

S11MA01/S21MA01

6-pin DIP Type SSR for Low Power Control

■ Features

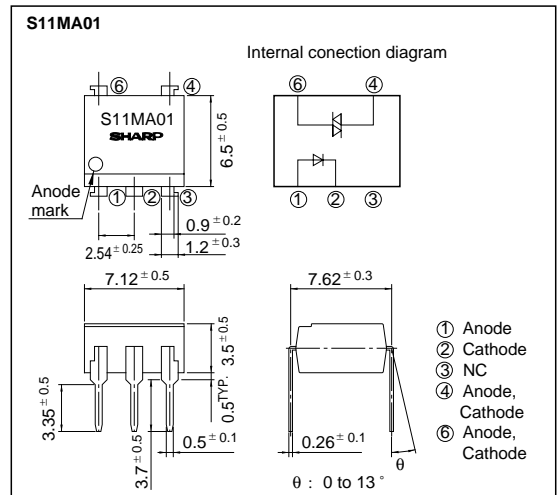
1. Low operating current type
(MAX 60mA_{rms})
2. Compact 5-pin dual-in-line package type
3. Recognized by UL file No. E94758

■ Applications

1. Electrical dampers for refrigerator
2. Turntable controllers for microwave oven
3. Ignitions circuit for oil fan heater

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I _F	50	mA
	Reverse voltage	V _R	6	V
Output	RMS ON-state current	I _F	100	mA _{rms}
	^{*1} Peak one cycle surge current	I _{surge}	1.2	A
	Repetitive peak OFF-state voltage	V _{DRM}	400	V
		V _{DRM}	600	V
	^{*2} Isolation voltage	V _{iso}	5 000	V _{rms}
	Operating temperature	T _{opr}	- 25 to + 80	°C
	Storage temperature	T _{stg}	- 55 to + 125	°C
	^{*3} Soldering temperature	T _{sol}	260	°C

*1 50Hz sine wave

*2 AC for 1 minute, 40 to 60% RH, f = 60Hz

*3 For 10 seconds

■ Electro-optical Characteristics

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

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^{-5}	A	
Output	Repetitive peak OFF-state voltage	I_{DRM}	$V_{DRM} = \text{Rated}$	-	-	10^{-6}	A	
	ON-state voltage	V_T	$I_T = 0.06\text{A}$	-	-	2.5	V	
	Holding current	I_H	$V_D = 6\text{V}$	0.1	1.0	3.5	mA	
	Critical rate of rise of OFF-state voltage	dV/dt	$V_{DRM} = (1/\sqrt{2}) \cdot \text{Rated}$	500	-	-	V/ μs	
	Operating current	<div style="display: inline-block; border: 1px solid black; padding: 2px; margin-right: 5px;">S11MA01</div> <div style="display: inline-block; border: 1px solid black; padding: 2px; margin-right: 5px;">S21MA01</div>	-	AC100Vrms, 60Hz, Resistance load	-	-	60	mA _{rms}
			-	AC200Vrms, 60Hz, Resistance load	-	-	-	-
Transfer characteristics	Minimum trigger current	I_{FT}	$V_D = 6\text{V}, R_L = 100\Omega$	-	-	10	mA	
	Isolation resistance	R_{ISO}	DC = 500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω	
	Turn-on time	t_{on}	$V_D = 6\text{V}, R_L = 100\Omega, I_F = 20\text{mA}$	-	-	100	μs	

