S101S05V/S101S06V
S201S05V/S201S06V

SIP Type SSR with Mounting Capability for External Heat Sink

■ Features

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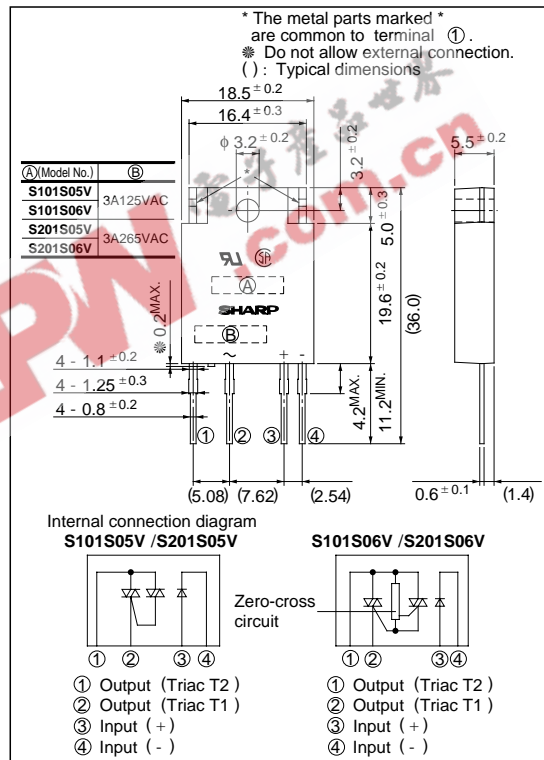   Approved by CSA, No. LR63705

■ Applications

1. OA equipment such as copiers
2. FA equipment

■ Model Line-ups

	For 100V lines	For 200V lines
No built-in zero-cross circuit	**S101S05V**	**S201S05V**
Built-in zero-cross circuit	**S101S06V**	**S201S06V**

■ Outline Dimensions （Unit : mm）

Ⓐ(Model No.)	Ⓑ
S101S05V	3A125VAC
S101S06V	
S201S05V	3A265VAC
S201S06V	

Internal connection diagram

S101S05V /S201S05V   **S101S06V /S201S06V**

Zero-cross circuit

① Output （Triac T2 ）   ① Output （Triac T2 ）
② Output （Triac T1 ）   ② Output （Triac T1 ）
③ Input （ + ）   ③ Input （ + ）
④ Input （ - ）   ④ Input （ - ）

■ Absolute Maximum Ratings （Ta = 25°C）

Parameter		Symbol	Rating		Unit
			S101S05V / S101S06V	S201S05V / S201S06V	
Input	Forward current	I_F	50		mA
	Reverse voltage	V_R	6		V
Output	RMS ON-state current	I_T	*3		A rms
	[*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/μ s
	Operating frequency	f	45 to 65		Hz
	[*2]Isolation voltage	V_{iso}	3 000		V rms
	Operating temperature	T_{opr}	- 25 to + 100		°C
	Storage temperature	T_{stg}	- 30 to + 125		°C
	[*3]Soldering temperature	T_{sol}	260		°C

*1 60Hz sine wave, start at Tj= 25°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 Tc<=100°C

■ Electrical Characteristics

(Ta＝25˚C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Foward voltage		V_F	$I_F = 20mA$	-	1.2	1.4	V
	Reverse current		I_R	$V_R = 3V$	-	-	10^{-4}	A
Output	Repetitive peak OFF-state current		I_{DRM}	$V_D = V_{DRM}$	-	-	10^{-4}	A
	RMS ON-state current		V_T	Resistance load, $I_F = 20mA$ $I_T = 1.5A_{rms}$	-	-	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		$(dV/dt)_C$	$Tj = 125˚C$, $V_D = 400V$ $dI_t/d_t = -1.5A/ms$	4	-	-	$V/\mu s$
Transfer characteristics	Minimum trigger current	S101S05V/S201S05V	I_{FT}	$V_D = 12V$, $R_L = 30\Omega$	-	-	15	mA
		S101S06V/S201S06V		$V_D = 6V$, $R_L = 30\Omega$	-	-	15	
	Isolation resistance		R_{ISO}	DC500V, 40 to 60 % RH	10^{10}	-	-	Ω
	Zero-cross voltage	S101S06V	V_{OX}	$I_F = 15mA$	-	-	35	V
		S201S06V			-	-	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	-	˚C/W
Thermal resistance（Between junction and ambience）			$R_{th(j-a)}$	-	-	45	-	˚C/W

