

# S21MD3V

## High Noise Resistance Type Phototriac Coupler

\* Lead forming type and taping reel type are also available. (S21MD3W/S21MD3P)

\*\* TÜV (VDE0884) approved type is also available as an option.

### ■ Features

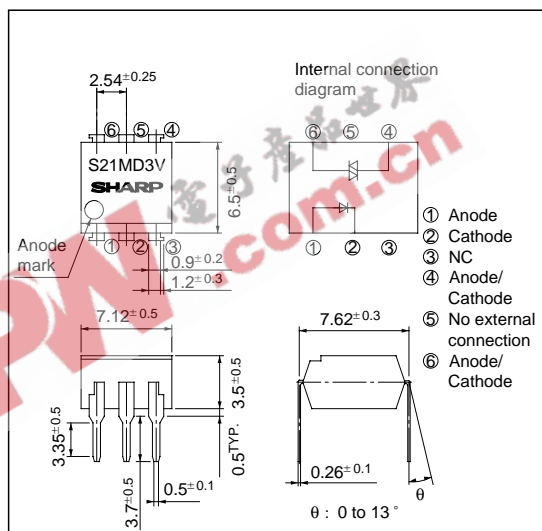
1. High critical rate of rise of OFF-state voltage  
( $dv/dt$  : MIN. 500V/ $\mu$ s)
  2. High repetitive peak OFF-state voltage  
( $V_{DRM}$  : MIN. 600V)
  3. Isolation voltage between input and output  
 $V_{iso}$  : 5 000Vrms
  4. UL recognized, file No.E64380 (S21MD3V / S21MD3W)
- \* S21MD3V is for 200V line.

### ■ Applications

1. For triggering medium/high power triac

### ■ Outline Dimensions

(Unit : mm)



### ■ 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	$I_T$	100	$\text{mA}_{\text{rms}}$
	* <sup>1</sup> Peak one cycle surge current	$I_{\text{surge}}$	1.2	A
	Repetitive peak OFF-state voltage	$V_{DRM}$	600	V
	* <sup>2</sup> Isolation voltage	$V_{iso}$	5 000	$\text{V}_{\text{rms}}$
Operating temperature		$T_{opr}$	- 30 to + 100	$^\circ\text{C}$
Storage temperature		$T_{stg}$	- 55 to + 125	$^\circ\text{C}$
* <sup>3</sup> Soldering temperature		$T_{sol}$	260	$^\circ\text{C}$

\*1 Sine wave

\*2 40 to 60% , RH

AC 1 minute,  $f = 60\text{Hz}$

\*3 For 10 seconds

■ Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 30mA	-	1.2	1.4	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> = 3V	-	-	10 <sup>-5</sup>	A
Repetitive peak OFF-state current		I <sub>DRM</sub>	V <sub>DRM</sub> = Rated	-	-	10 <sup>-6</sup>	A
Output	On-state voltage	V <sub>T</sub>	I <sub>T</sub> = 100mA	-	1.7	2.5	V
	Holding current	I <sub>H</sub>	V <sub>D</sub> = 6V	0.1	1	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	V <sub>DRM</sub> = 1/√2 Rated	500	-	-	V/μs
Transfer characteristics	Minimum trigger current	I <sub>FT</sub>	V <sub>D</sub> = 6V, R <sub>L</sub> = 100Ω	-	-	15	mA
	Isolation resistance	R <sub>ISO</sub>	DC500V, 40 to 60% RH	5 × 10 <sup>10</sup>	10 <sup>11</sup>	-	Ω
	Turn-on time	t <sub>on</sub>	V <sub>D</sub> = 6V, I <sub>F</sub> = 30mA, R <sub>L</sub> = 100Ω	-	100	250	μs

