

S101S15V/S101S16V S201S15V/S201S16V

SIP Type SSR with Built-in Snubber Circuit

■ Features

1. High radiation resin mold package
 I_T : MAX. $3A_{rms}$
2. Isolation voltage between input and output
 V_{iso} : 3 000 V_{rms}
3. Built-in zero-cross circuit
(S101S16V/ S201S16V)
4. Built-in snubber circuit
5. Recognized by UL, file No. E94758
Approved by CSA, file No. LR63705

■ Applications

1. Air conditioners
2. OA equipment

■ Model Line-ups

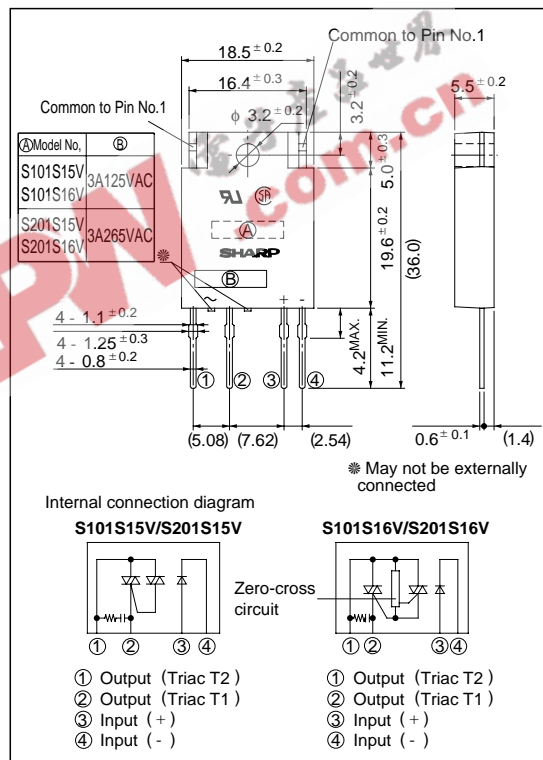
	For 100V lines	For 200V lines
No built-in zero-cross circuit	S101S15V	S201S15V
Built-in zero-cross circuit	S101S16V	S201S16V

■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings		Unit
		100V line	200V line	
Input	Forward current	I_F	50	mA
	Reverse current	V_R	6	V
Output	RMS ON-state current	I_T	3 ($T_c \leq 100^\circ C$)	A_{rms}
	*1 Peak one cycle surge current	I_{surge}	30	A
	Repetitive peak OFF-state voltage	V_{DRM}	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
Operating temperature	T_{opr}	- 20 to + 80	$^\circ C$	
Storage temperature	T_{stg}	- 30 to + 100	$^\circ C$	
*2 Isolation voltage	V_{iso}	3.0	kV_{rms}	
*3 Soldering temperature	T_{sol}	260	$^\circ C$	

■ Outline Dimensions

(Unit : mm)

*1 60Hz sine wave, $T_j = 25^\circ C$

*2 AC 60Hz for 1 minute, 40 to 60% RH

Isolation voltage measuring method:

(1) Dielectric withstand tester, with zero-cross circuit shall be used.

(2) The waveform of applied voltage shall be sine wave.

(3) It shall be applied voltage between input and output.

(Input and output shall be short-circuited respectively)

*3 For 10 seconds

■ Electrical Characteristics

(Ta = 25°C)

