

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} : 3 000V_{rms})
- Approved by TÜV, 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

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	600	V
	Non-repetitive peak OFF-state voltage	V_{DSM}	600	600	V
	Critical rate of rise of ON-state current	dI_T/dt	50	50	A/ μ s
	Operating frequency	f	45 to 65	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, $T_j = 25^\circ\text{C}$ start

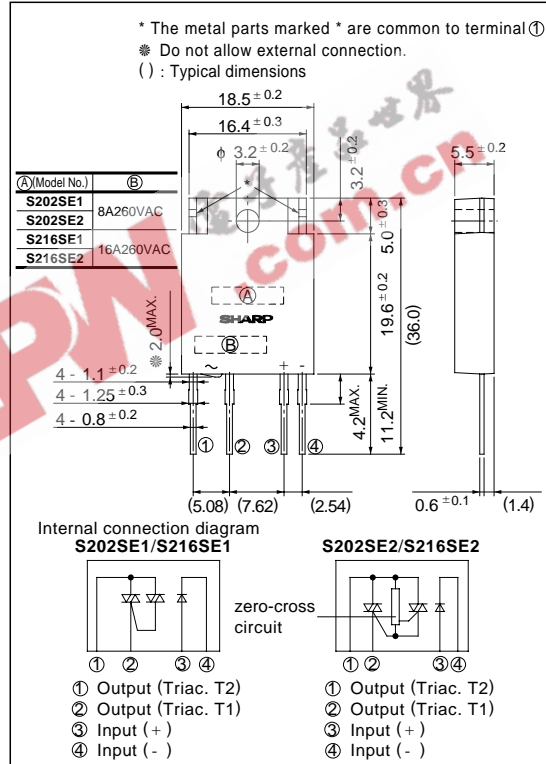
*2 AC 60Hz for 1 minute, 40 to 60% RH. Apply voltages between input and output by the dielectric withstand voltage tester with zero-cross circuit.(Input and output shall be shorted respectively).

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

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

■ Outline Dimensions

(Unit : mm)



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

■ Electrical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V_F	$I_F = 20\text{mA}$	-	1.2	1.4	V	
	Reverse current	I_R	$V_R = 3\text{V}$	-	-	10^{-4}	A	
Repetitive peak OFF-state current		I_{DRM}	$V_D = V_{DRM}$	-	-	10^{-4}	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		$(dV/dt)_c$	$T_j = 125^\circ\text{C}$, $V_D = 400\text{V}$ *6	5	-	-	V/ μs	
Zero-cross voltage		S202SE2/S216SE2 V_{OX}	$I_F = 8\text{mA}$	-	-	35	V	
Transfer characteristics	Minimum trigger current	I_{FT}	S202SE1/S216SE1 $V_D = 12\text{V}$, $R_L = 30\Omega$	-	-	8	mA	
			S202SE2/S216SE2 $V_D = 6\text{V}$, $R_L = 30\Omega$	-	-	8		
	Isolation resistance		R_{ISO}	DC500V, 40 to 60 % RH	10^{10}	-	-	Ω
	Turn-on time	t_{on}	S202SE1/S216SE1	AC60Hz	-	-	1	ms
			S202SE2/S216SE2	AC60Hz	-	-	9.3	
Turn-off time		t_{off}	AC60Hz	-	-	9.3	ms	
Thermal resistance (Between junction and case)		$R_{th(j-c)}$	-	-	4.5	-	$^\circ\text{C/W}$	
								S202SE1/S202SE2
		$R_{th(j-a)}$	-	-	40	-	$^\circ\text{C/W}$	
								S216SE1/S216SE2

