

s202sE1/s202sE2 S216SE1/S216SE2

SIP Type **SSR** for **Medium** Power Control

■ Features

- 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
- RMS ON-state current
S202SE1/S202SE2 : 8Arms at $T_c \leq 80^\circ\text{C}$
(with heat sink)
S216SE1/S216SE2 : 16Arms at $T_c \leq 60^\circ\text{C}$
(with heat sink)
- Isolation voltage between input and output ($V_{iso} : 3000V_{rms}$)
- Approved by TUV, No. R9051479
- Recognized by UL, No. E94758
(S202SE1 /S202SE2)
Approved by CSA, No. LR63705
(S202SE1, S202SE2)

■ Applications

- Copiers
- 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

■ Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

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	*18	*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		$A/\mu s$
	Operating frequency	f	45 to 65		Hz
*2 Isolation voltage	V_{iso}	3,000		V_{rms}	
Operating temperature	T_{opr}	-25 to +100		$^\circ\text{C}$	
Storage temperature	T_{stg}	-30 to +125		$^\circ\text{C}$	
*3 Soldering temperature	T_{sol}	260		$^\circ\text{C}$	

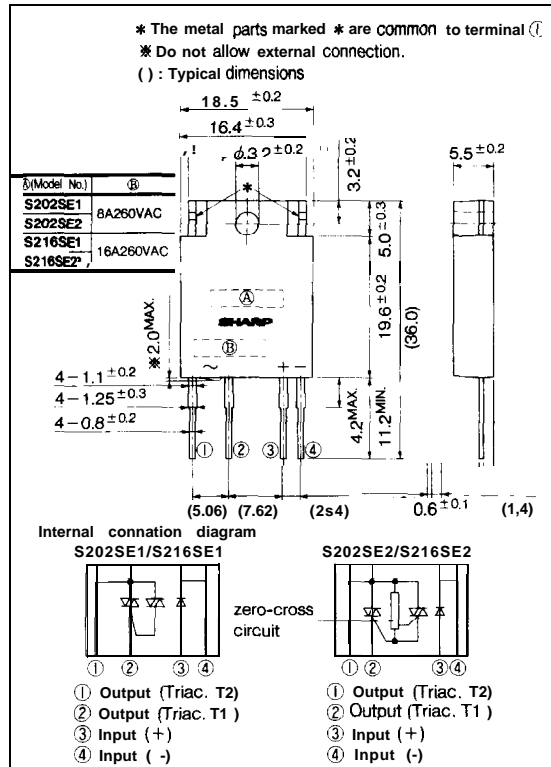
*1 60Hz sine wave, $T_r = 25^\circ\text{C}$ start

*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 respective y).

(Note) When the isolation voltage is necessary at using external heat sink, please use the insulation sheet

*3 For 10 seconds *4 $T_c \leq 80^\circ\text{C}$ *5 $T_c \leq 60^\circ\text{C}$

■ Outline Dimensions (Unit : mm)



Solid State
Relays



■ Electrical 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
	Repetitive peak OFF-state current	I _{DRM}	V _D = V _{DRM}	—	—	10 ⁻⁷	A
output	ON-state voltage	V _T	I _T = 2A _{rms}	—	—	1.5	V _{rms}
			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	T _j = 125°C, V _D = 400V *6	5	—	—	V/μs
	Zero-cross voltage	V _{OX}	I _F = 8mA	—	—	35	v
Transfer characteristics	Minimum trigger current	I _{FT}	V _D = 12V, R _L = 30Ω	—	—	8	mA
			V _D = 6V, R _L = 30Ω	—	—	8	
	Isolation resistance	R _{ISO}	DC500V, 40 to 60%RH	10 ¹⁰	—	—	Ω
	Turn-on time	t _{on}	AC60HZ	—	—	1	μs
				—	—	9.3	
Turn-off time	t _{of}	AC60HZ	—	—	9.3	ms	
Thermal resistance (Between junction and case)	R _{th(j-c)}	—	—	—	4.5	—	°C/W
				—	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)

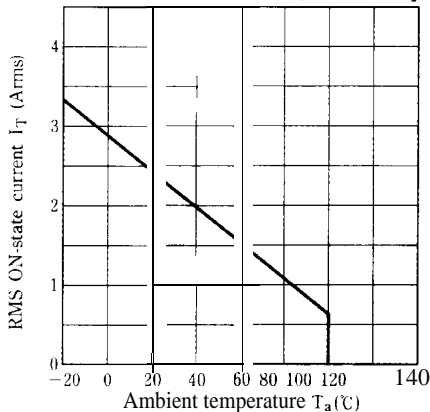


Fig.1-b RMS ON-state Current vs. Ambient Temperature

(S216SE1/S216SE2)