Parameter		Symbol	Condition	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	
ON-state voltage		V_T	Resistance load, $I_F = 20\text{mA}$, $I_T = 1.5\text{A}_{\text{rms}}$	-	-	1.5	V_{rms}	
Output	Minimum operating current	S101S15V/16V	$V_{\text{OUT}} = 120\text{V}_{\text{rms}}$	-	-	50	mA_{rms}	
		S201S15V/16V	$V_{\text{OUT}} = 240\text{V}_{\text{rms}}$	-	-	50	mA_{rms}	
	Open circuit leak current	S101S15V/16V	$V_{\text{OUT}} = 120\text{V}_{\text{rms}}$	-	-	5	mA_{rms}	
		S201S15V/16V	$V_{\text{OUT}} = 240\text{V}_{\text{rms}}$	-	-	10	mA_{rms}	
Critical rate of rise of OFF-state voltage		dV/dt	$V_D = 2/3V_{\text{DRM}}$	30	-	-	$\text{V}/\mu\text{s}$	
Commutation critical rate of rise of OFF-state voltage		$(dV/dt)_c$	$T_j = 125^\circ\text{C}$, $V_D = 400\text{V}$, $dI_T/dt = -1.5\text{A/ms}$	4	-	-	$\text{V}/\mu\text{s}$	
Transfer characteristics	Minimum trigger current	S101S15V/S201S15V	$V_D = 12\text{V}$, $R_L = 30\Omega$	-	-	15	mA	
		S101S16V/S201S16V	$V_D = 6\text{V}$, $R_L = 30\Omega$	-	-	15	mA	
	Isolation resistance		R_{ISO}	$\text{DC}500\text{V}$, $R_H = 40$ to 60%	10^{10}	-	-	Ω
	Zero-cross voltage	S101S16V	V_{OX}	$I_F = 15\text{mA}$	-	-	35	V
		S201S16V			-	-	35	V
	Turn-on time	S101S15V/S201S15V	t_{on}	AC50Hz	-	-	1	ms
		S101S16V/S201S16V			-	-	10	ms
Turn-off time		t_{off}	AC50Hz	-	-	10	ms	
Thermal resistance Between junction and case		$R_{\text{th(j-c)}}$	-	-	6	-	$^\circ\text{C/W}$	
Thermal resistance Between junction and ambient		$R_{\text{th(j-a)}}$	-	-	45	-	$^\circ\text{C/W}$	

