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S101N11/S101N12 S201N11/S201N12

■ Features

1. Built-in snubber circuit
2. Input side voltage operation type
3. Built-in zero-cross circuit (S101N12/S201N12)
4. RMS ON-state current I_r : MAX. 1.6Arms

■ Applications

1. Programmable controllers
2. Copiers
3. Air conditioners
4. Automatic vending machines

■ Model line-ups

	For 100V lines	For 200V lines
No zero-cross circuit	S101N11	S201N11
Built-in zero-cross circuit	S101N12	S201N12

■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Input signal voltage	V_{IN}	3 to 6	V
	Reverse voltage	V_R	6	V
Output	Standard voltage	S101N11	120	V_{rms}
		S101N12		
		S201N11	240	
		S201N12		
	Operating frequency	f	47 to 63	Hz
	Output supply voltage	V_{out}	S101N11	60 to 140
S101N12			60 to 140	
RMS ON-state current	I_r	S201N11	*1 1.6	A_{rms}
		S201N12		
*2 Peak one cycle surge current		I_{surge}	15	A
Operating temperature		T_{opr}	-25 to +80	°C
Storage temperature		T_{stg}	-30 to +85	°C
*3 Isolation voltage		V_{iso}	3.0	kV_{rms}
*4 Soldering temperature		T_{sol}	260	°C

*1 Refer to Fig.1

*2 50Hz sine wave, start at $T_j=25^\circ\text{C}$

*3 Isolation voltage measuring method

(1) Dielectric withstand voltage tester with zero cross circuit shall be used.

(2) The applied voltage waveform shall be sine wave.

(3) Voltage shall be applied between input and output.

(Input and output terminals shall be shorted respectively.)

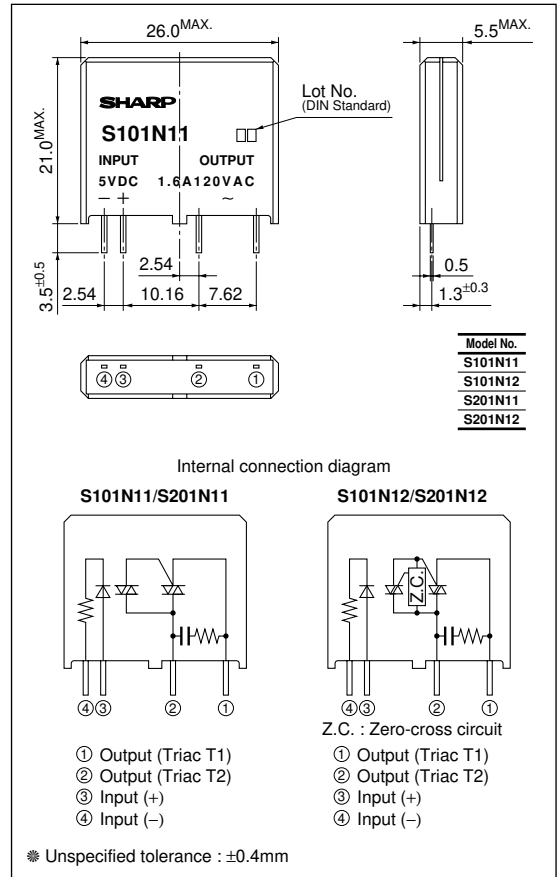
(4) AC 60Hz, 1min, 40 to 60%RH.

*4 For 5s

Voltage Input Type Solid State Relay with Built-in Snubber Circuit

■ Outline Dimensions

(Unit : mm)



■ Recommended Operating Conditions

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Input voltage	V_{IN}	–	4	–	6	V	
Output	Load supply voltage	S101N11	–	80	–	120	V_{rms}	
		S101N12				260		
	S201N11	–				1.6		A_{rms}
	S201N12							
Load operating current		–	Refer to Fig.1	0.05	–	1.6	A_{rms}	
Operating frequency		f	–	47	–	63	Hz	

■ Electrical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Input resistance	R_{IN}	–	–	160	–	Ω	
	Pickup voltage	S101N11/S101N12	V_{pu}	–	–	3	V	
		S201N11/S201N12						
	Dropout voltage	S101N11/S101N12	V_{do}	–	1	–	–	V
S201N11/S201N12								
Output	ON-state voltage	V_T	$I_T=1.6A_{rms}$, Resistance load, $V_{IN}=3V$	–	–	1.6	V_{rms}	
	Open circuit leak current	S101N11/S101N12	I_{leak}	–	–	0.7	mA_{rms}	
		S201N11/S201N12				1.3		
	Minimum operating current	S101N11/S101N12	I_{OP}	$V_D=60V$, Resistance load, $V_{IN}=3V$	–	–	10	mA_{rms}
		S201N11/S201N12					20	
Zero-cross voltage		V_{OX}	$V_{IN}=3V$, $R_L=400\Omega$	–	–	35	V	
Transfer characteristics	Turn-on time	S101N11	t_{on}	–	–	0.5	ms	
		S101N12				11		
		S201N11				0.5		
		S201N12				11		
	Turn-off time	S101N11/S101N12	t_{off}	–	–	–	11	ms
S201N11/S201N12								
Isolation resistance		R_{iso}	DC500V, 40 to 60%RH	100	–	–	$M\Omega$	