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

（1）With heat sink（Al 100 x 100 x ^{t}2mm）
（2）With heat sink（Al 50 x 50 x ^{t}2mm）

Note）With the Al heat sink set up vertically, install it as shown in the figure
Torque：0.4N・m
Apply thermal conductive silicone grease on the heat sink mounting plate. Forcible cooling shall not be carried out.
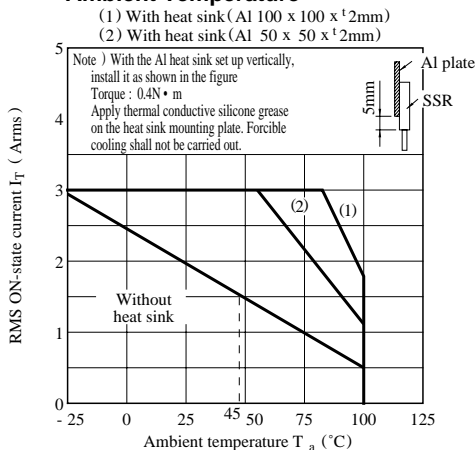
Al plate
SSR
5mm

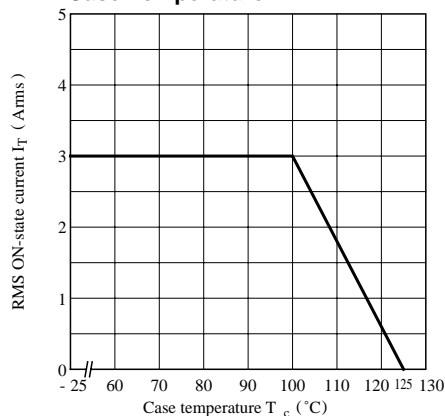**Fig. 2 RMS ON-state Current vs. Case Temperature**

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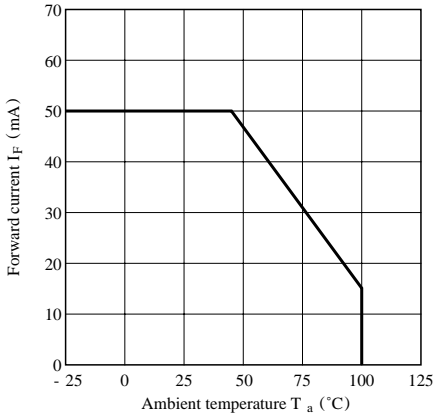**Ambient Temperature**
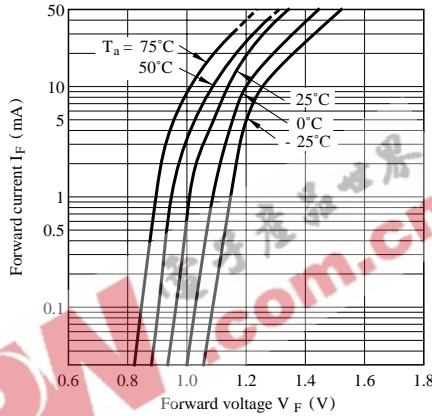

Fig. 4 Forward Current vs. Forward Voltage
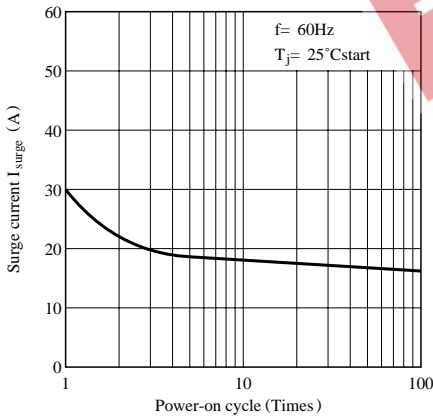

