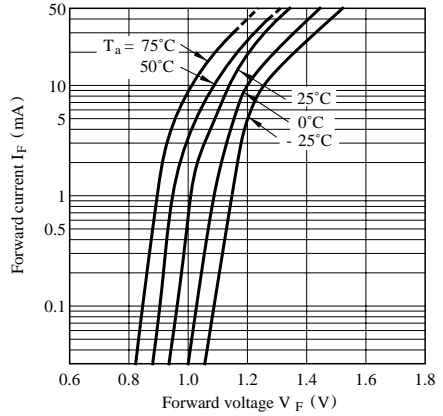
**Fig. 2 RMS ON-state Current vs. Case Temperature**



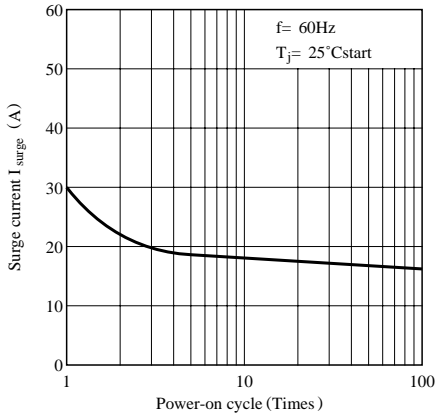
**Fig. 3 Forward Current vs. Ambient Temperature**



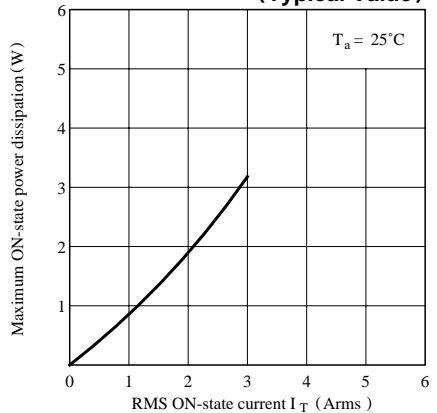
**Fig. 4 Forward Current vs. Forward Voltage**



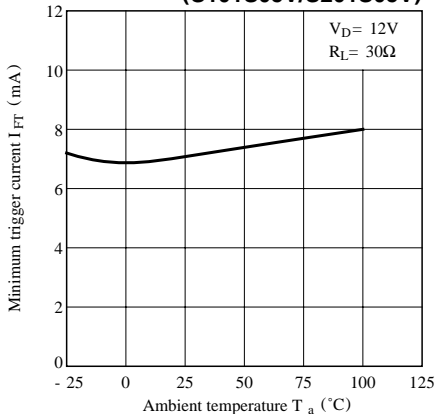
**Fig. 5 Surge Current vs. Power-on Cycle**



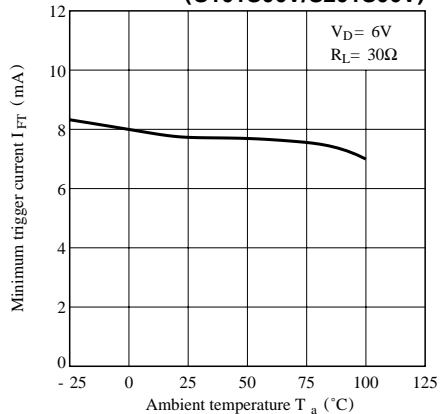
**Fig. 6 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)**



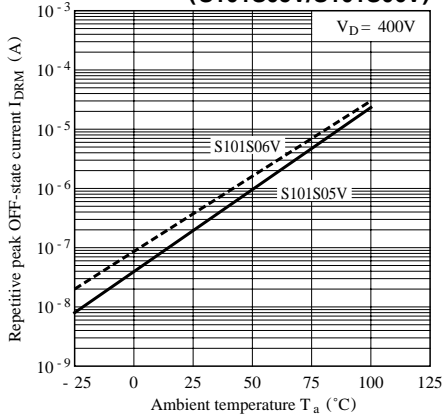
**Fig.7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S101S05V/S201S05V)**



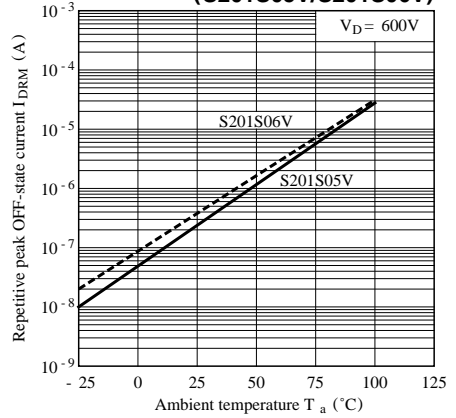
**Fig.7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S101S06V/S201S06V)**



**Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S101S05V/S101S06V)**



**Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S201S05V/S201S06V)**



● Please refer to the chapter “Precautions for Use”