S11MA01/S21MA01

6-pin DIP Type SSR for Low Power Control

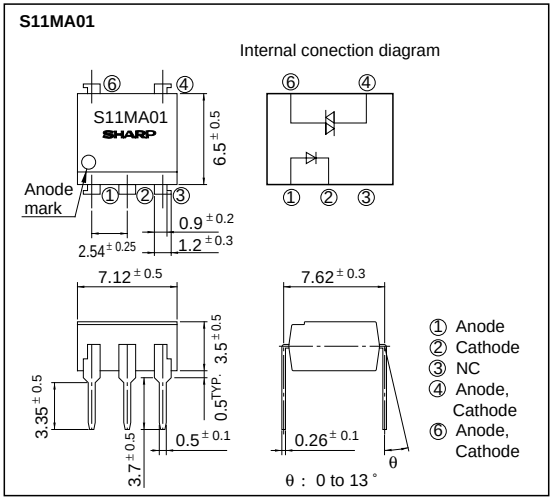
■ Features

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_T	100	mA $_{rms}$
	*1 Peak one cycle surge current		I_{surge}	1.2	A
	Repetitive peak OFF-state voltage	**S11MA01**	V_{DRM}	400	V
		S21MA01	V_{DRM}	600	V
*2Isolation voltage			V_{iso}	5 000	V_{rms}
Operating temperature			T_{opr}	- 25 to + 80	°C
Storage temperature			T_{stg}	- 55 to + 125	°C
*3Soldering 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

(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^{-5}	A
Output	Repetitive peak OFF-state voltage		I_{DRM}	V_{DRM} = Rated	-	-	10^{-6}	A
	ON-state voltage		V_T	I_T = 0.06A	-	-	2.5	V
	Holding current		I_H	V_D = 6V	0.1	1.0	3.5	mA
	Critical rate of rise of OFF-state voltage		dV/dt	V_{DRM} = (1/√2) • Rated	500	-	-	V/μs
	Operating current	**S11MA01**	-	AC100Vrms, 60Hz, Resistance load	-	-	60	mA_{rms}
		S21MA01		AC200Vrms, 60Hz, Resistance load				
Transfer characteristics	Mininum trigger current		I_{FT}	V_D = 6V, R_L = 100Ω	-	-	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 = 6V, R_L = 100Ω, I_F = 20mA	-	-	100	μs

