

S16MDO1/S16MD02 S26MDO1/S26MD02

8-Pin DIP Type **SSR** for Low Power Control

■ Features

1. Compact 8-pin dual-in-line package type
2. RMS ON-state current $I_T: 0.6A_{rms}$
3. Built-in zero-cross circuit
(S16MD02/S26MD02)
4. High repetitive peak OFF-state voltage
S16MD01 /S16MD02 $V_{DRM}: \text{MIN. } 400V$
S26MD01 /S26MD02 $V_{DRM}: \text{MIN. } 600V$
5. Isolation voltage between input and output
($V_{iso}: 4,000 \text{ Vrms}$)
6. Recognized by UL, file No. E94758
7. Approved by CSA No. LR63705

■ Applications

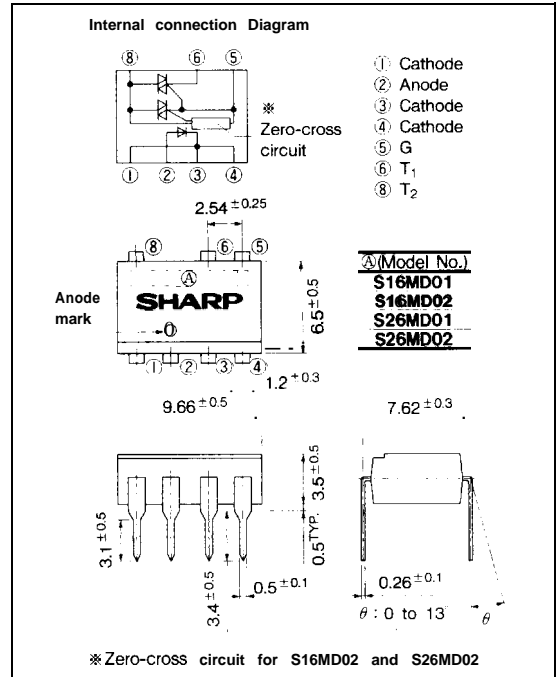
1. Oil fan heaters
2. Microwave ovens
3. Refrigerators

■ Model Line-ups

	For 100V lines	For 200V lines
No built-in zero-cross circuit	S16MD01	S26MD01
Built-in zero-cross circuit	S16MD02	S26MD02

■ Outline Dimensions

(Unit : mm)



Terminal ①, ③ and ④ are common ones of cathode. To radiate the heat, solder all of the lead pins on the pattern of PWB.

■ Absolute Maximum Ratings

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

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output	RMS ON-state current	I_T	0.6	A_{rms}
	*1 Peak one cycle surge current	I_{surge}	6	A
	Repetitive peak OFF-state voltage	S16MD01/S16MD02	V_{DRM}	400
S26MD01/S26MD02		600		V
*2 Isolation voltage		V_{iso}	4 000	V_{rms}
Operating temperature		T_{opr}	-25 to +80	$^\circ\text{C}$
Storage temperature		T_{stg}	-40 to +125	$^\circ\text{C}$
*3 Soldering temperature		T_{sol}	260	$^\circ\text{C}$

*1 50Hz sine wave

*2 AC for 1 minute, 40 to 60%RH, $f=60\text{Hz}$

*3 For 10 seconds

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	μA	
	Repetitive peak OFF-state current	I_{DRM}	$V_{DRM} = \text{Rated}$			100	μA	
Output	ON-state voltage	V_T	$I_T = 0.6\text{A}$	-	1	3.0	V	
	Holding current	I_H	$iV_D = 6\text{V}$			25	mA	
	Critical rate of rise of OFF-state voltage	dV/dt	$V_{DRM} - (1/\sqrt{2})$, Rated	100			$\text{V}/\mu\text{s}$	
	Zero-cross voltage	S16MD02 S26MD02 V_{OX}	Resistance load $I_F = 15\text{mA}$			35	V	
Transfer characteristics	Minimum trigger current	I_{FT}	$V_D = 6\text{V}$, $R_L = 100\Omega$	-		10	mA	
	Isolation resistance	R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	-	Ω	
	Turn-on time	S16MD01 S26MD01	t_{on}	$V_D = 6\text{V}$, $R_L = 100\Omega$			100	μs
		S16MD02 S26MD02					50	μs

