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 <= 80˚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

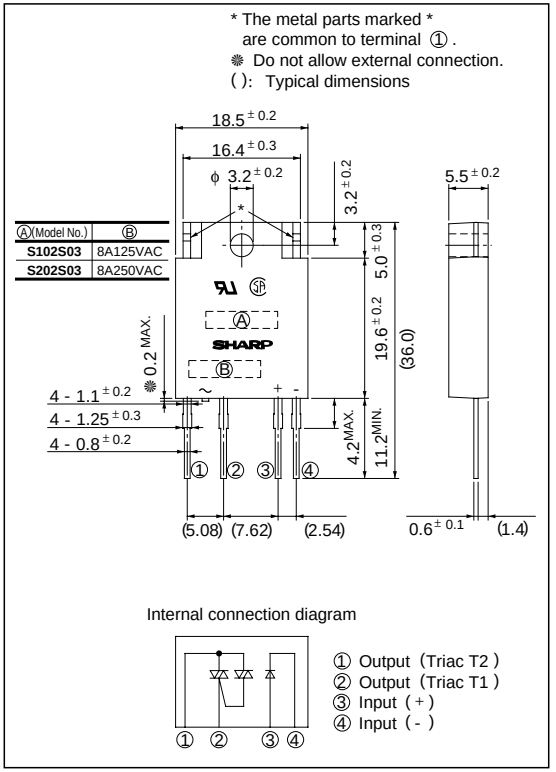
■ Applications

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 S102S03	Rating S202S03	Unit
Input	Forward current	I_F	50		mA
	Reverse voltage	V_R	6		V
Output	RMS ON-state current	I_T	*4 8		A $_{rms}$
	*1 Peak one cycle surge current	I_{surge}	80		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/d_t	50		A/μs
	Operating frequency	f	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

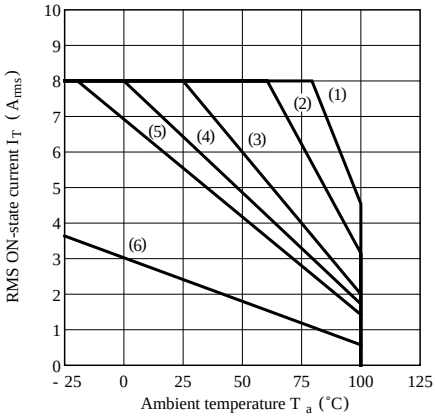
*1 50Hz sine wave, Tj = 25˚C start
*2 60Hz AC for 1 minute, 40 to 60% RH, Apply voltages between input and output by the dielectric withstand voltage tester with zero-cross circuit. (Input and output shall be shorted respectively).
(Note) When the isolation voltage is necessary at using external heat sink, please use the insulation sheet.
*3 For 10 seconds
*4 T_C <=80˚C

■ Electro-optical Characteristics

(Ta = 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	$(dV/dt)_C$	Tj = 125°C, dIt/d_t = - 4.0A/ms, V_D = 400V	5	-	-	V/μs
Transfer characteristics	Minimum trigger current	I_{FT}	V_D = 12V, R_L = 30Ω	-	-	5	mA
	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 2mm Al plate)
(3) With heat sink (100 x 100 x 2mm Al plate)
(4) With heat sink (75 x 75 x 2mm Al plate)
(5) With heat sink (50 x 50 x 2mm 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