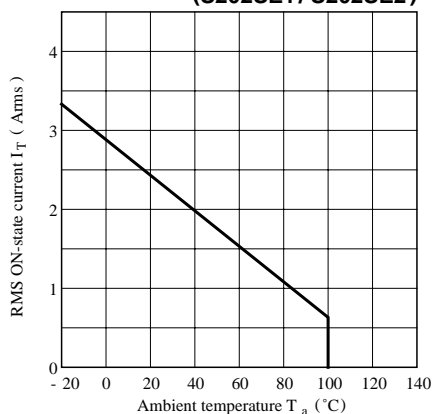
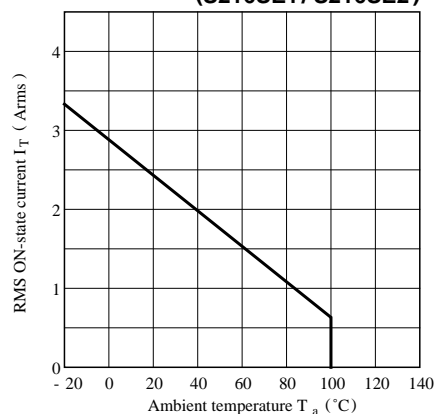
*6 $dI_T/dt = -4.0\text{A/ms}$ (**S202SE1/S202SE2**) $dI_T/dt = -8.0\text{A/ms}$ (**S216SE1/S216SE2**)Fig.1-a RMS ON-state Current vs. Ambient Temperature
(S202SE1/S202SE2)Fig.1-b RMS ON-state Current vs. Ambient Temperature
(S216SE1/S216SE2)

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

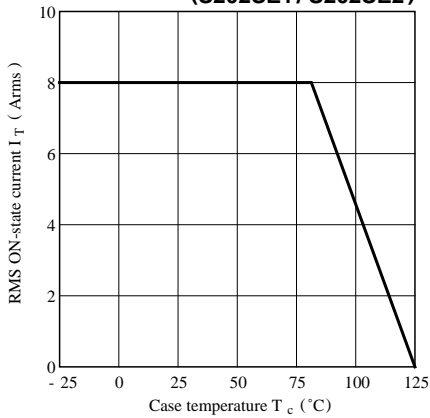


Fig.2-b RMS ON-state Current vs. Case Temperature (S216SE1 / S216SE2)

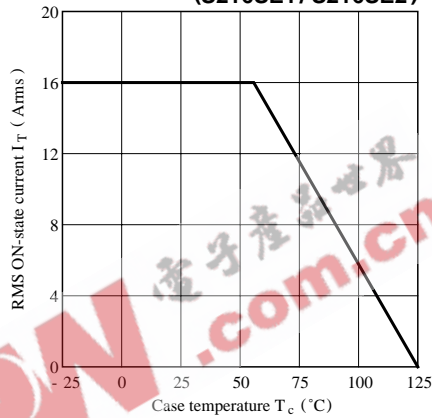


Fig. 3 Forward Current vs. Ambient Temperature

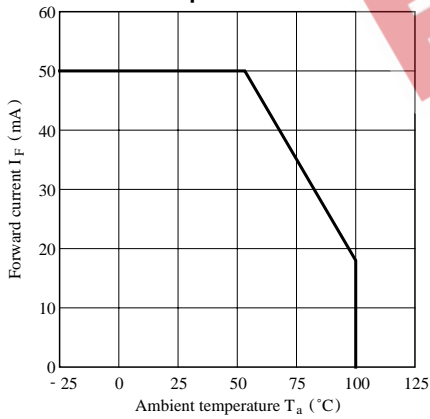


Fig. 4 Forward Current vs. Forward Voltage

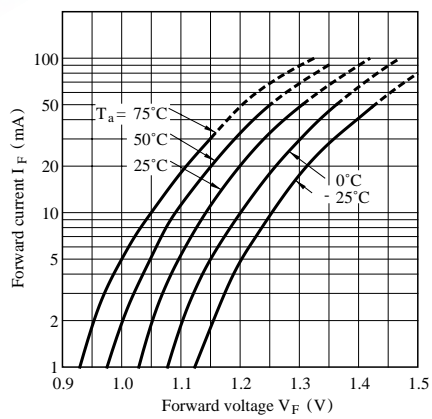


Fig.5-a Surge Current vs. Power-ON Cycle (S202SE1 / S202SE2)

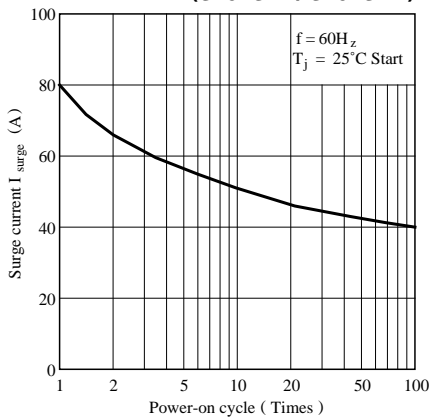


Fig.5-b Surge Current vs. Power-ON Cycle (S216SE1 / S216SE2)

