

# S11MD5V

## Mini-flat Type Phototriac Coupler

\* Lead forming type (I type) and taping reel type (P type) are also available. (S11MD5VI/S11MD5VP)

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

### ■ Features

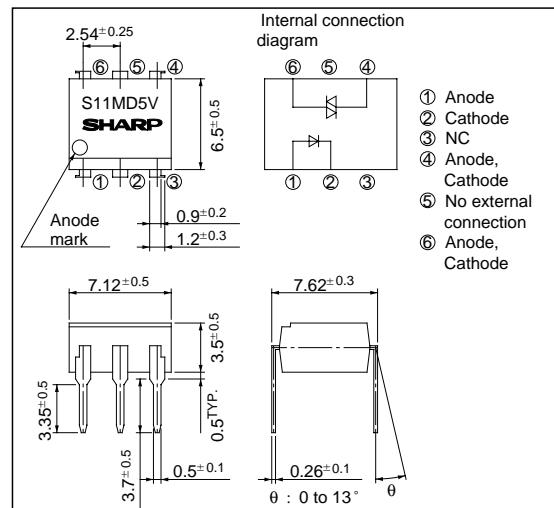
1. Isolation voltage between input and output  
V<sub>iso</sub> : 5 000V<sub>rms</sub>
  2. High critical rate of rise of OFF-state voltage  
(dV/dt : MIN. 100V/μs)
  3. Recognized by UL, file No. E64380  
**(S11MD5V/S11MD5VI)**
- \* S11MD5V is for 100V line

### ■ Applications

1. For triggering medium/high power triac

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	Reverse voltage	V <sub>R</sub>	6	V
Output	RMS ON-state current	I <sub>T</sub>	100	mA <sub>rms</sub>
	*1 Peak one cycle surge current	I <sub>surge</sub>	1.2	A
Repetitive peak OFF-state voltage		V <sub>DRM</sub>	400	V
*2 Isolation voltage		V <sub>iso</sub>	5 000	V <sub>rms</sub>
Operating temperature		T <sub>opr</sub>	- 30 to + 100	°C
Storage temperature		T <sub>stg</sub>	- 55 to + 125	°C
*3 Soldering temperature		T <sub>sol</sub>	260	°C

\*1 Sine wave    \*2 40 to 60% RH, AC for 1 minute

\*3 For 10 seconds

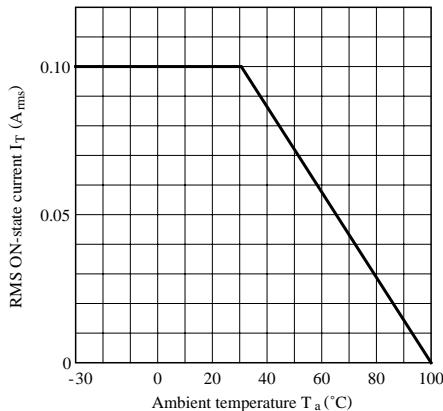
### ■ Electro-optical Characteristics

(Ta = 25°C)

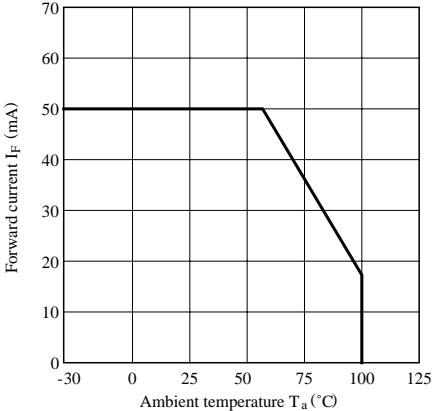
Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	1.2	1.4	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> = 3V	-	-	10 <sup>-5</sup>	A
Output	Repetitive peak OFF-state current	I <sub>DRM</sub>	V <sub>DRM</sub> = Rated	-	-	10 <sup>-6</sup>	A
	ON-state voltage	V <sub>T</sub>	I <sub>T</sub> = 100mA	-	1.3	2.0	V
Transfer characteristics	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	100	-	-	V/μs
Transfer characteristics	Minimum trigger current	I <sub>FT</sub>	V <sub>D</sub> = 6V, R <sub>L</sub> = 100Ω	-	-	10	mA
	Isolation resistance	R <sub>ISO</sub>	DC500V, 40 to 60% RH	5 x 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> = 20mA, R <sub>L</sub> = 100Ω	-	80	200	μs

<sup>\*</sup> In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device.

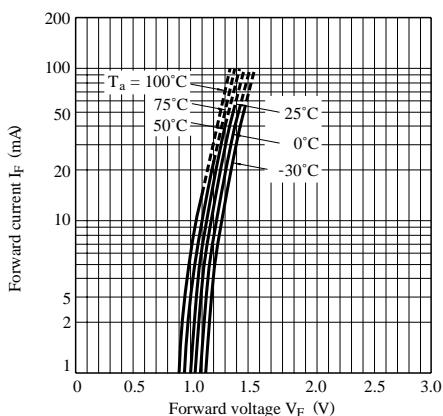
**Fig. 1 RMS ON-state Current vs. Ambient Temperature**



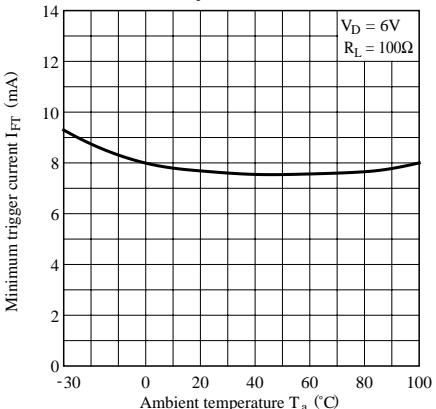
**Fig. 2 Forward Current vs. Ambient Temperature**