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

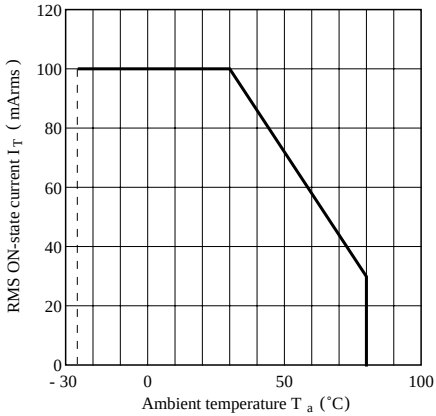


Fig. 2 Forward Current vs. Ambient Temperature

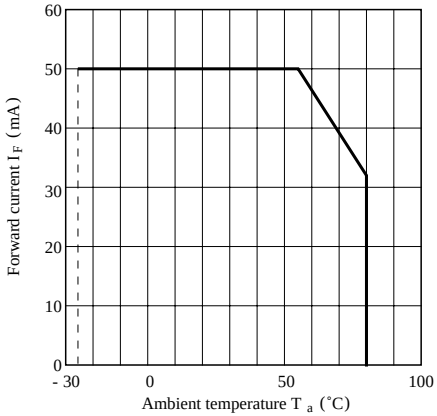


Fig. 3 Operating Current vs. Ambient Temperature

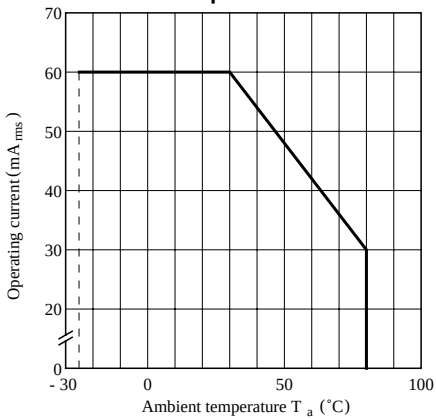


Fig. 4 Forward Current vs. Forward Voltage

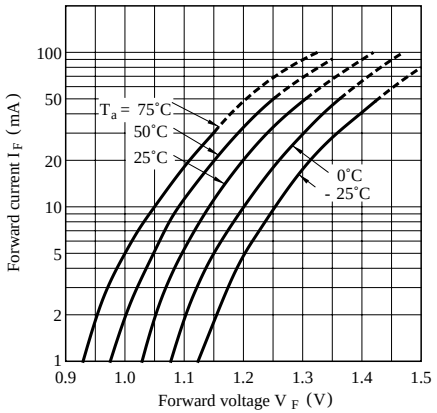


Fig. 5 Minimum Trigger Current vs. Ambient Temperature

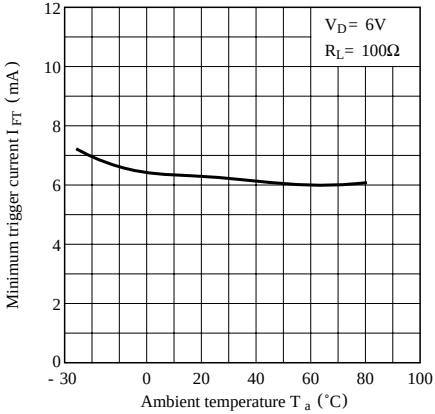


Fig. 6 ON-state Voltage vs. Ambient Temperature

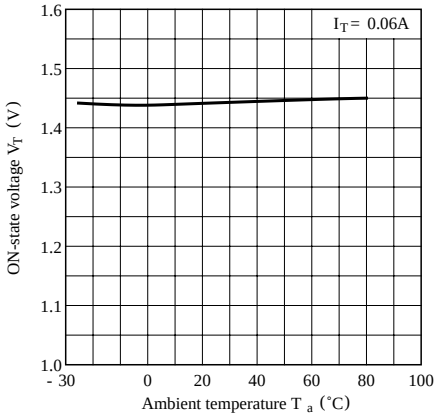


Fig. 7 Relative Holding Current vs. Ambient Temperature

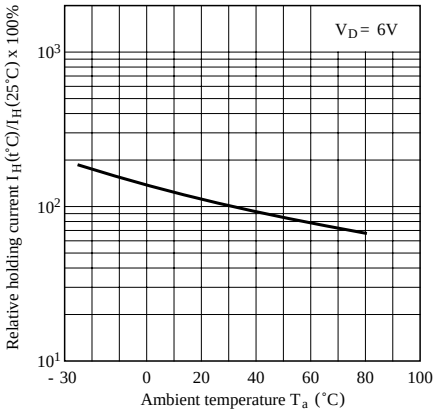


Fig. 8 ON-state Current vs. ON-state Voltage

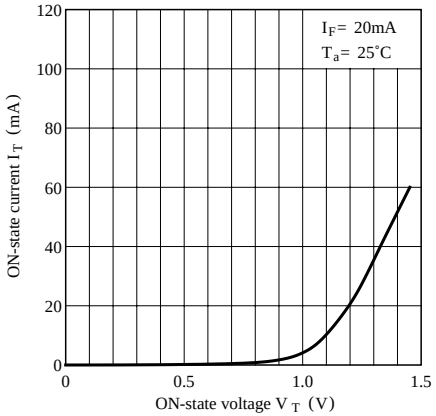
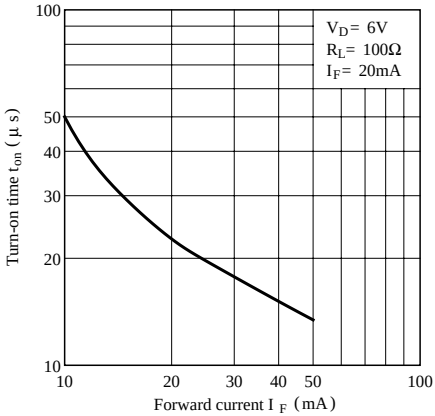
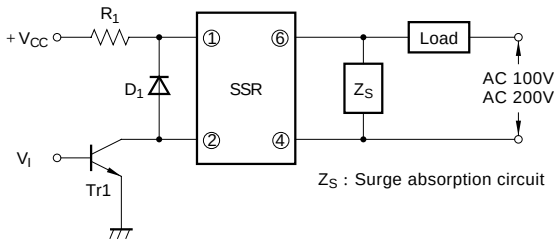
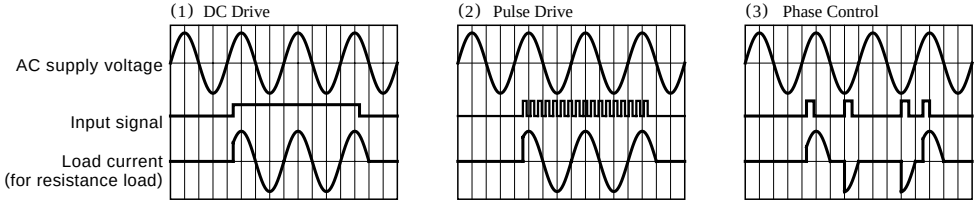


Fig. 9 Turn-on Time vs. Forward Current



■ 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"