S202SE1/S202SE2 S216SE1/S216SE2

SIP Type SSR for Medium Power Control

■ Features

1. Comforms to European Safety Standard (EN60950)
   (Need of the insulation sheet when mounting external heat sink)
   Internal insulation distance : 0.4mm or more
   Creepage distance : 5mm or more
   Space distance : 4mm or more
2. RMS ON-state current
   S202SE1 / S202SE2 : 8Arms at Tc <= 80˚C
   (with heat sink)
   S216SE1 / S216SE2 : 16Arms at Tc <= 60˚C
   (with heat sink)
3. Isolation voltage between input and output (V_{iso} : 3 000V_{rms})
4. Approved by TÜV, No. R9051479
5. Recognized by UL, No. E94758
   (S202SE1 / S202SE2)
   Approved by CSA, No. LR63705
   (S202SE1, S202SE2)

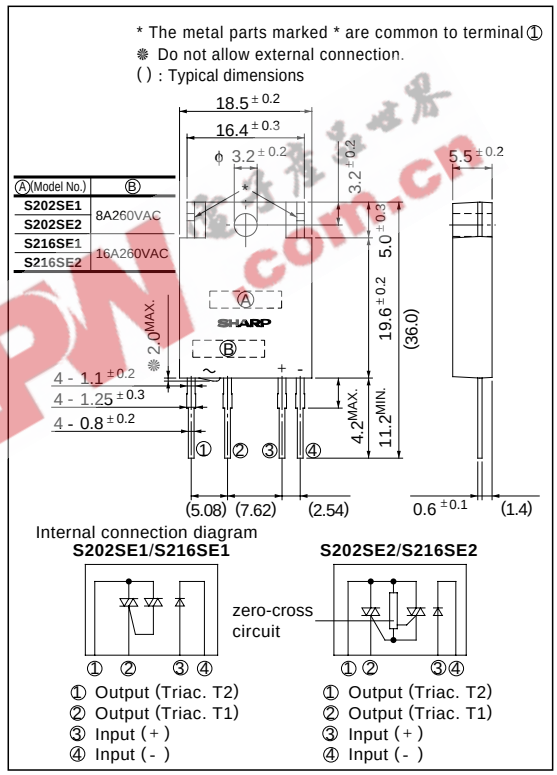
■ Applications

1. Copiers
2. Laser beam printers

■ Line-up

	RMS ON-state current	
	MAX. 8Arms	MAX. 16Arms
No built-in Zero-cross circuit	**S202SE1**	**S216SE1**
Built-in Zero-cross circuit	**S202SE2**	**S216SE2**

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (Ta = 25˚C)

Parameter		Symbol	Rating		Unit
			S202SE1 / S202SE2	S216SE1 / S216SE2	
Input	Forward current	I_F	50		mA
	Reverse voltage	V_R	6		V
Output	RMS ON-state current	I_T	*4 8	*5 16	A_{rms}
	*1 Peak one cycle surge current	I_{surge}	80	160	A
	Repetitive peak OFF-state voltage	V_{DRM}	600		V
	Non-repetitive peak OFF-state voltage	V_{DSM}	600		V
	Critical rate of rise of ON-state current	dI_T/dt	50		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, T_j = 25˚C start
*2 AC 60Hz 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 *5 T_C<=60˚C

" In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

■ Electrical 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	S202SE1 / S202SE2	V_T	I_T = 2A$_{rms}$	-	-	1.5	V_{rms}
		S216SE1 / S216SE2		I_T = 16A$_{rms}$	-	-	1.5	
	Holding current		I_H	-	-	-	50	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, V_D = 400V *6	5	-	-	V/μs
	Zero-cross voltage	**S202SE2 / S216SE2**	V_{OX}	I_F = 8mA	-	-	35	V
Transfer characteristics	Minimum trigger current	**S202SE1 / S216SE1**	I_{FT}	V_D = 12V, R_L = 30Ω	-	-	8	mA
		S202SE2 / S216SE2		V_D = 6V, R_L = 30Ω	-	-	8	
	Isolation resistance		R_{ISO}	DC500V, 40 to 60 % RH	10^{10}	-	-	Ω
	Turn-on time	**S202SE1 / S216SE1**	t_{on}	AC60Hz	-	-	1	ms
		S202SE2 / S216SE2			-	-	9.3	
	Turn-off time		t_{off}	AC60Hz	-	-	9.3	ms
Thermal resistance (Between junction and case)		**S202SE1 / S202SE2**	R_{th}(j - c)	-	-	4.5	-	˚C/W
		S216SE1 / S216SE2			-	3.3	-	
Thermal resistance (Between junction and ambience)			R_{th}(j - a)	-	-	40	-	˚C/W

*6 dI_T/dt = -4.0A/ms **(S202SE1 / S202SE2)**
dI_T/dt = -8.0A/ms **(S216SE1 / S216SE2)**

Fig.1-a RMS ON-state Current vs. Ambient Temperature (S202SE1 / S202SE2)