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

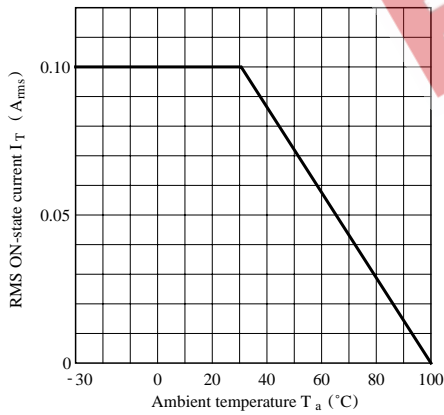


Fig. 2 Forward Current vs. Ambient Temperature

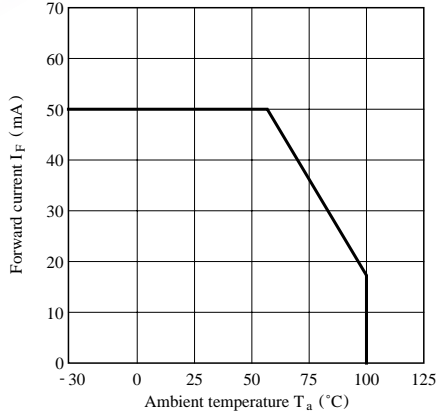


Fig. 3 Forward Current vs. Forward Voltage

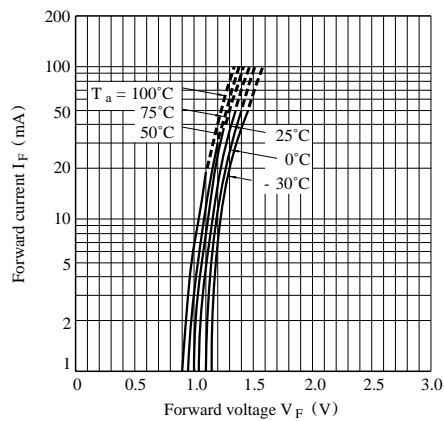
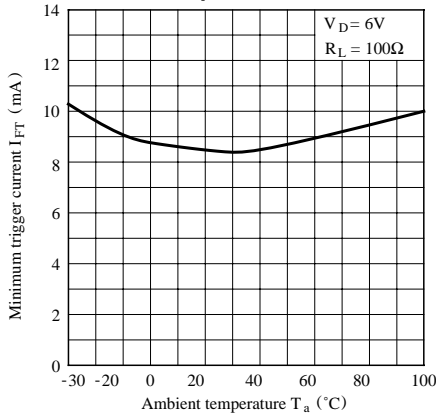
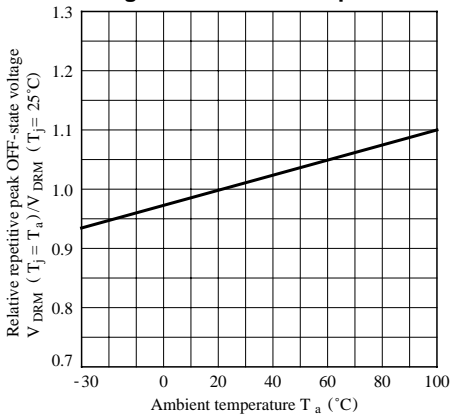


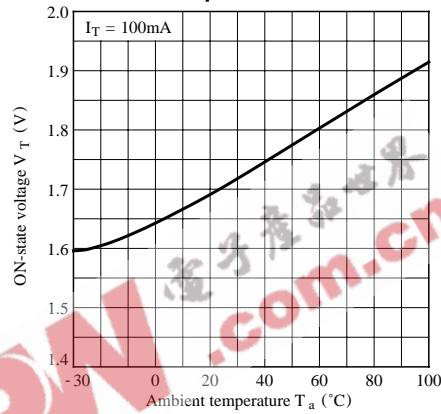
Fig. 4 Minimum Trigger Current vs. Ambient Temperature