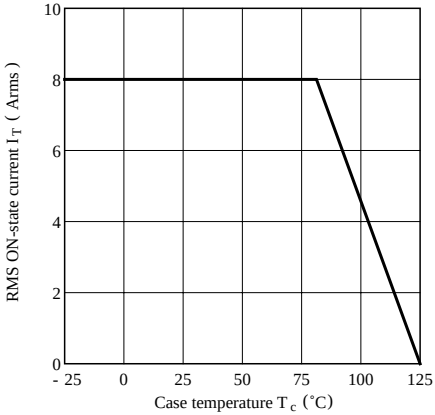


Fig. 3 Forward Current vs. Ambient Temperature

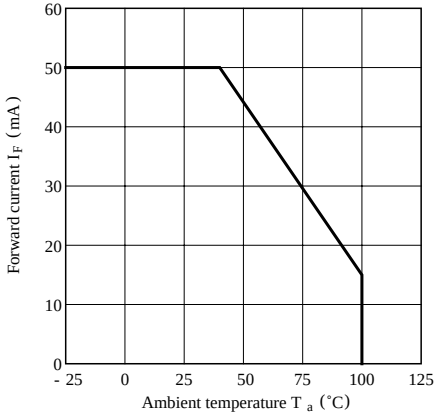


Fig. 4 Forward Current vs. Forward Voltage

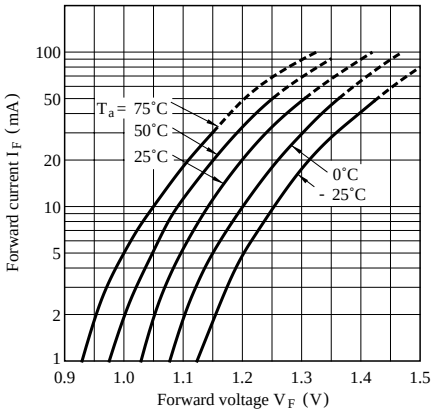


Fig. 5 Surge Current vs. Power-on Cycle

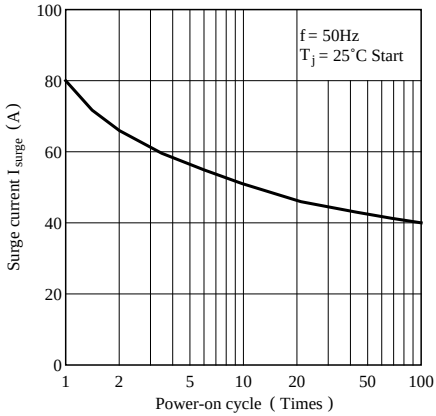


Fig. 6 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)

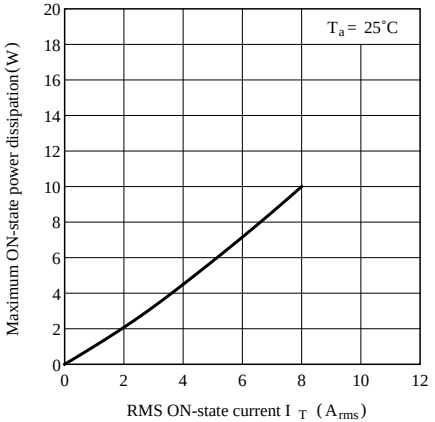


Fig. 7 Minimum Trigger Current vs. Ambient Temperature (Typical Value)

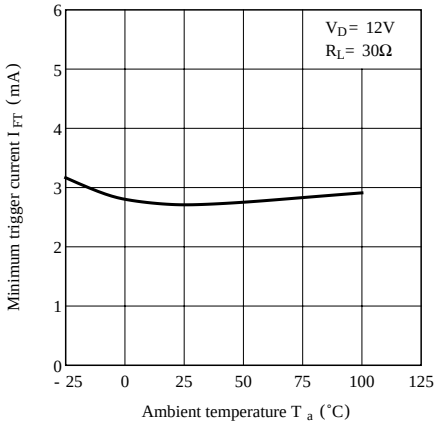


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S102S03)

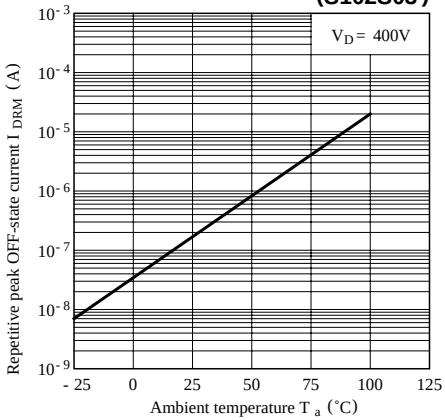
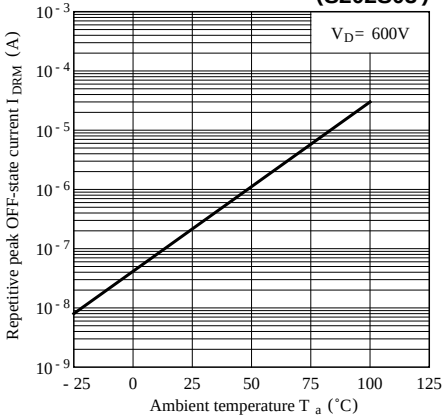


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202S03)



● Please refer to the chapter "Precautions for Use"