

# 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

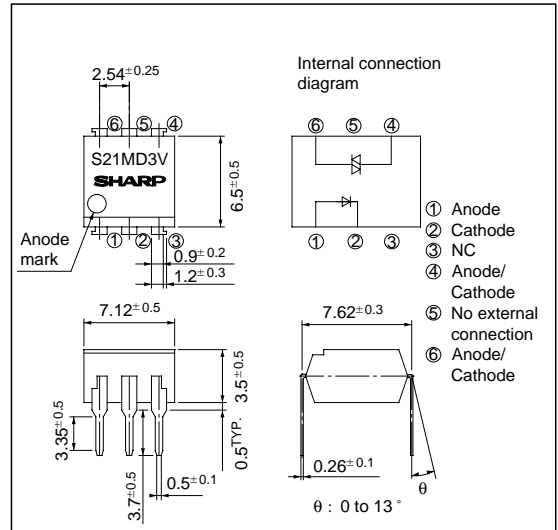
1. High critical rate of rise of OFF-state voltage  
( $dv/dt$  : MIN. 500V/ $\mu$ s)
  2. High repetitive peak OFF-state voltage  
( $V_{DRM}$  : MIN. 600V)
  3. Isolation voltage between input and output  
 $V_{iso}$  : 5 000Vrms
  4. UL recognized, file No.E64380 (S21MD3V / S21MD3W)
- \* S21MD3V is 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	mA <sub>rms</sub>
	*1 Peak one cycle surge current	$I_{surge}$	1.2	A
	Repetitive peak OFF-state voltage	$V_{DRM}$	600	V
*2 Isolation voltage		$V_{iso}$	5 000	V <sub>rms</sub>
Operating temperature		$T_{opr}$	- 30 to + 100	°C
Storage temperature		$T_{stg}$	- 55 to + 125	°C
*3 Soldering temperature		$T_{sol}$	260	°C

\*1 Sine wave

\*2 40 to 60% , RH

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

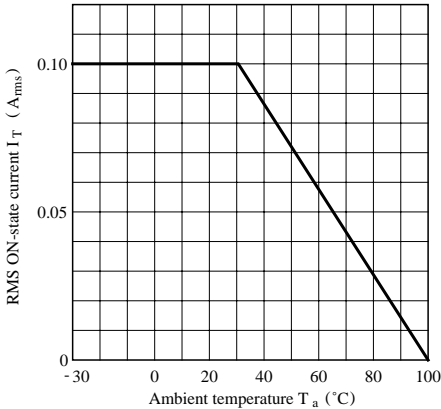
\*3 For 10 seconds

**Electro-optical Characteristics**

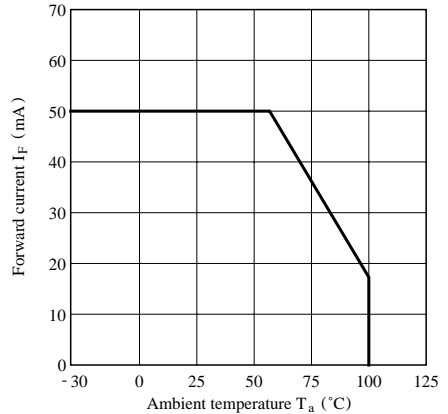
( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	$V_F$	$I_F = 30\text{mA}$	-	1.2	1.4	V
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	$10^{-5}$	A
Output	Repetitive peak OFF-state current	$I_{DRM}$	$V_{DRM} = \text{Rated}$	-	-	$10^{-6}$	A
	On-state voltage	$V_T$	$I_T = 100\text{mA}$	-	1.7	2.5	V
	Holding current	$I_H$	$V_D = 6\text{V}$	0.1	1	3.5	mA
	Critical rate of rise of OFF-state voltage	$dV/dt$	$V_{DRM} = 1/\sqrt{2}$ Rated	500	-	-	$\text{V}/\mu\text{s}$
Transfer characteristics	Minimum trigger current	$I_{FT}$	$V_D = 6\text{V}, R_L = 100\Omega$	-	-	15	mA
	Isolation resistance	$R_{ISO}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	$10^{11}$	-	$\Omega$
	Turn-on time	$t_{on}$	$V_D = 6\text{V}, I_F = 30\text{mA}, R_L = 100\Omega$	-	100	250	$\mu\text{s}$

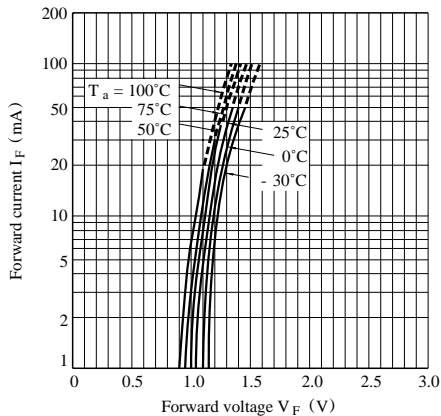
**Fig. 1 RMS ON-state Current vs. Ambient Temperature**



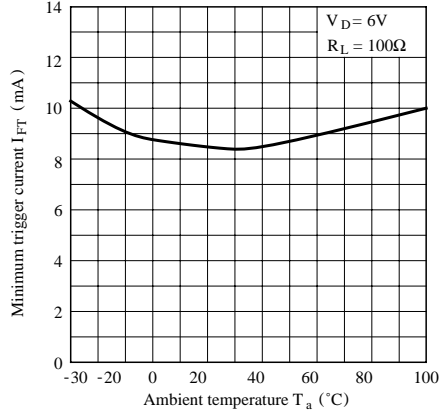
**Fig. 2 Forward Current vs. Ambient Temperature**



