

S102S03/S202S03

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. 8 Arms
at $T_C \leq 80^\circ\text{C}$ (With heat sink)
3. Isolation voltage between input and output
(V_{iso} : 4 000V_{rms})
4. Low input driving current
(I_{FT} : MAX. 5mA)
5. Approved by CSA, No. LR63705
Recognized by UL, file No. E94758

■ Applications

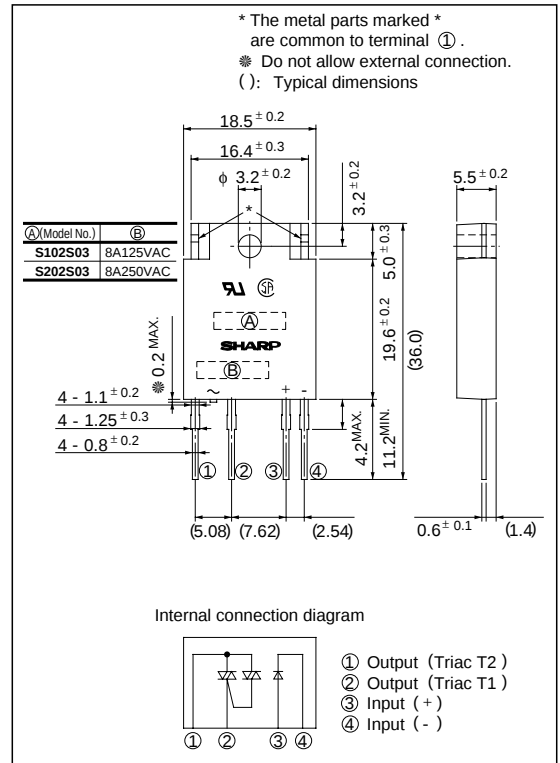
1. Automatic vending machines
2. Programmable controllers
3. Amusement equipment

■ Model Line-ups

For 100V lines	For 200V lines
S102S03	S202S03

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating		Unit
		S102S03	S202S03	
Input	Forward current	50		mA
	Reverse voltage	6		V
Output	RMS ON-state current	*48		A _{rms}
	*1 Peak one cycle surge current	80		A
	Repetitive peak OFF-state voltage	400	600	V
	Non-repetitive peak OFF-state voltage	400	600	V
	Critical rate of rise of ON-state current	50		A/μs
	Operating frequency	45 to 65		Hz
*2 Isolation voltage		4 000		V _{rms}
Operating temperature		- 25 to + 100		°C
Storage temperature		- 30 to + 125		°C
*3 Soldering temperature		260		°C

*1 50Hz sine wave,
Tj = 25°C start

*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

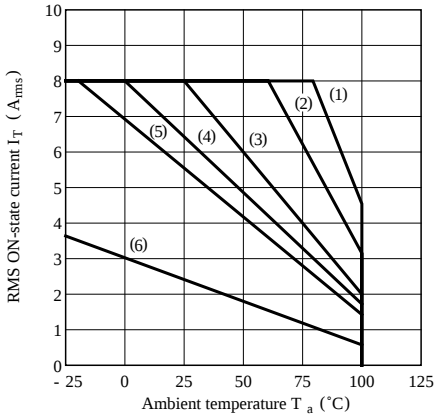
*4 $T_C \leq 80^\circ\text{C}$

■ Electro-optical 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
Output	Repetitive peak OFF-state current	I_{DRM}	$V_D = V_{\text{DRM}}$	-	-	10^{-4}	A
	On-state voltage	V_T	Resistance load, $I_F = 20\text{mA}$ $I_T = 2\text{A}_{\text{rms}}$	-	-	1.5	V_{rms}
	Holding current	I_H	-	-	-	35	mA
	Critical rate of rise of OFF-state voltage	dV/dt	$V_D = 2/3V_{\text{DRM}}$	30	-	-	$\text{V}/\mu\text{s}$
	Critical rate of rise of com-mutating OFF-state voltage	$(dV/dt)_C$	$T_j = 125^\circ\text{C}$, $dI/dt = -4.0\text{A/ms}$, $V_D = 400\text{V}$	5	-	-	$\text{V}/\mu\text{s}$
	Minimum trigger current	I_{FT}	$V_D = 12\text{V}$, $R_L = 30\ \Omega$	-	-	5	mA
Transfer characteristics	Isolation resistance	R_{ISO}	DC = 500V, 40 to 60 % RH	10^{10}	-	-	Ω
	Turn-on time	t_{on}	AC = 50Hz	-	-	1	ms
	Turn-off time	t_{off}		-	-	10	ms
Thermal resistance (Between junction and case)		$R_{\text{th(j-c)}}$	-	-	4.5	-	$^\circ\text{C/W}$
Thermal resistance (Between junction and ambience)		$R_{\text{th(j-a)}}$	-	-	40	-	$^\circ\text{C/W}$

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



- (1) With infinite heat sink
- (2) With heat sink (200 x 200 x 2 mm Al plate)
- (3) With heat sink (100 x 100 x 2 mm Al plate)
- (4) With heat sink (75 x 75 x 2 mm Al plate)
- (5) With heat sink (50 x 50 x 2 mm Al plate)
- (6) Without heat sink
- (Note) With the Al heat sink set up vertically, tighten the device at the center of the Al heat sink with a torque of 0.4N•m and apply thermal conductive silicone grease on the heat sink mounting plate. Forcible cooling shall not be carried out.

