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)

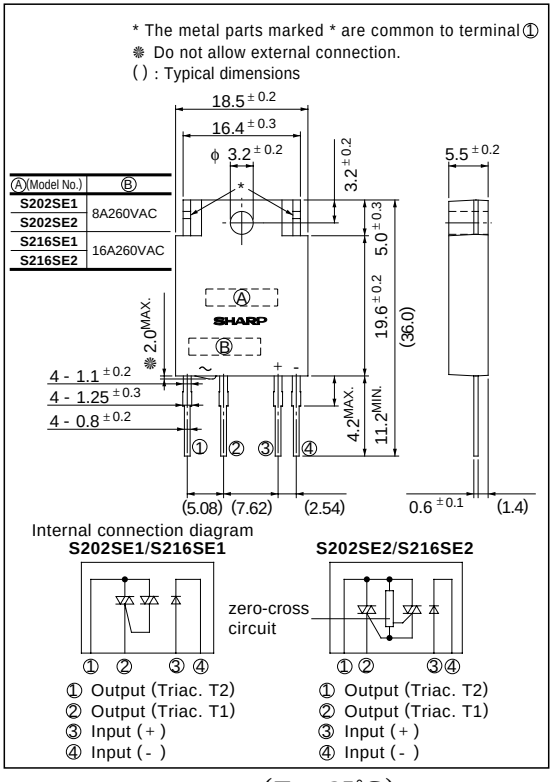
■ Applications

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/μs
	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

■ 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)

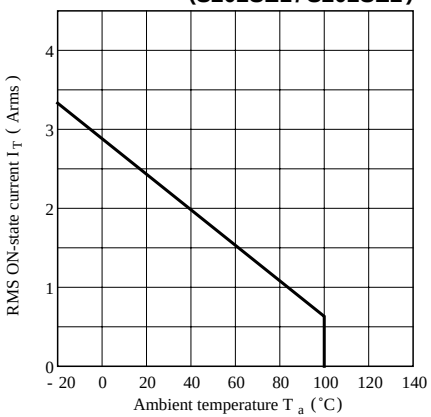


Fig.1-b RMS ON-state Current vs. Ambient Temperature (S216SE1 / S216SE2)

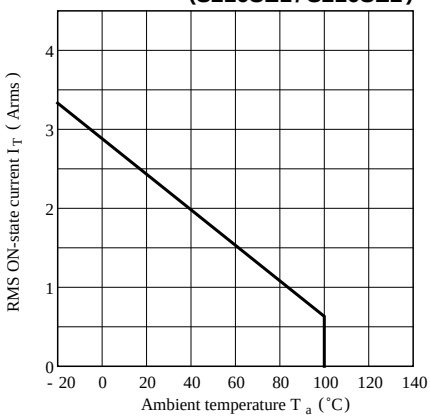


Fig.2-a RMS ON-state Current vs. Case Temperature (S202SE1 / S202SE2)

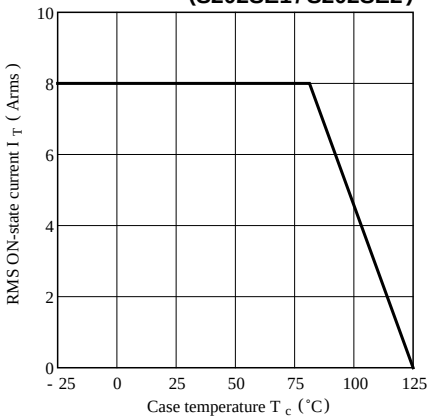


Fig.2-b RMS ON-state Current vs. Case Temperature (S216SE1 / S216SE2)

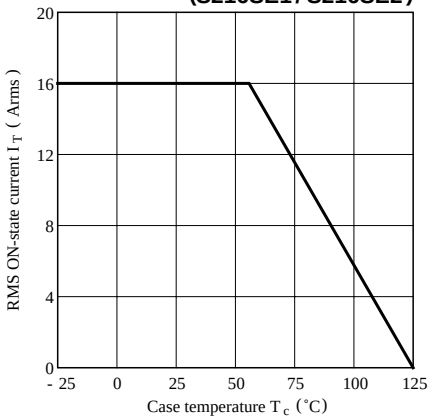


Fig. 3 Forward Current vs. Ambient Temperature

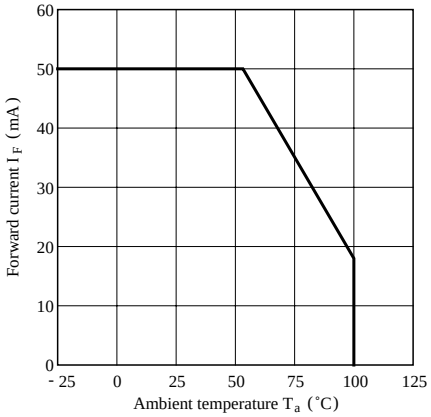


Fig. 4 Forward Current vs. Forward Voltage

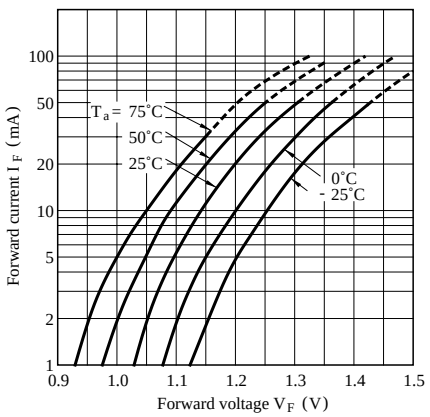


Fig.5-a Surge Current vs. Power-ON Cycle (S202SE1 / S202SE2)