Fig. 5 Surge Current vs. Power-on Cycle

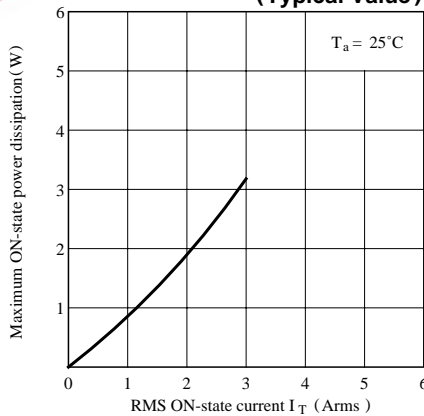**Fig. 6 Maximum ON-state Power Dissipation**
vs. RMS ON-state Current
（Typical Value）

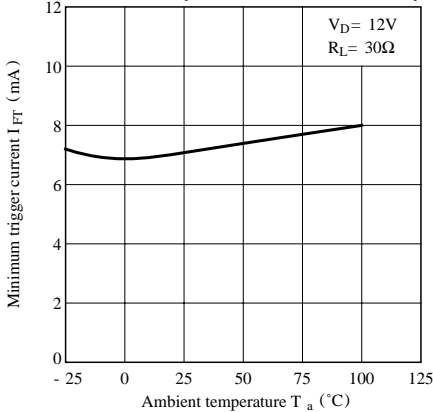**Fig.7-a Minimum Trigger Current vs.**
Ambient Temperature （Typical Value）
（S101S05V/S201S05V）

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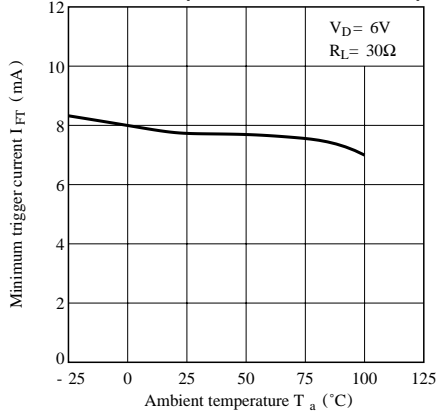**Ambient Temperature （Typical Value）**
（S101S06V/S201S06V）

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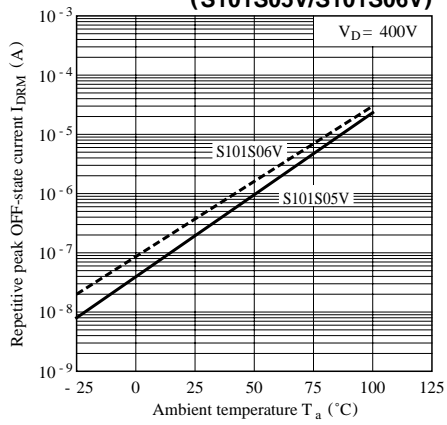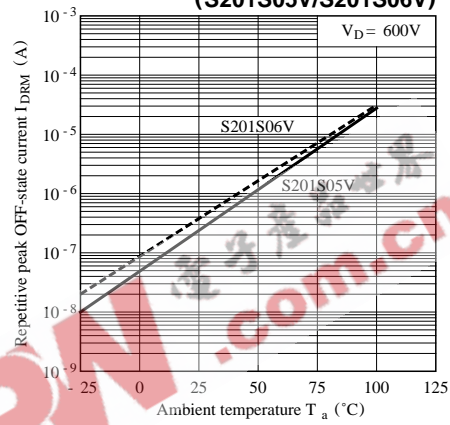**Ambient Temperature （Typical Value）**
（S101S05V/S101S06V）

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

● Please refer to the chapter "Precautions for Use"