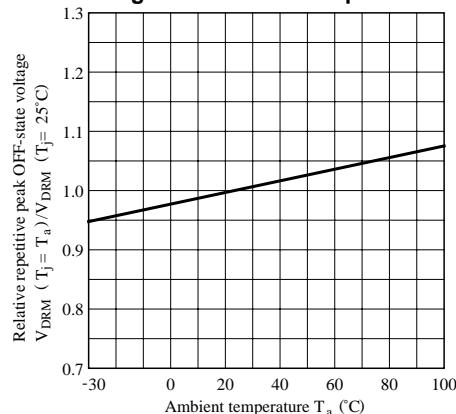
**Fig. 3 Forward Current vs. Forward Voltage**



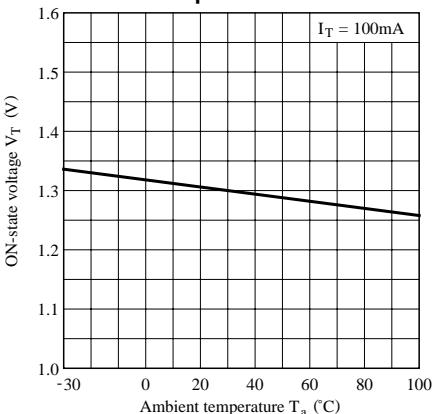
**Fig. 4 Minimum Trigger Current vs. Ambient Temperature**



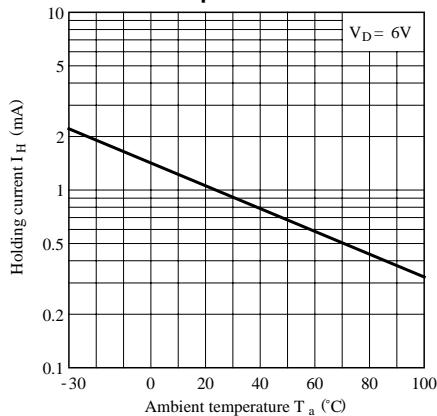
**Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature**



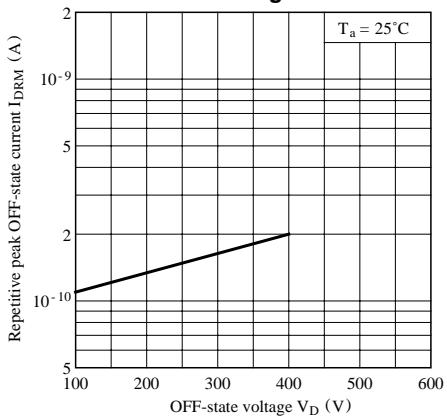
**Fig. 6 ON-state Voltage vs. Ambient Temperature**



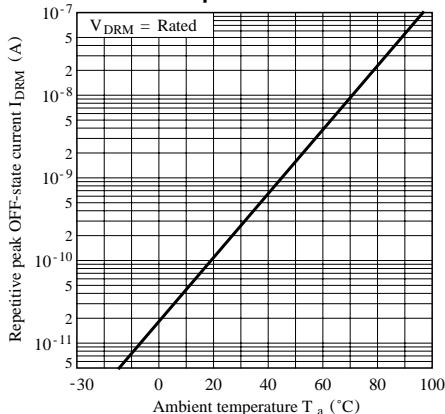
**Fig. 7 Holding Current vs.  
Ambient Temperature**



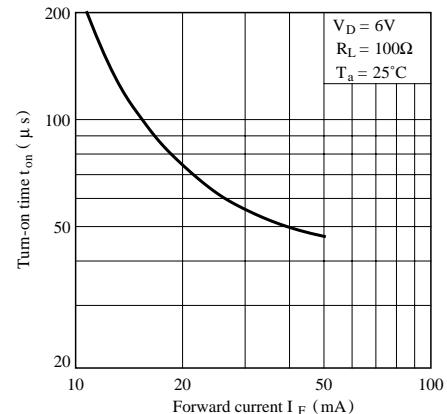
**Fig. 8 Repetitive Peak OFF-state Current  
vs. OFF-state Voltage**



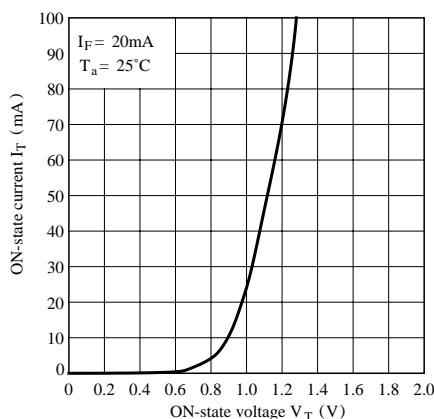
**Fig. 9 Repetitive Peak OFF-state Current vs.  
Ambient temperature**



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

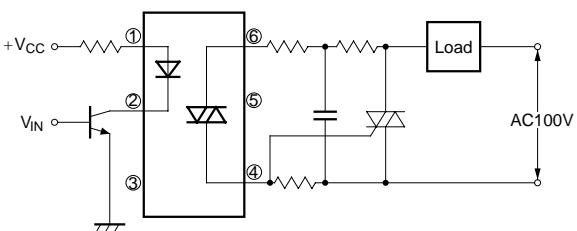


**Fig.11 ON-state Current vs. ON-state Voltage**



## ■ 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).