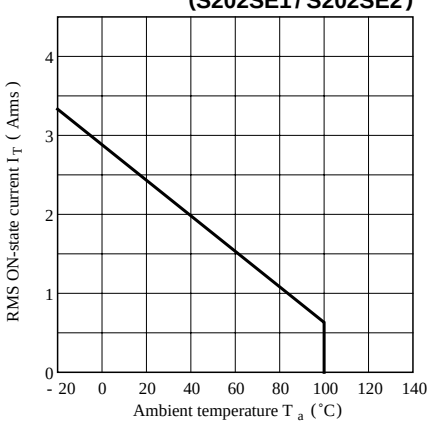


Fig.1-b RMS ON-state Current vs. Ambient Temperature (S216SE1 / S216SE2)

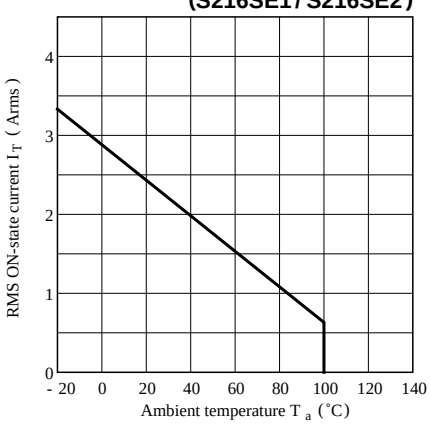


Fig.2-a RMS ON-state Current vs. Case Temperature (S202SE1 / S202SE2)

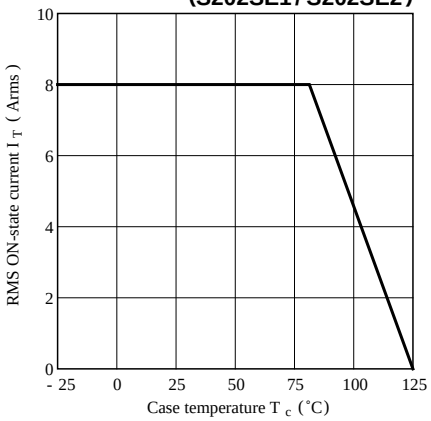


Fig.2-b RMS ON-state Current vs. Case Temperature (S216SE1 / S216SE2)

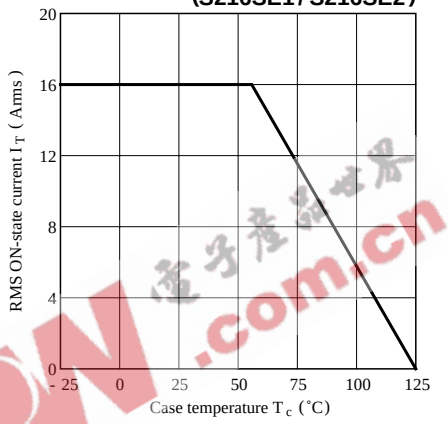


Fig. 3 Forward Current vs. Ambient Temperature

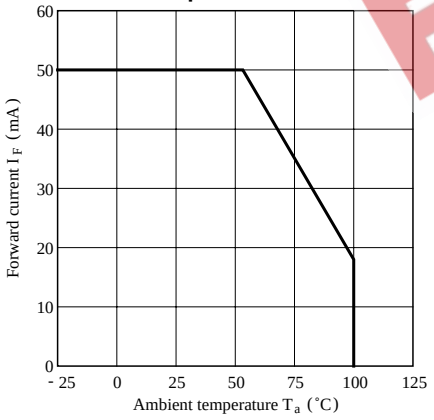


Fig. 4 Forward Current vs. Forward Voltage

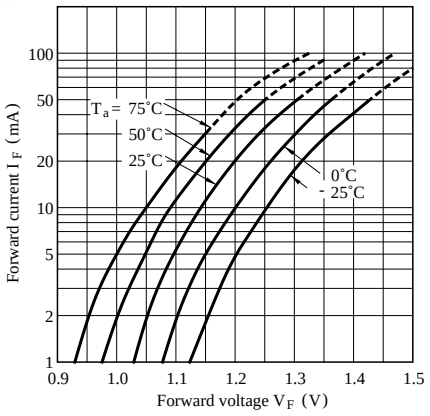


Fig.5-a Surge Current vs. Power-ON Cycle (S202SE1 / S202SE2)

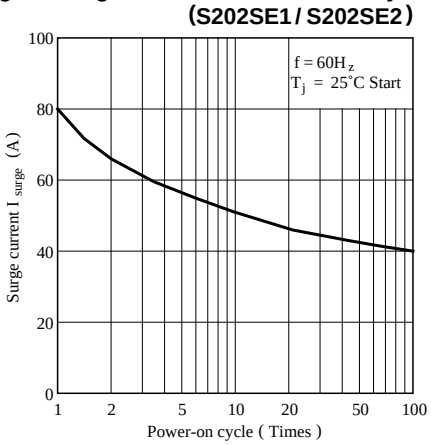


Fig.5-b Surge Current vs. Power-ON Cycle (S216SE1 / S216SE2)