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

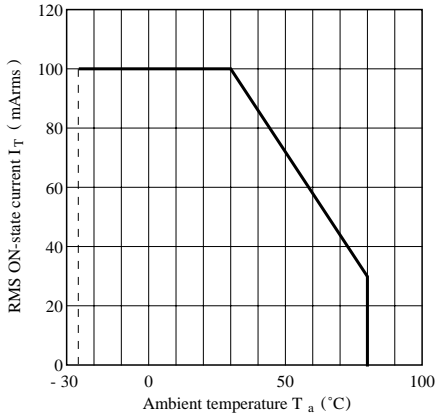


Fig. 2 Forward Current vs. Ambient Temperature

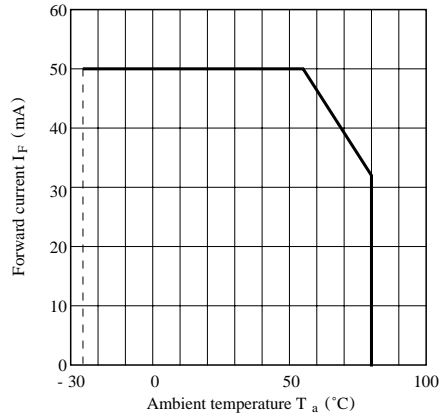


Fig. 3 Operating Current vs. Ambient Temperature

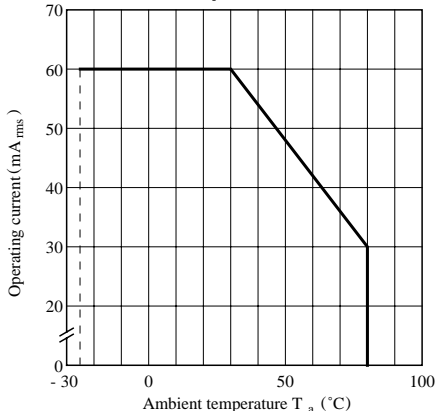


Fig. 4 Forward Current vs. Forward Voltage

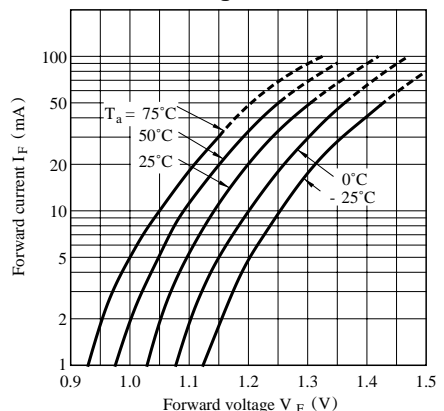


Fig. 5 Minimum Trigger Current vs. Ambient Temperature

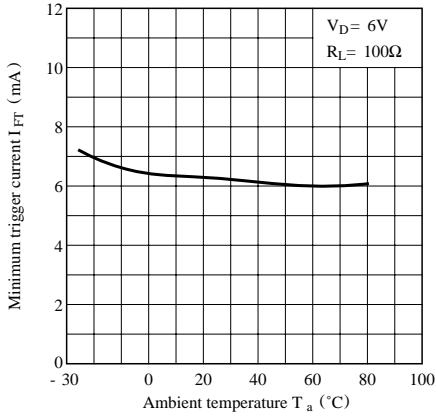


Fig. 6 ON-state Voltage vs. Ambient Temperature

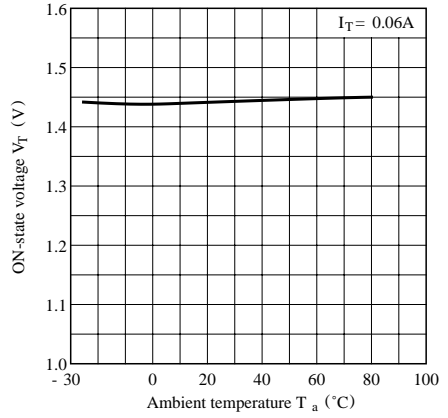


Fig. 7 Relative Holding Current vs. Ambient Temperature

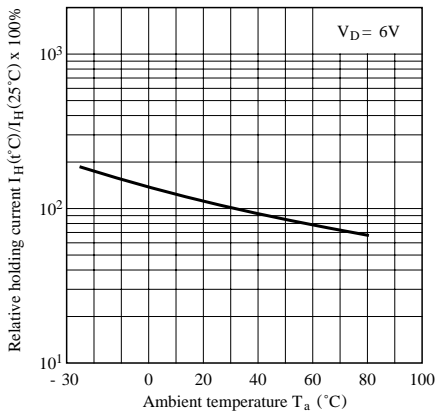


Fig. 8 ON-state Current vs. ON-state Voltage

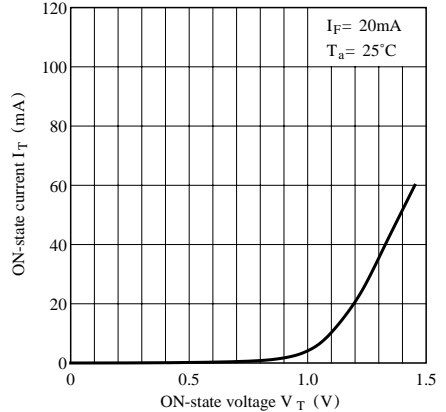
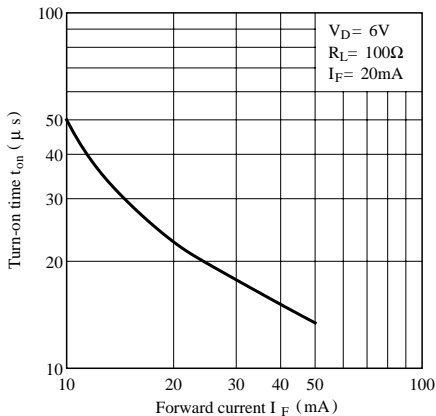
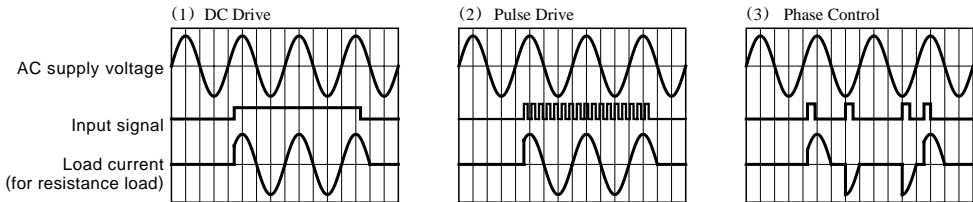
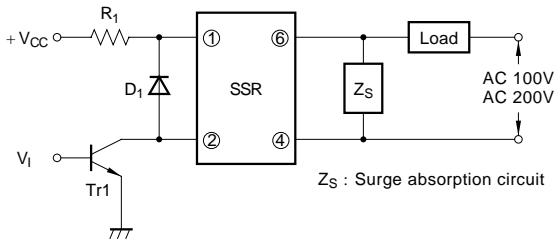


Fig. 9 Turn-on Time vs. Forward Current



Basic Operation Circuit



- Notes 1) If large amount of surge is loaded onto V_{CC} or the driver circuit, add a diode D_1 between terminals 1 and 2 to prevent reverse bias from being applied to the infrared LED.
- 2) Be sure to install a surge absorption circuit.
An appropriate circuit must be chosen according to the load (for CR, choose its constant). This must be carefully done especially for an inductive load.
- 3) For phase control, adjust such that the load current immediately after the input signal is applied will be more than 10mA.

● Please refer to the chapter “Precautions for Use”