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

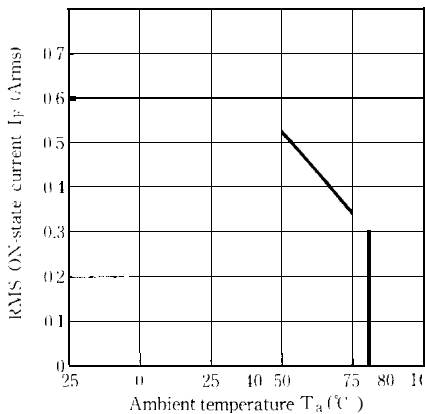


Fig. 2 Forward Current vs. Ambient Temperature

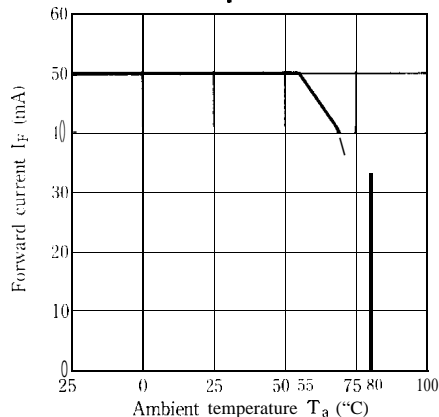


Fig. 3 Forward Current vs. Forward Voltage

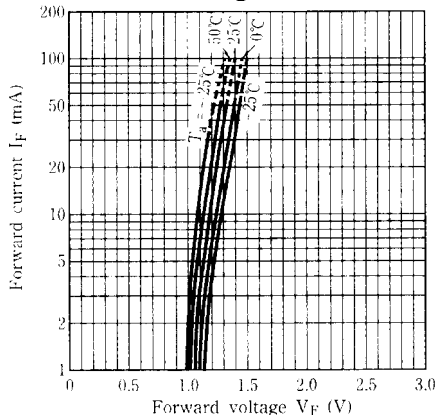
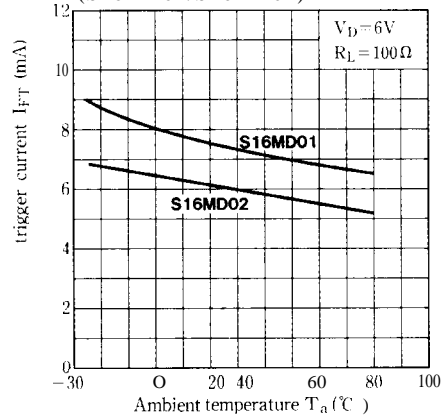


Fig. 4 Minimum Trigger Current vs. Ambient Temperature (S16MD01/S16MD02)



Solid State Relays



Fig. 5 Minimum Trigger Current vs. Ambient Temperature (S26MD01/S26MD02)

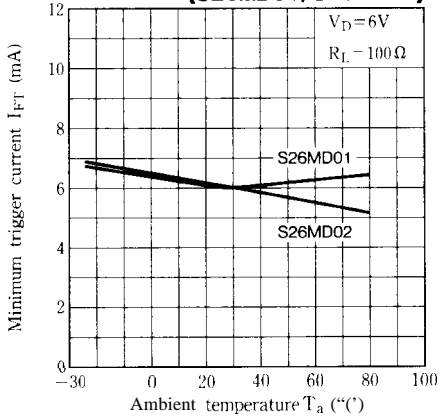


Fig. 6 ON-state Voltage vs. Ambient Temperature

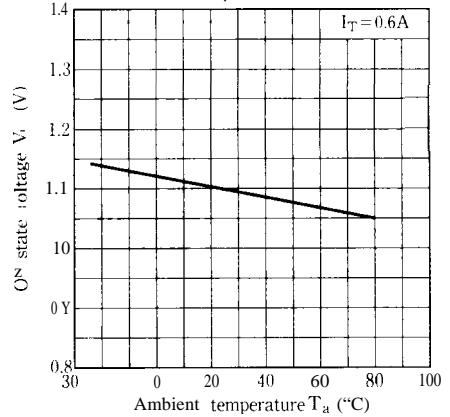


Fig. 7 Relative Holding Current vs. Ambient Temperature

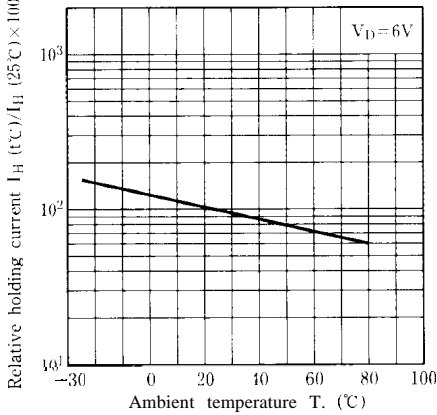


Fig. 8 ON-state Current vs. ON-state voltage

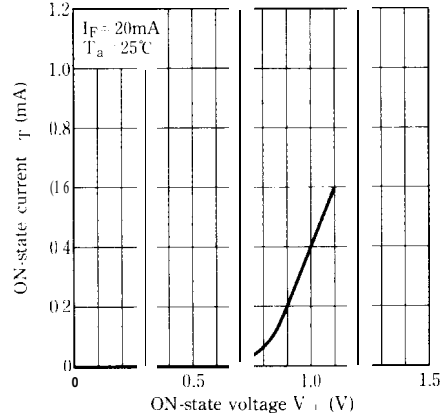


Fig. 9 Turn-on Time vs. Forward Current (S16MD01)

