

S21MD6V

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

■ Features

1. Built-in zero-cross circuit
 2. High critical rate of rise of OFF-state voltage
(dV/dt :MIN. 1 000V/ μ s)
 3. High repetitive peak OFF-state voltage (V_{DRM} :MIN. 600V)
 4. Isolation voltage between input and output
(V_{iso} (rms):5kV)
 5. Recognized by UL, file No. E64380
- ✳ S21MD6V is for 200V line

■ Applications

1. For triggering medium/high power triac

■ Absolute Maximum Ratings (Ta=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 (rms)	0.1 A
	*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} (rms)	5 kV	
Operating temperature	T_{opr}	-30 to +100	°C
Storage temperature	T_{stg}	-55 to +125	°C
*3 Soldering temperature	T_{sol}	260	°C

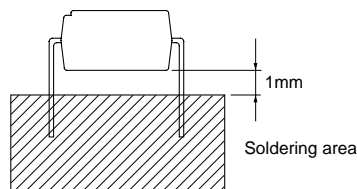
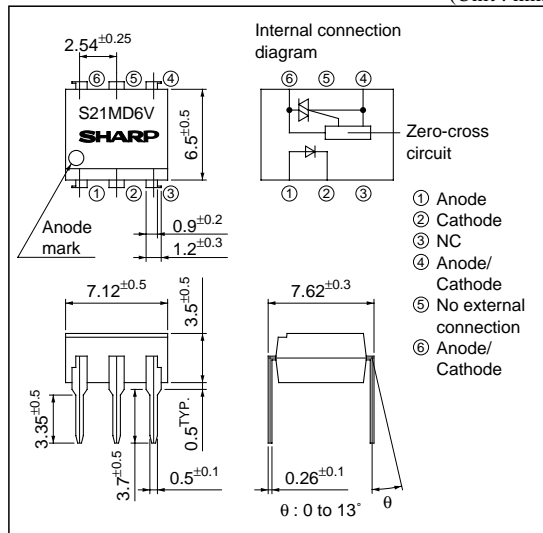
*1 50Hz Sine wave

*2 40 to 60%RH, AC for 1min, $f=60$ Hz

*3 For 10s

■ Outline Dimensions

(Unit : mm)



■ 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	$I_T=0.1\text{A}$	—	—	3.0	V
	Holding current	I_H	$V_D=6\text{V}$	0.1	—	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	$V_{DRM}=1/\sqrt{2}\text{-Rated}$	1 000	2 000	—	V/ μs
	Zero-cross voltage	V_{OX}	$I_F=15\text{mA}$, Resistance load	—	—	20	V
Transfer characteristics	Minimum trigger current	I_{FT}	$V_D=6\text{V}$, $R_L=100\Omega$	—	—	7	mA
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5×10^{10}	1×10^{11}	—	Ω
	Turn-on time	t_{on}	$V_D=6\text{V}$, $R_L=100\Omega$, $I_F=20\text{mA}$	—	—	50	μs