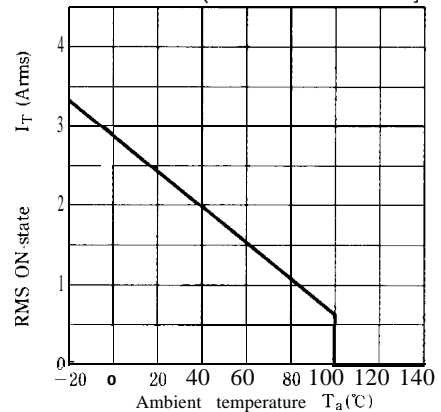


Fig.2-a RMS ON-state Current vs. Case Temperature

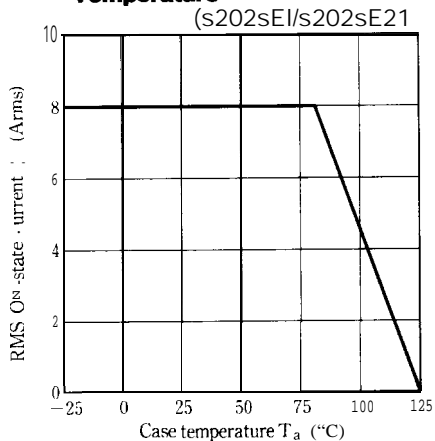


Fig.2-b RMS ON-state Current vs. Case Temperature

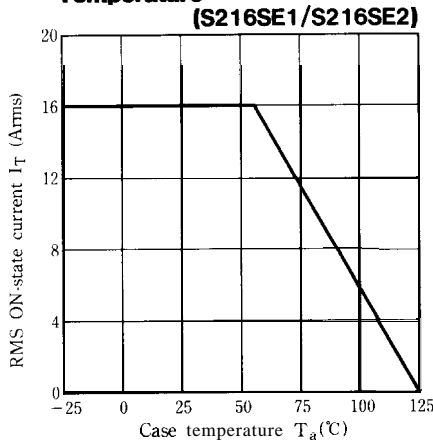


Fig. 3 Forward Current vs. Ambient Temperature

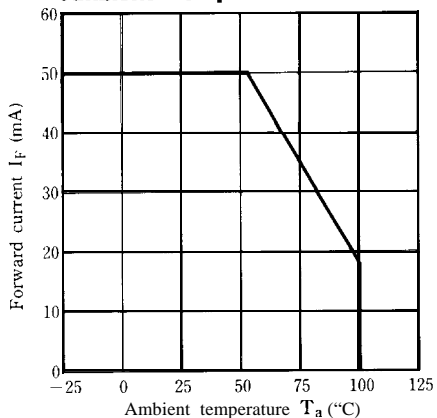


Fig. 4 Forward Current vs. Forward Voltage

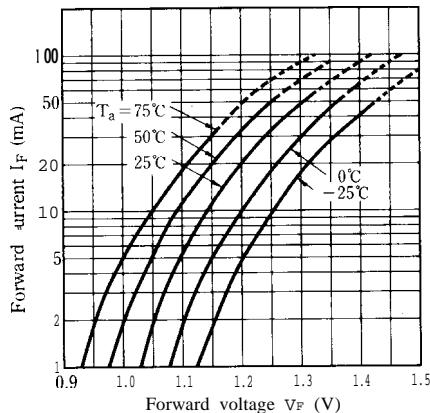


Fig.5-a Surge Current vs. Power-ON Cycle

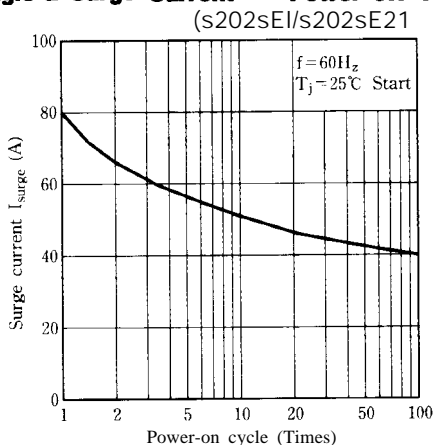


Fig.5-b Surge Current vs. Power-ON Cycle

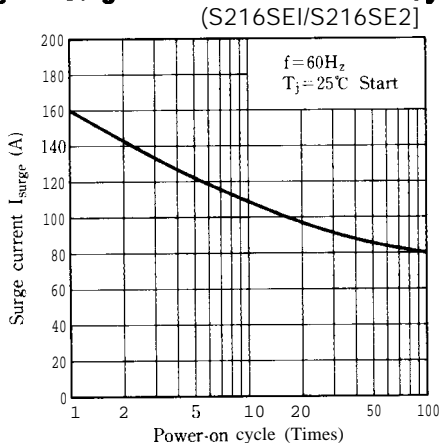


Fig.6-a Maximum ON-State Power Dissipation vs. RMS ON-State Current (S202SE1/S202SE2)

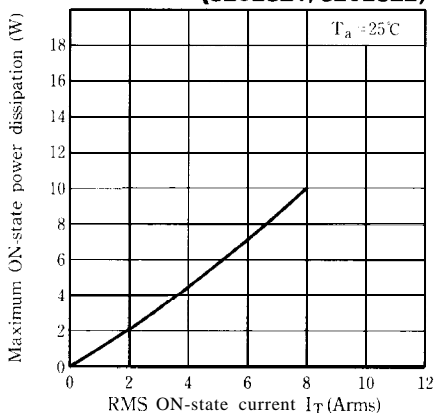


Fig.6-b Maximum ON-State Power Dissipation vs. RMS ON-State Current (S216SE1/S216SE2)