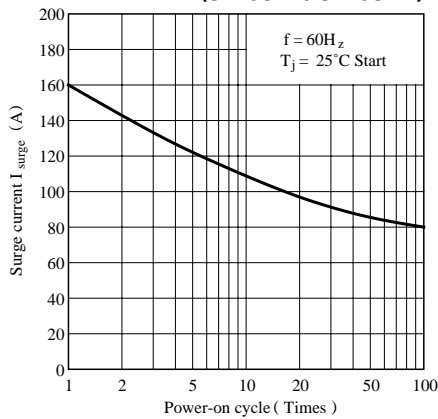


Fig.6-a Maximum ON-State Power Dissipation vs. RMS ON-State Current (S202SE1 / S202SE2)

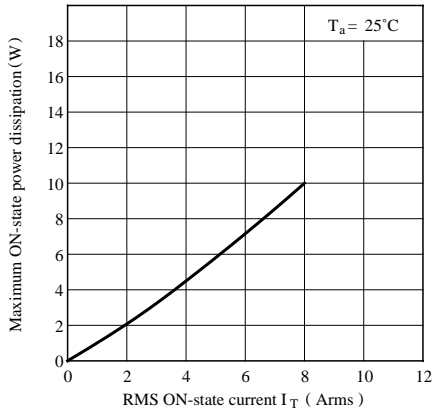


Fig.6-b Maximum ON-State Power Dissipation vs. RMS ON-State Current (S216SE1 / S216SE2)

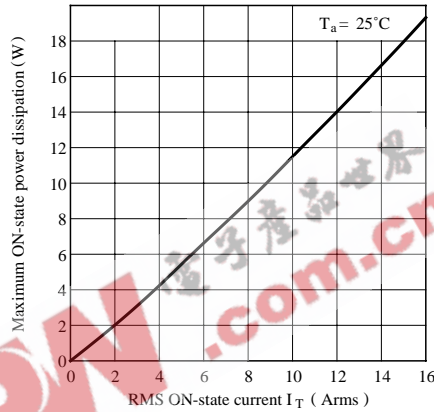


Fig.7-a Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE1 / S216SE1)

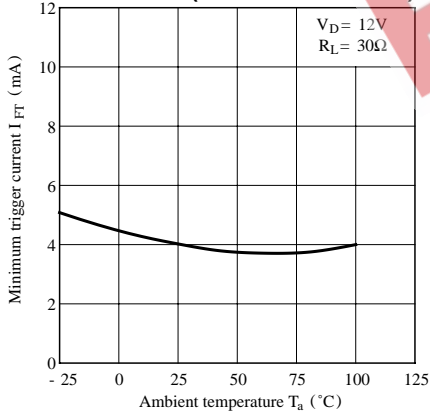


Fig.7-b Minimum Trigger Current vs. Ambient Temperature (Typical Value) (S202SE2 / S216SE2)

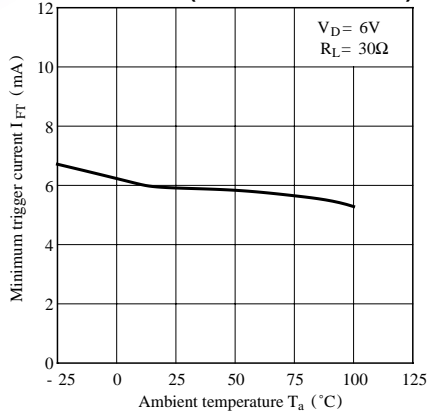


Fig.8-a Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S202SE1 / S202SE2)

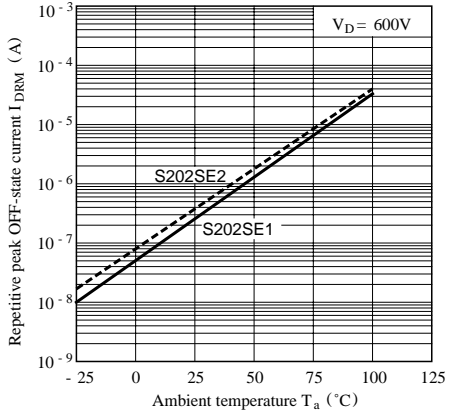


Fig.8-b Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value) (S216SE1 / S216SE2)

