

S21MD4V

Built-in Zero-cross Circuit, High Noise Resistance Type Phototriac Coupler

- * Lead forming type of **S21MD4V** is also available. (**S21MD4W**)
- ** TÜV (DIN-VDE0884) approved type is also available as an option.

■ Features

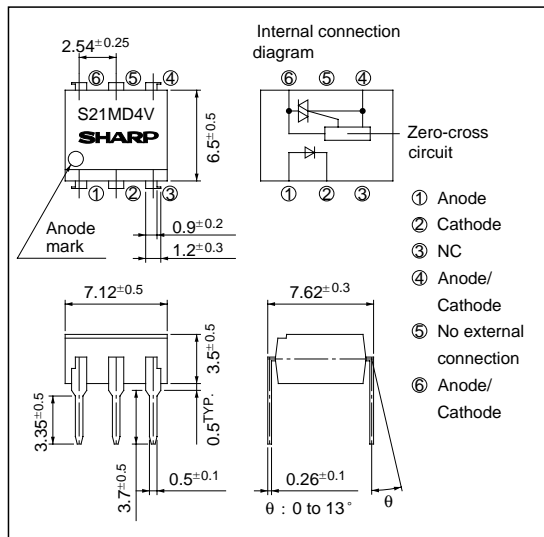
1. Built-in zero-cross circuit
 2. High critical rate of rise of OFF-state voltage (dV/dt : MIN. 100V/μs)
 3. High repetitive peak OFF-state voltage (V_{DRM} : MIN. 600V)
 4. Isolation voltage between input and output
V_{iso} : 5 000Vrms
 5. UL recognized, file No. E64380 (**S21MD4V** / **S21MD4W**)
- * **S21MD4V** is for 200V line

■ Applications

1. For triggering medium/high power triac

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(T_a = 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	V _{DRM}	600	V
	*2 Isolation voltage	V _{iso}	5 000	V _{rms}
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 for 1 minute, f = 60HZ

*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	$I_F = 20\text{mA}$	-	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	100	-	-	$\text{V}/\mu\text{s}$
	Zero-cross voltage	V_{OX}	Resistance load, $I_F = 15\text{mA}$	-	-	35	V
	Transfer characteristics	Minimum trigger current	I_{FT}	$V_D = 6\text{V}, R_L = 100\Omega$	-	-	15
Transfer characteristics	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	10^{11}	-	Ω
	Turn-on time	t_{on}	$V_D = 6\text{V}, R_L = 100\Omega, I_F = 20\text{mA}$	-	20	50	μs