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

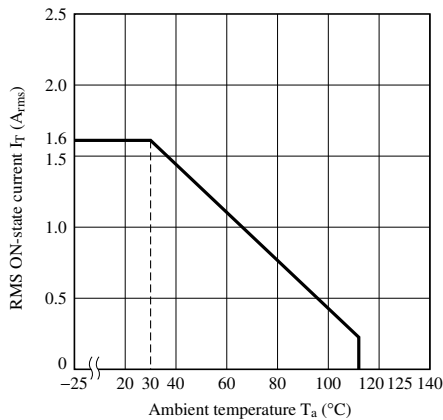


Fig.2 Open Circuit Leak Current vs. Ambient Temperature (Typical Value)

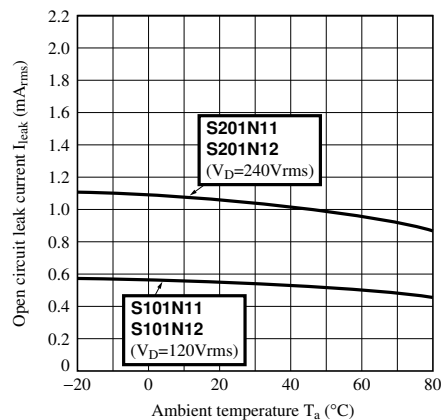


Fig.3 Input Current vs. Input Voltage (Typical Value)

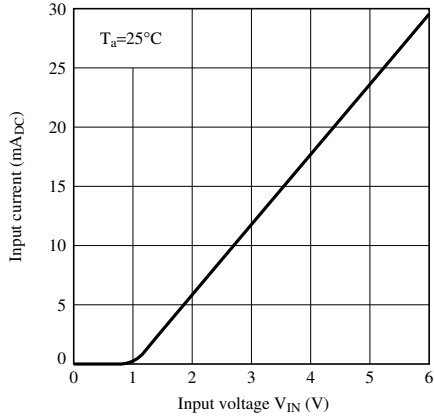


Fig.4 Non-repetitive Surge Current vs. Time

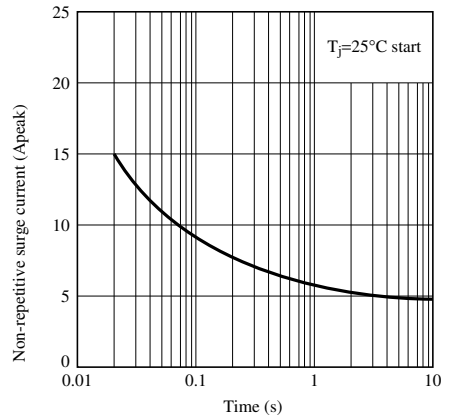


Fig.5 Pickup Voltage, Dropout Voltage vs. Ambient Temperature

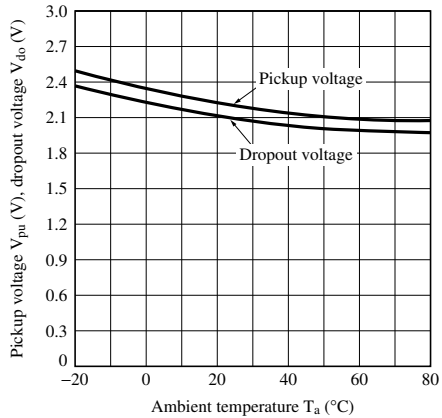
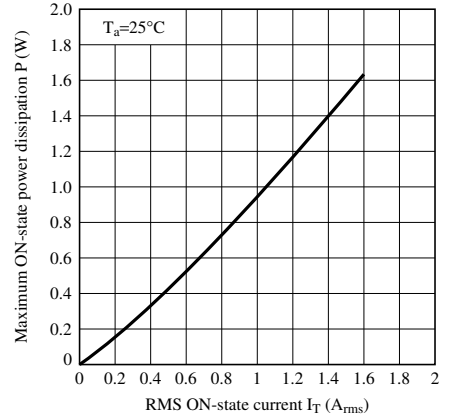


Fig.6 Maximum ON-state Power Dissipation vs. RMS ON-state Current



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