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

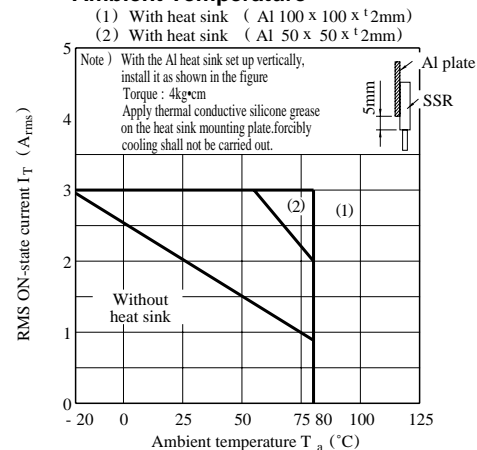


Fig. 2 RMS ON-state Current vs. Case Temperature

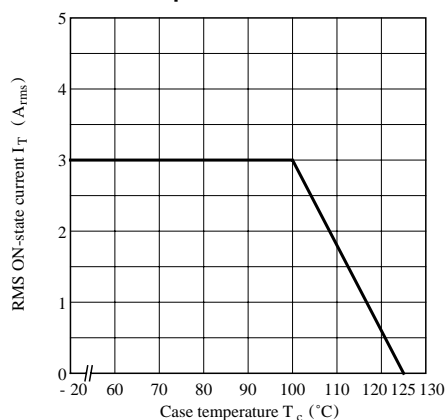


Fig. 3 Forward Current vs. Ambient Temperature

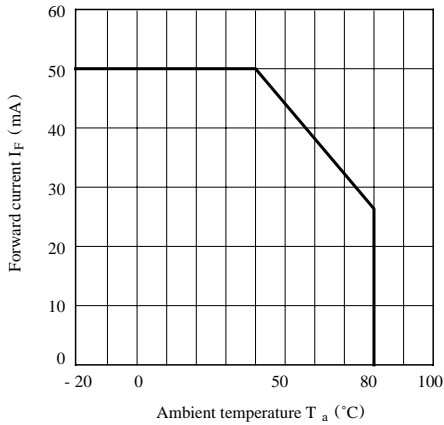


Fig. 5 Forward Current vs. Forward Voltage

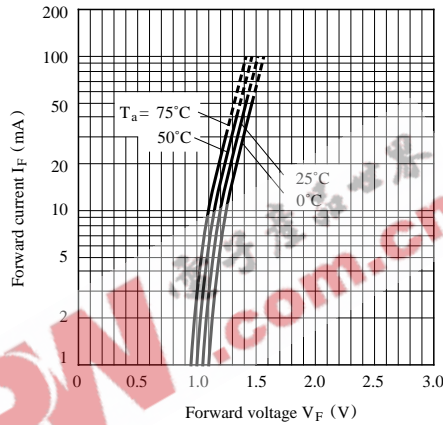


Fig. 5 Surge Current vs. Power-on cycle

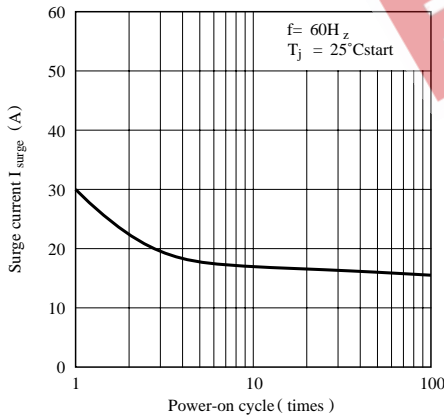


Fig. 6 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)

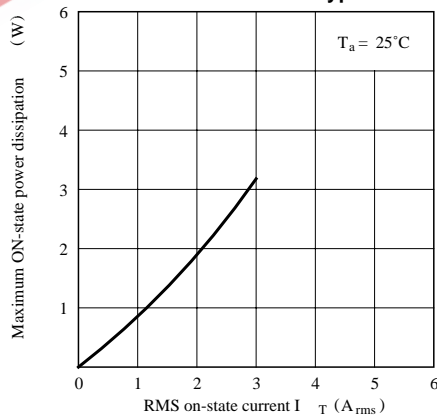


Fig. 7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S101S15V/S201S15V)

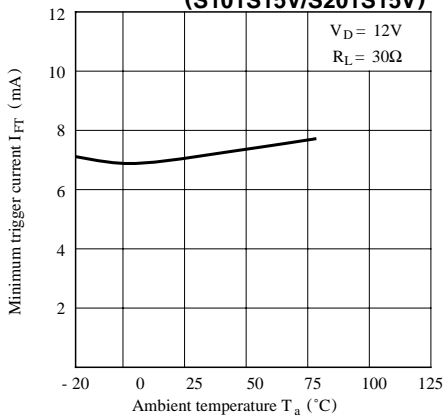


Fig. 7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S101S16V/S201S16V)

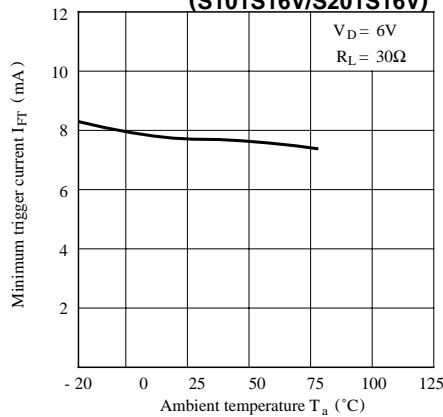


Fig. 8-a Open Circuit Leak Current vs. Supply Voltage (Typical Value)
(S101S15V, S101S16V)

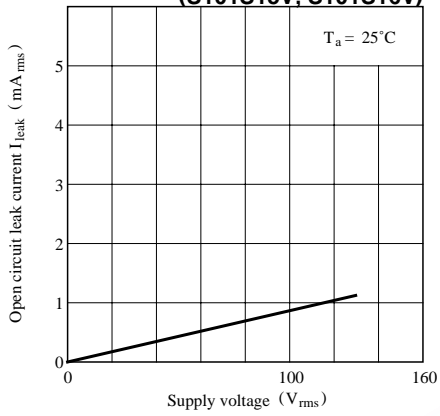
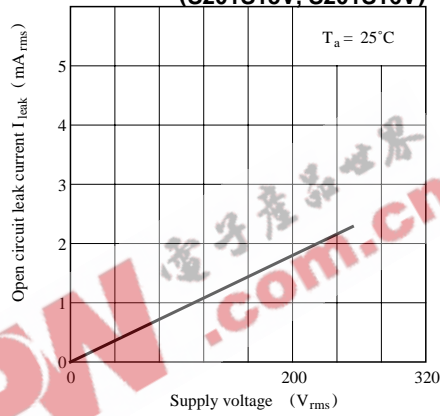


Fig. 8-b Open Circuit Leak Current vs. Supply Voltage (Typical Value)
(S201S15V, S201S16V)



● Please refer to the chapter “Precautions for Use.”