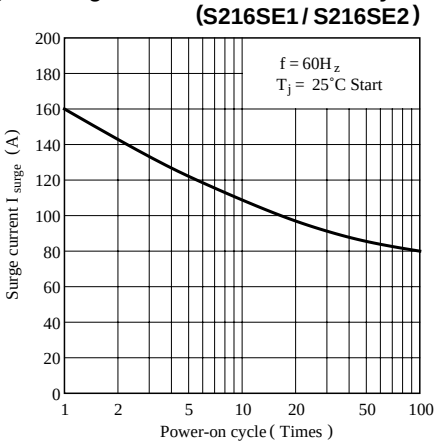


Fig.6-a Maximum ON-State Power Dissipation vs. RMS ON-State Current (S202SE1 / S202SE2)

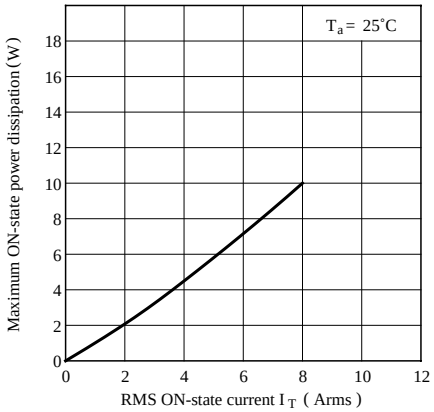


Fig.6-b Maximum ON-State Power Dissipation vs. RMS ON-State Current (S216SE1 / S216SE2)

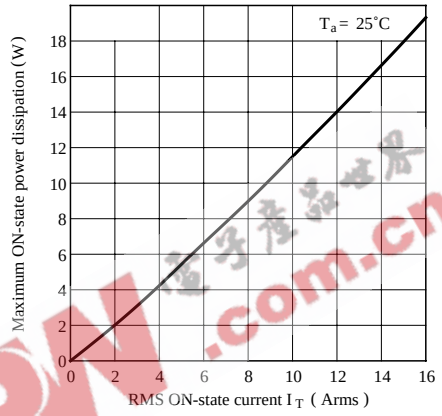


Fig.7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE1 / S216SE1)

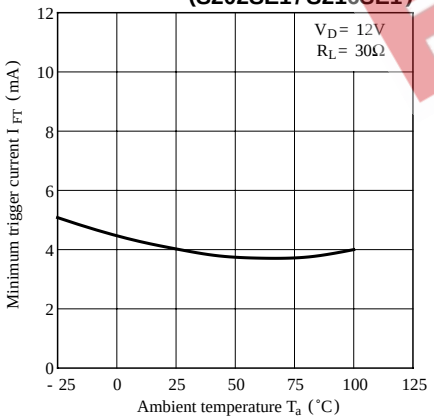


Fig.7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE2 / S216SE2)

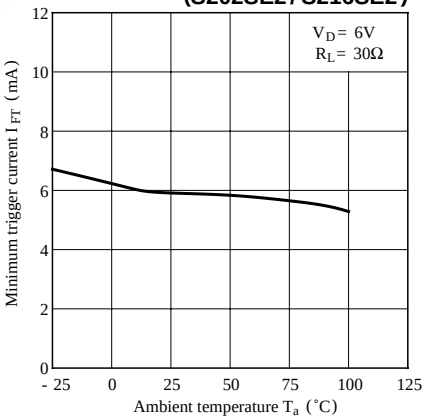


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202SE1 / S202SE2)

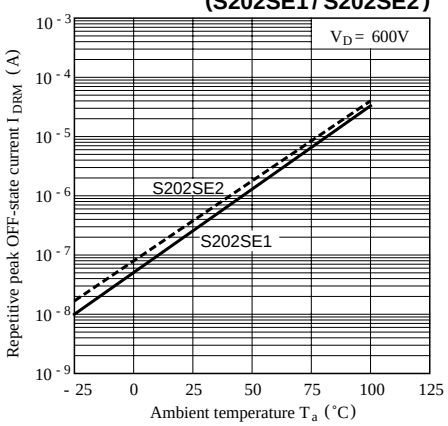
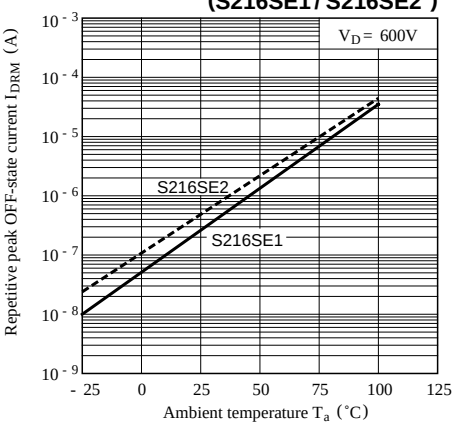


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S216SE1 / S216SE2)



● Please refer to the chapter "Precautions for Use."