

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

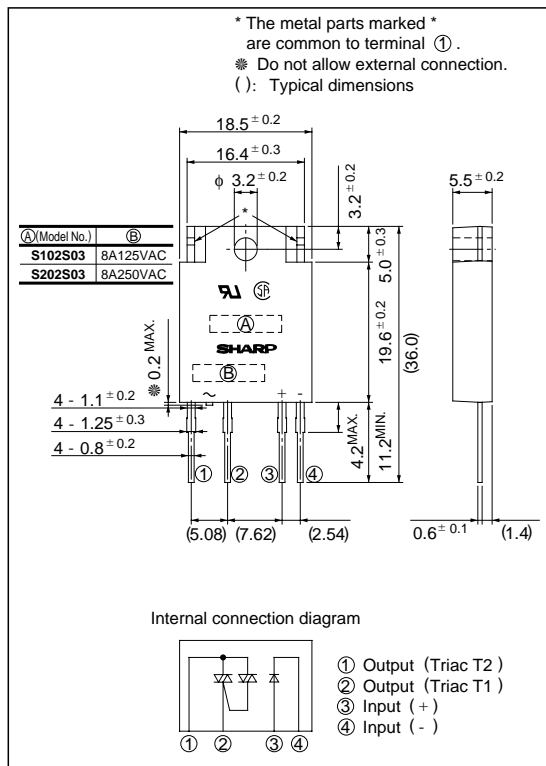
1. Automatic vending machines
2. Programmable controllers
3. Amusement equipment

■ 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	V_{iso}	4 000		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 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

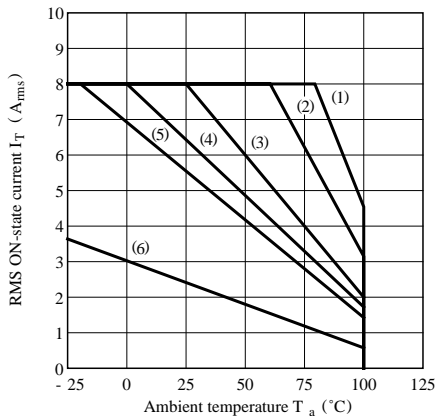
*4 $T_C \leq 80^\circ\text{C}$

■ Electro-optical Characteristics

(T_a = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward 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
	On-state voltage	V _T	Resistance load, I _F = 20mA I _T = 2A _{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 _{DRM}	30	-	-	V/μs
	Critical rate of rise of commutating OFF-state voltage	(dV/dt) _c	T _j = 125°C, dI _T /d _t = - 4.0A/ms, V _D = 400V	5	-	-	V/μs
	Minimum trigger current	I _{FT}	V _D = 12V, R _L = 30Ω	-	-	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 _{th(j-c)}	-	-	4.5	-	°C/W
Thermal resistance (Between junction and ambience)		R _{th(j-a)}	-	-	40	-	°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. Forceful cooling shall not be carried out.