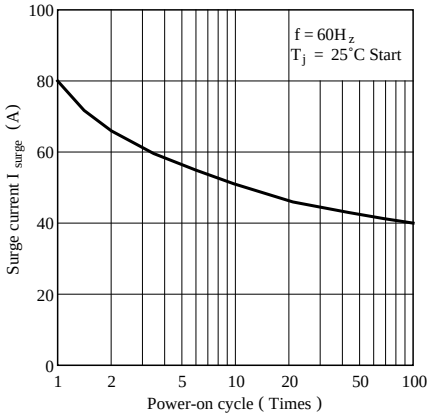


Fig.5-b Surge Current vs. Power-ON Cycle (S216SE1 / S216SE2)

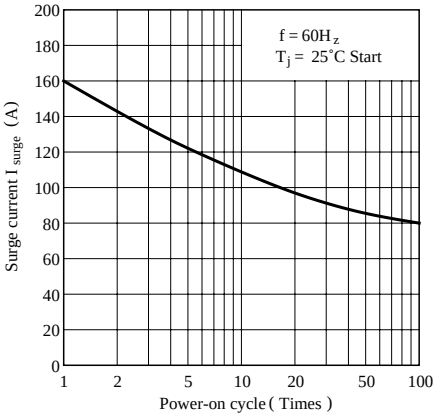


Fig.6-a Maximum ON-State Power Dissipation vs. RMS ON-State Current (S202SE1 / S202SE2)

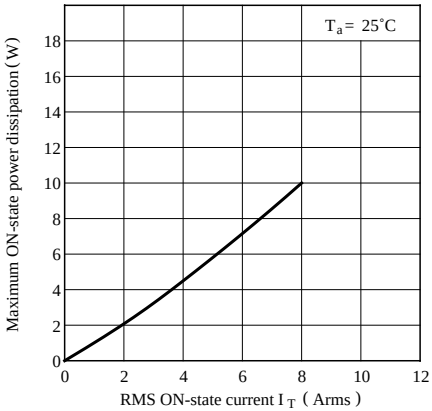


Fig.6-b Maximum ON-State Power Dissipation vs. RMS ON-State Current (S216SE1 / S216SE2)

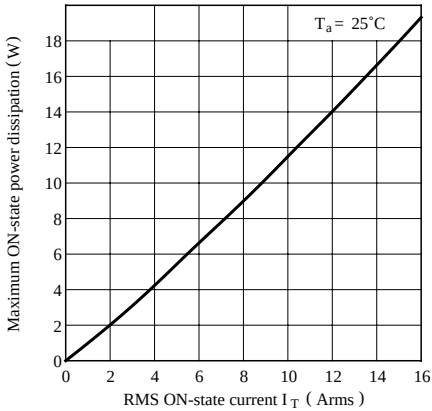


Fig.7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE1 / S216SE1)

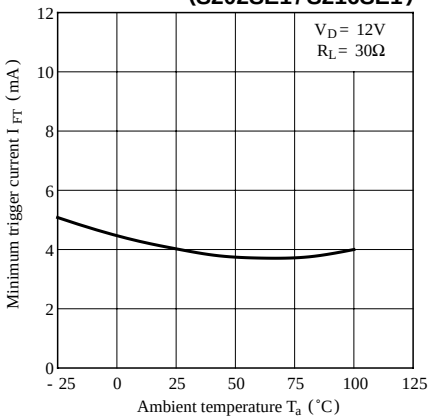


Fig.7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE2 / S216SE2)

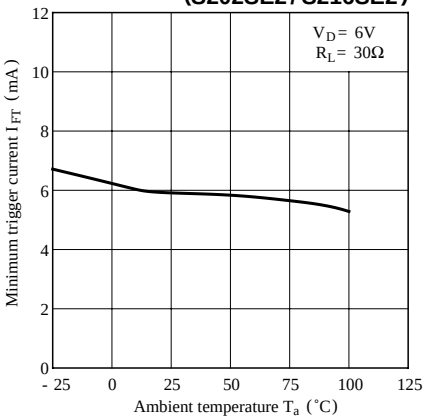


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202SE1 / S202SE2)

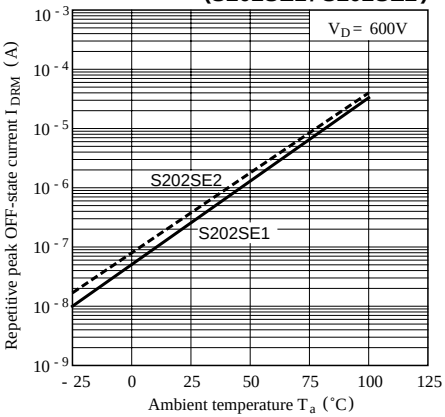
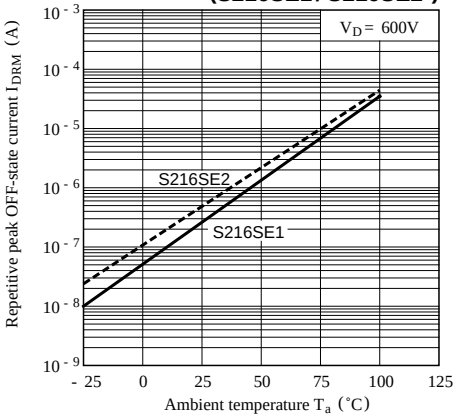


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S216SE1 / S216SE2)



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