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

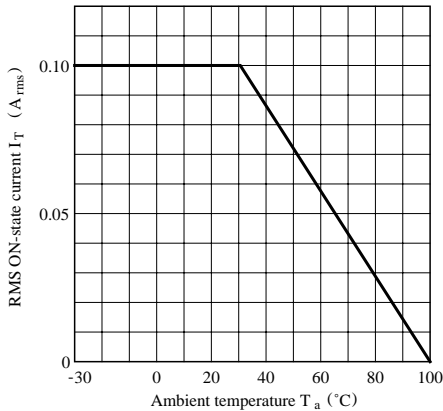


Fig. 2 Forward Current vs. Ambient Temperature

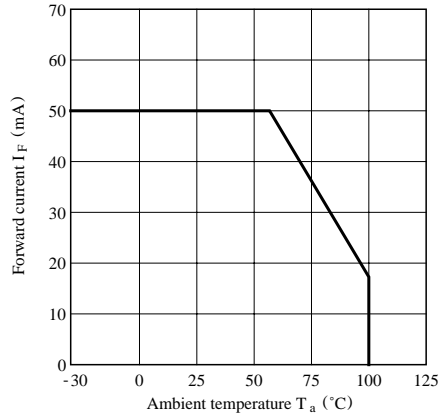


Fig. 3 Forward Current vs. Forward Voltage

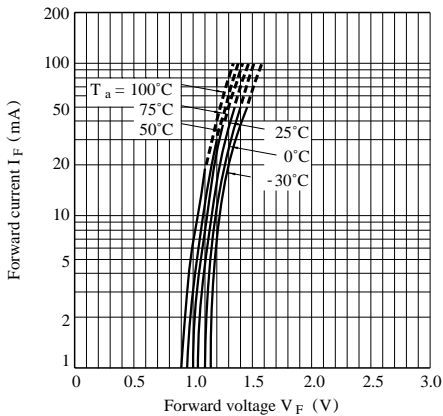


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

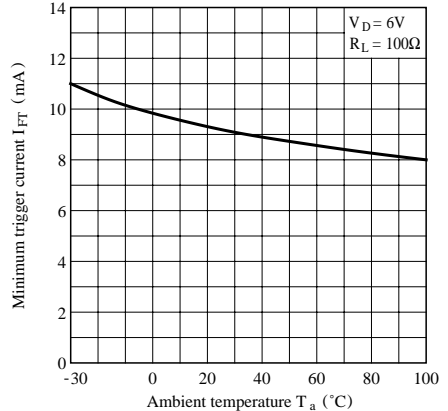


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

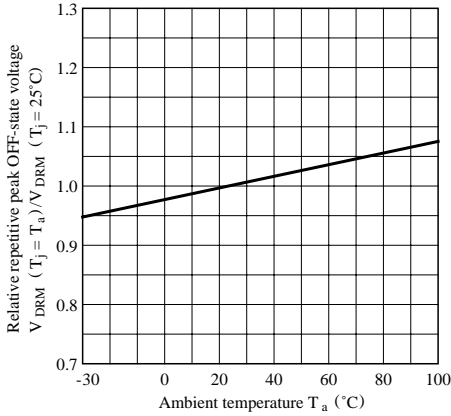


Fig. 6 ON-state Voltage vs. Ambient Temperature

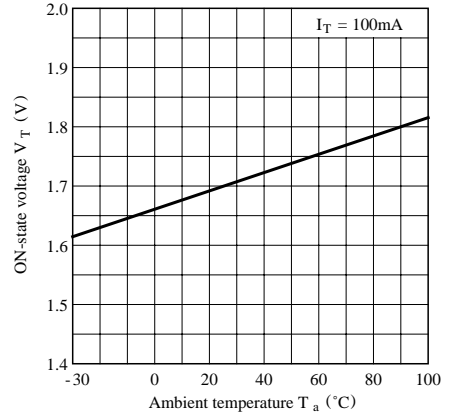


Fig. 7 Holding Current vs. Ambient Temperature

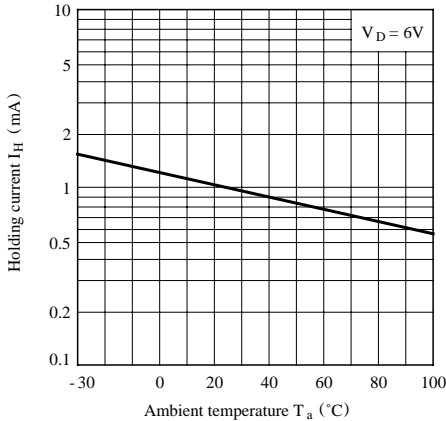


Fig. 8 Repetitive Peak OFF-state Current vs. OFF-state Voltage

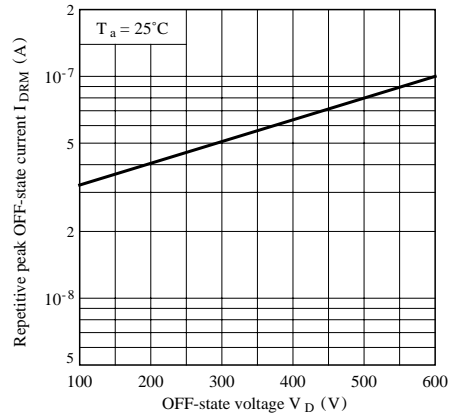


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

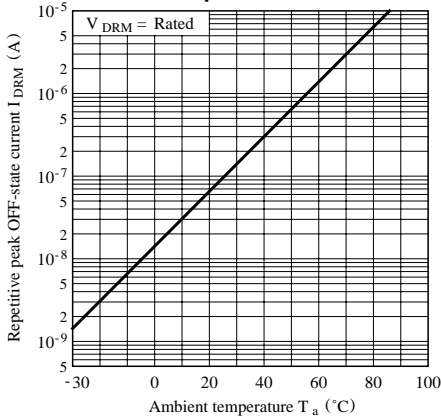


Fig.10 Zero-cross Voltage vs. Ambient Temperature

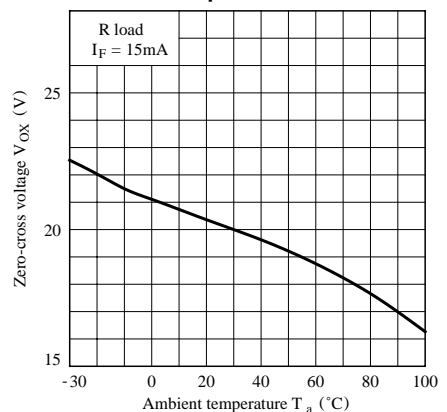
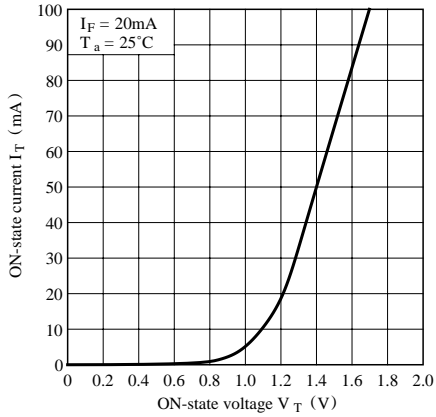
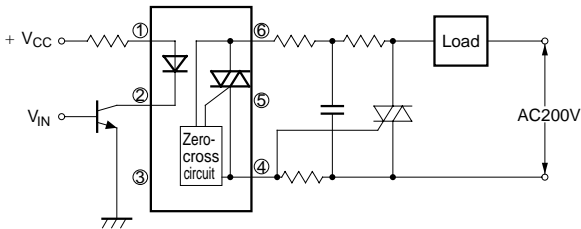


Fig.11 ON-state Current vs. ON-state Voltage



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).