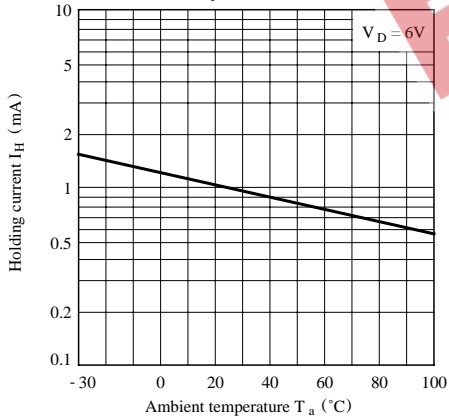
**Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature**



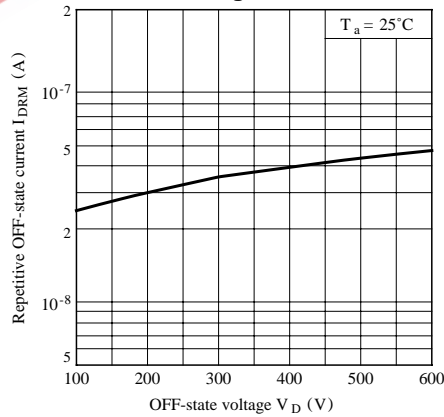
**Fig. 6 ON-state Voltage vs. Ambient Temperature**



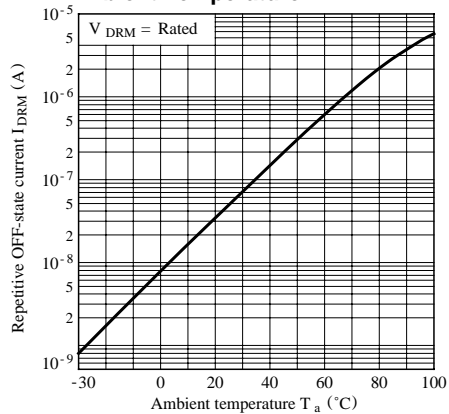
**Fig. 7 Holding Current vs. Ambient Temperature**



**Fig. 8 Repetitive Peak OFF-state Current vs OFF-state Voltage**



**Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature**



**Fig.10 Turn-on Time vs. Forward Current**

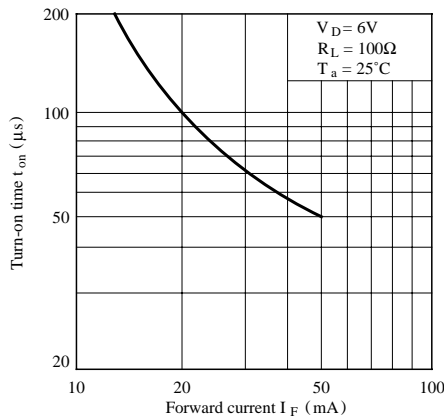
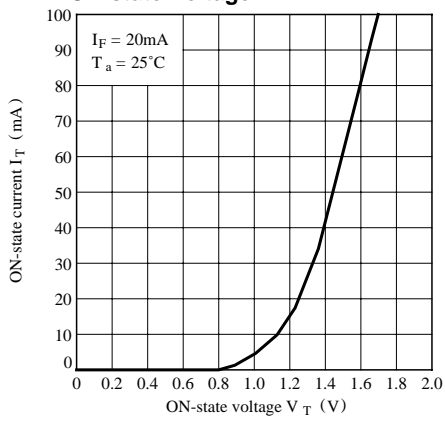
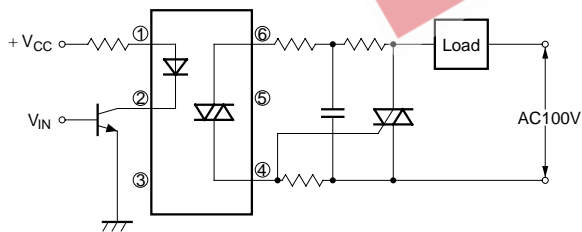


Fig.11 ON-state Current vs.  
ON-state Voltage



### Basic Operation Circuit

#### Medium/High Power Triac Drive Circuit



Note) Please use on condition of the triac for power triggers.

- Please refer to the chapter "Precautions for Use" (Page 78 to 93).