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

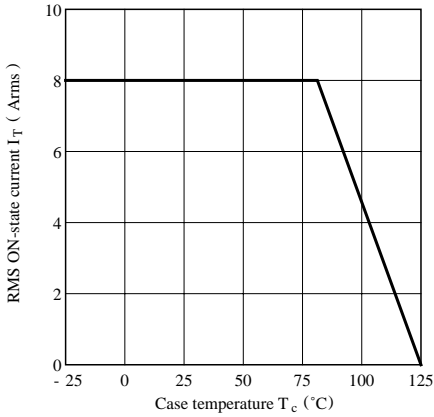


Fig. 3 Forward Current vs. Ambient Temperature

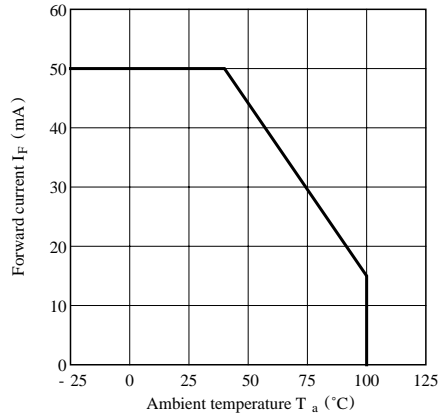


Fig. 4 Forward Current vs. Forward Voltage

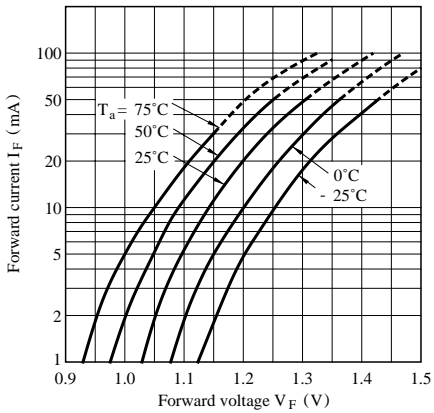


Fig. 5 Surge Current vs. Power-on Cycle

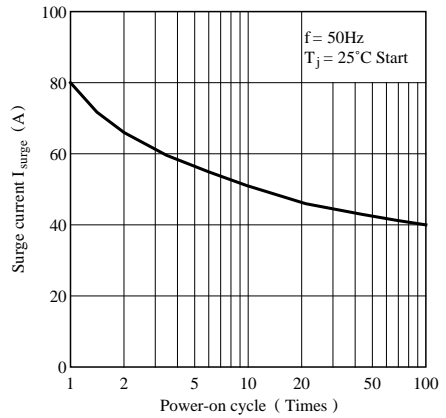


Fig. 6 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)

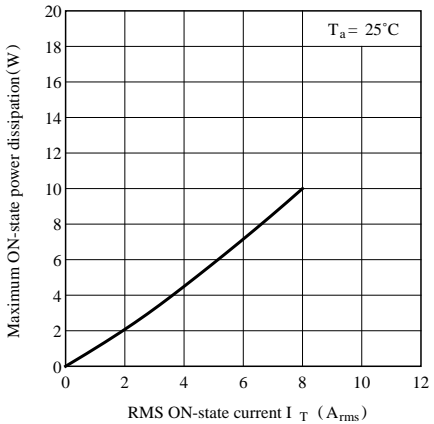


Fig. 7 Minimum Trigger Current vs. Ambient Temperature (Typical Value)

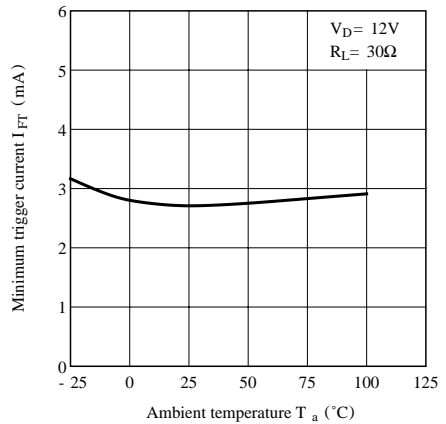


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S102S03)

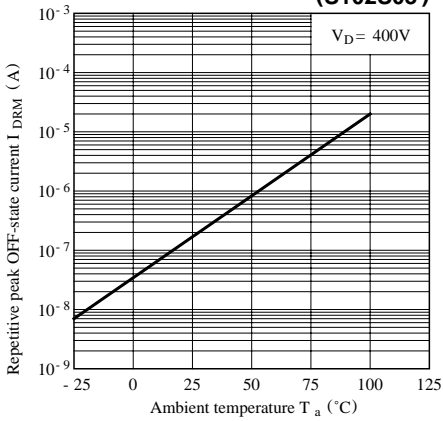
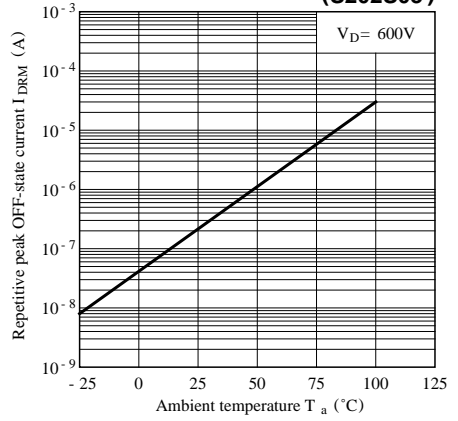


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202S03)



● Please refer to the chapter “Precautions for Use”