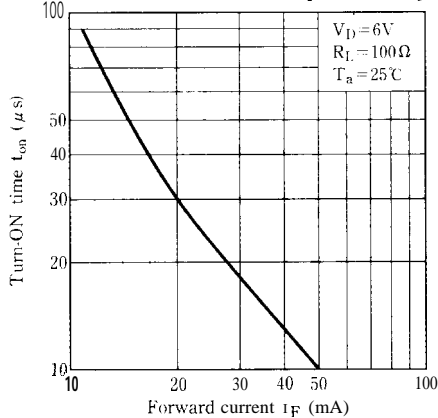


Fig.10 Turn-on Time vs. Forward Current (S26MD01)

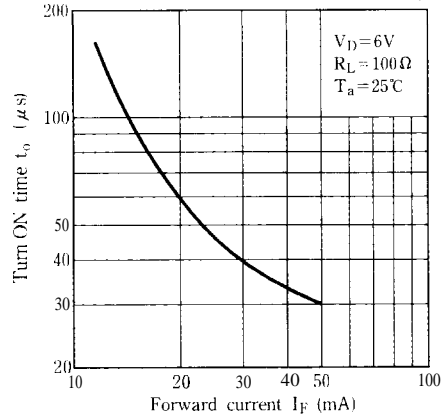


Fig.11 Turn-on Time vs. Forward Current
(S16MD02/S26MD02)

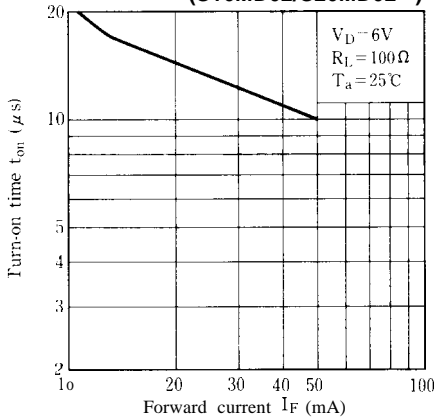
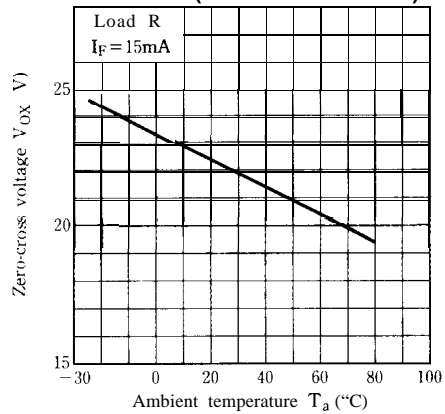
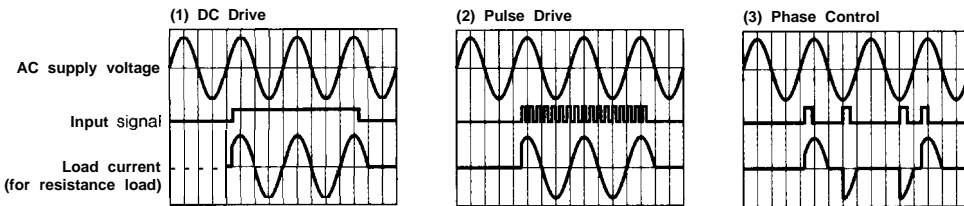
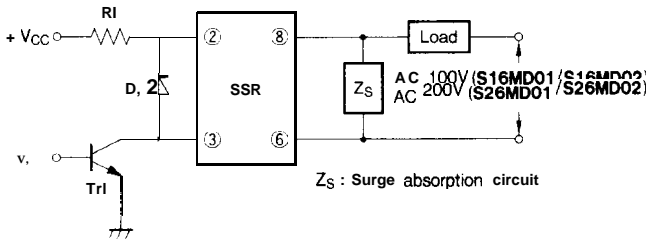


Fig.12 Zero-cross Voltage vs. Ambient Temperature
(S16MD02/S26MD02)



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 terminal 2 and 3 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 30mA.

Precautions for Use

- 1) All pins must be soldered since they are also used as heat sinks (heat radiation fins). In designing, consider the heat radiation from the mounted SSR.
- 2) For higher radiation efficiency that allows wider thermal margin, secure a wider round pattern for Pin No.8 when designing mounting pattern. The rounded part of Pin No.5 (gate) must be as small as possible. Pulling the gate pattern around increases the change of being affected by external noise.
- 3) As for other general cautions, refer to the chapter "Precautions for Use" (Page 78 to 93).