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

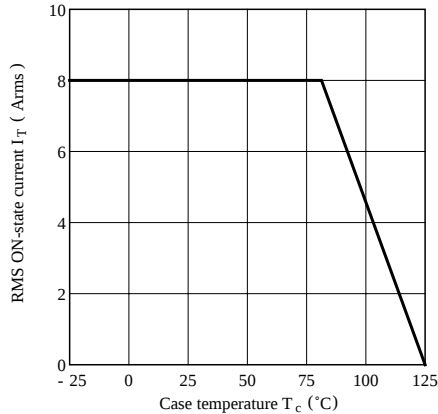


Fig. 3 Forward Current vs. Ambient Temperature

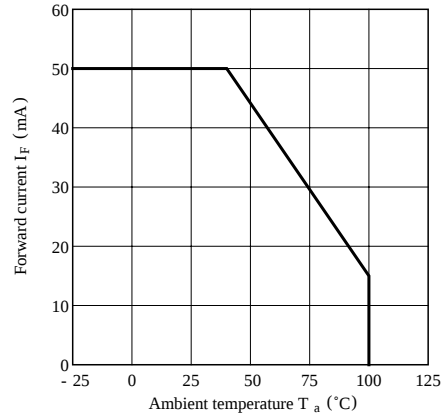


Fig. 4 Forward Current vs. Forward Voltage

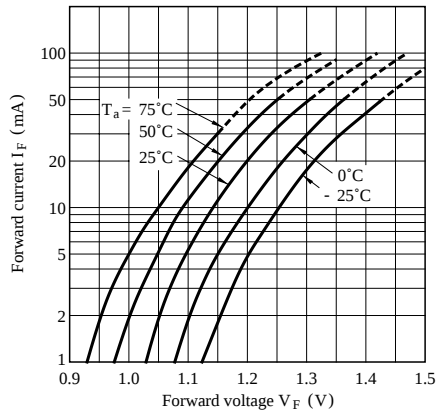


Fig. 5 Surge Current vs. Power-on Cycle

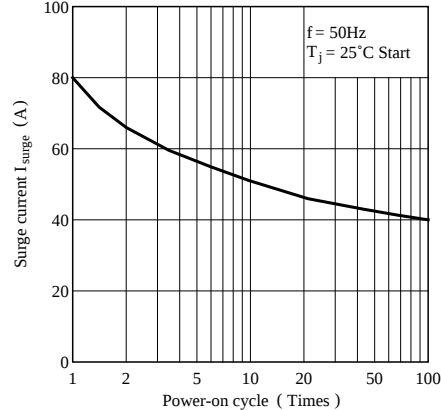


Fig. 6 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)

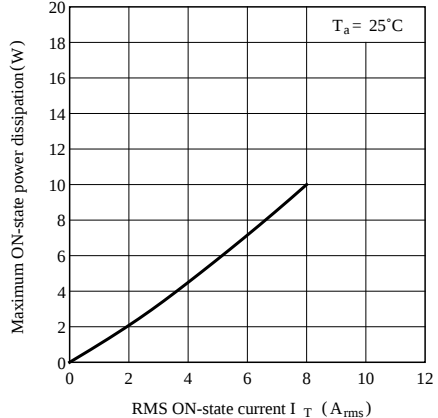


Fig. 7 Minimum Trigger Current vs. Ambient Temperature (Typical Value)

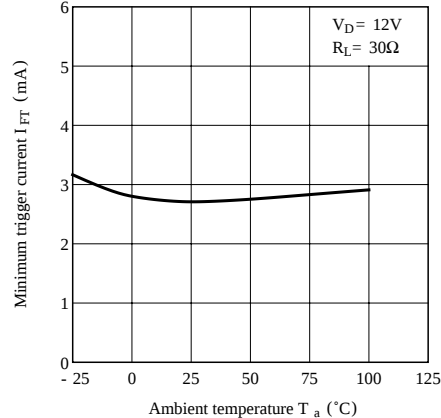


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S102S03)

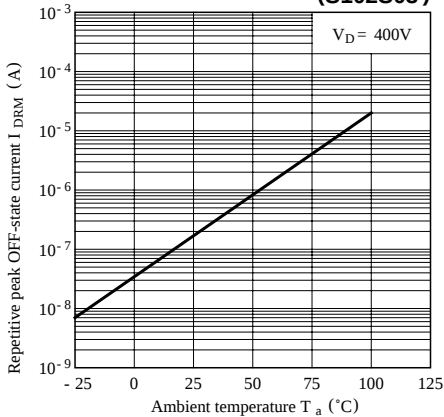
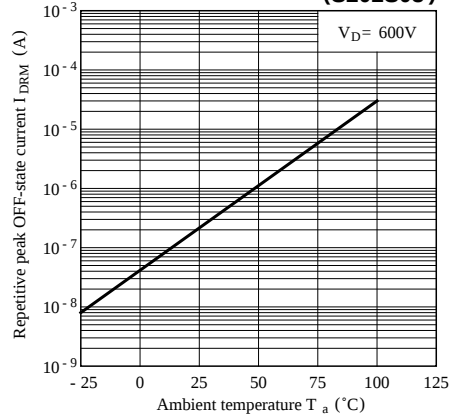


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202S03)



● Please refer to the chapter “Precautions for Use”