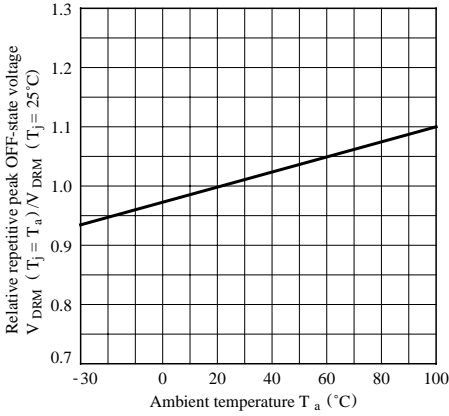
**Fig. 3 Forward Current vs. Forward Voltage**



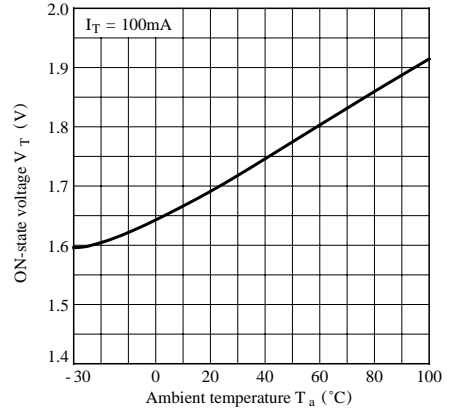
**Fig. 4 Minimum Trigger Current vs. Ambient Temperature**



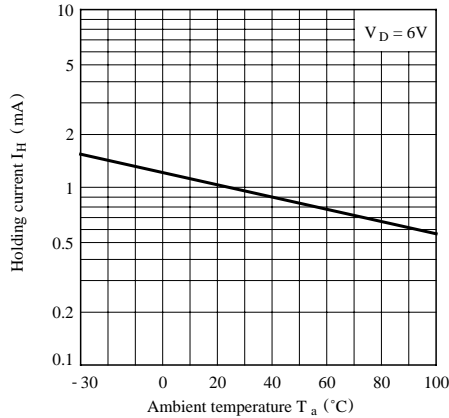
**Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature**



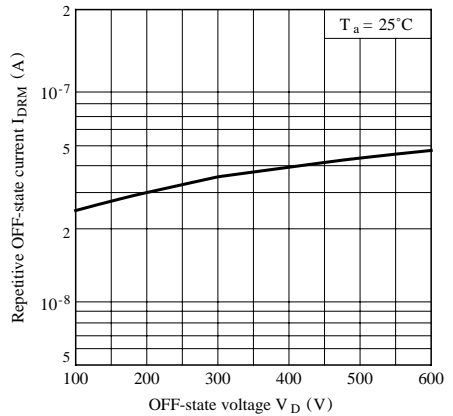
**Fig. 6 ON-state Voltage vs. Ambient Temperature**



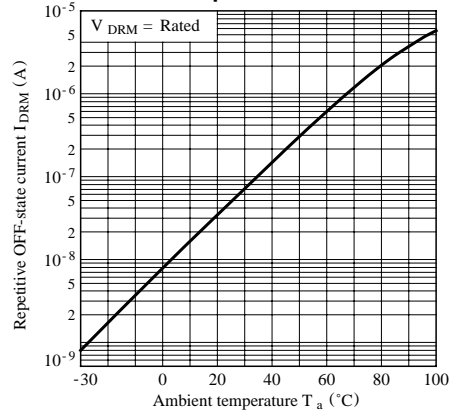
**Fig. 7 Holding Current vs. Ambient Temperature**



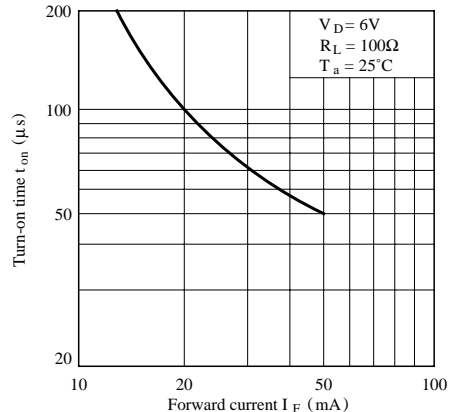
**Fig. 8 Repetitive Peak OFF-state Current vs OFF-state Voltage**



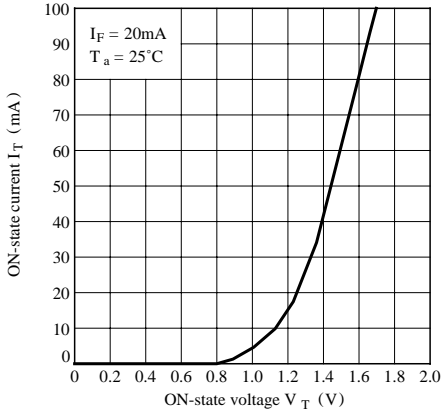
**Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature**



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

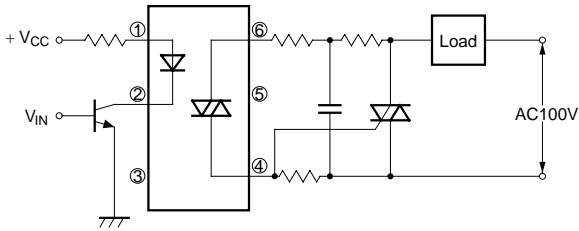


**Fig.11 ON-state Current vs. ON-state Voltage**



**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).