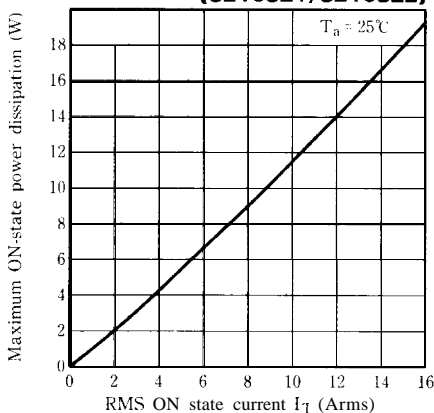


Fig.7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE1/S216SE1)

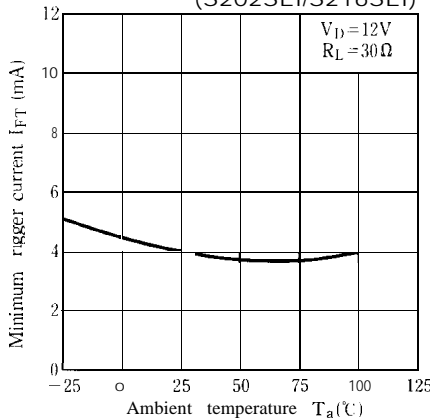


Fig.7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE2/S216SE2)

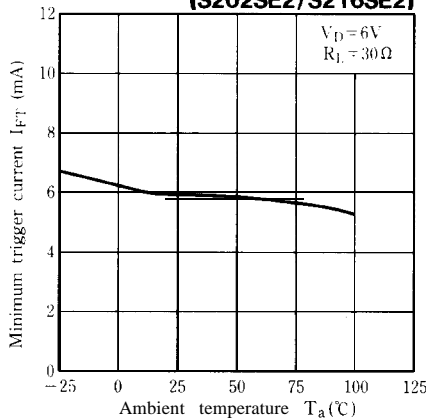


Fig.8-a Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature (Typical Value) (S202SE1/S202SE2)

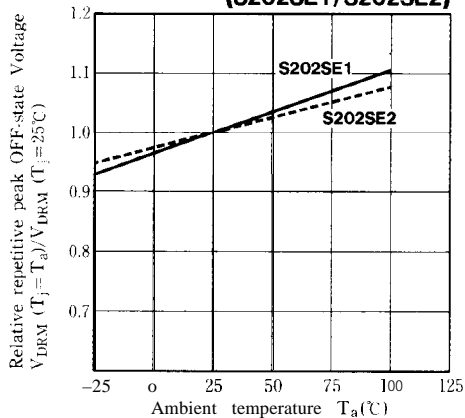


Fig.8-b Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature (Typical Value) (S216SE1/S216SE2)

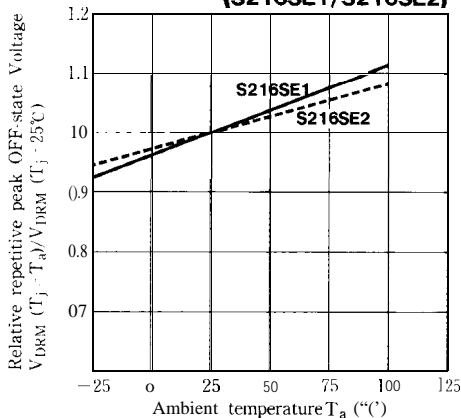


Fig.9-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202SE1/S202SE2)

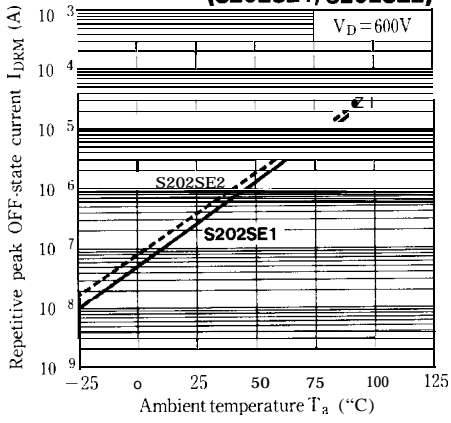
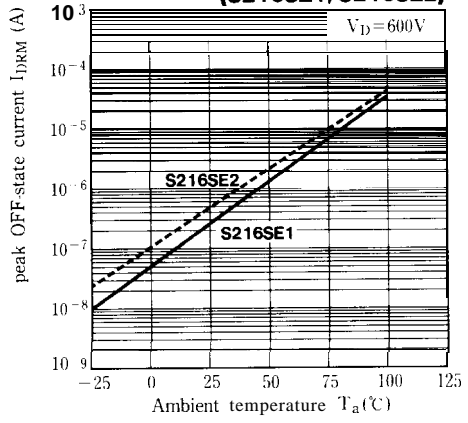


Fig.9-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S216SE1/S216SE2)



● please refer to the chapter “Precautions for Use.” (Page 78 to 93)