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

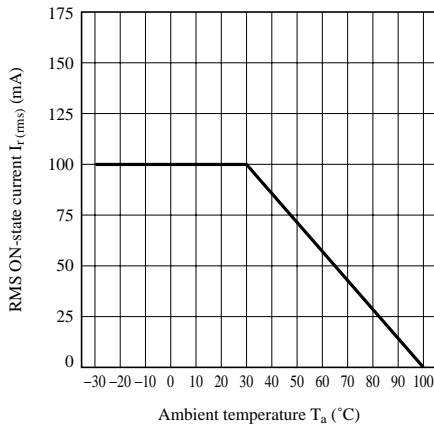


Fig.2 Forward Current vs. Ambient Temperature

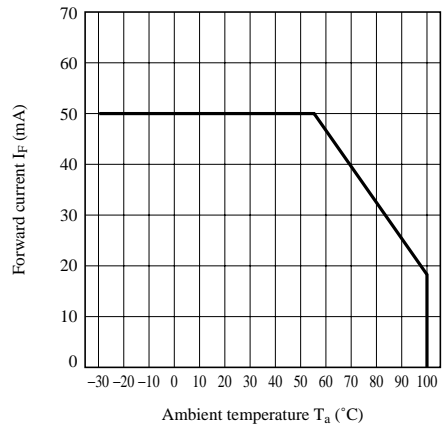


Fig.3 Forward Current vs. Forward Voltage

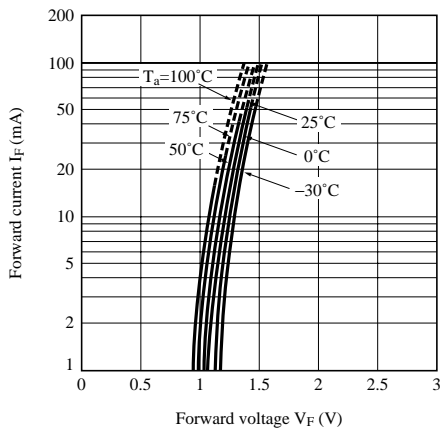


Fig.4 Minimum Trigger Current vs. Ambient Temperature

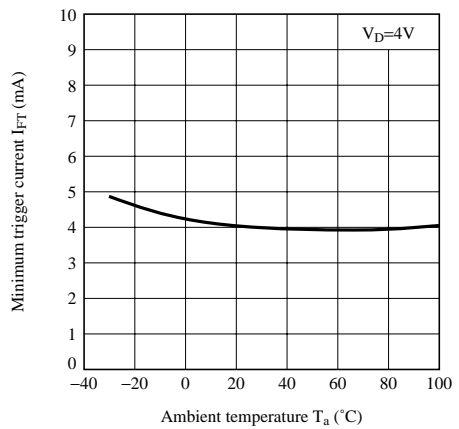


Fig.5 ON-state Voltage vs. Ambient Temperature

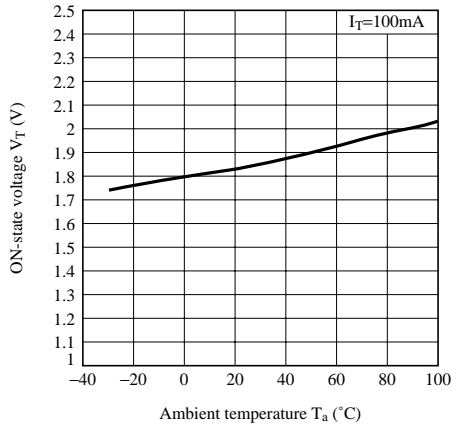


Fig.6 Holding Current vs. Ambient Temperature

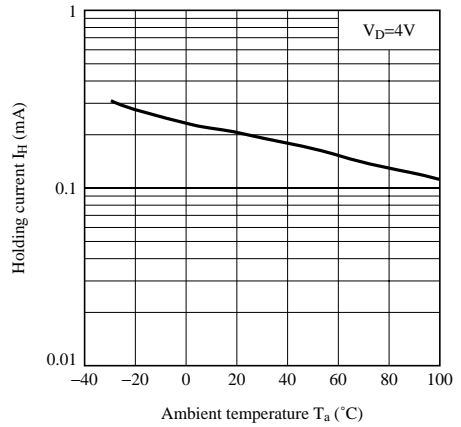


Fig.7 Repetitive Peak OFF-state Current vs. Ambient Temperature

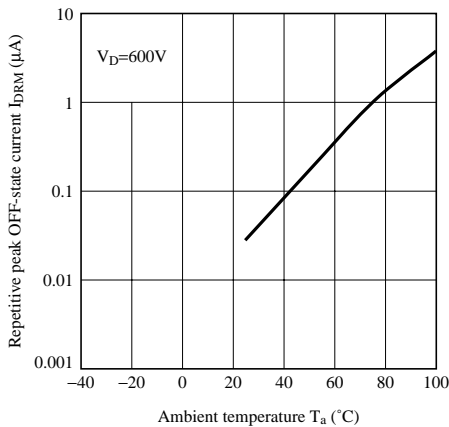


Fig.8 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

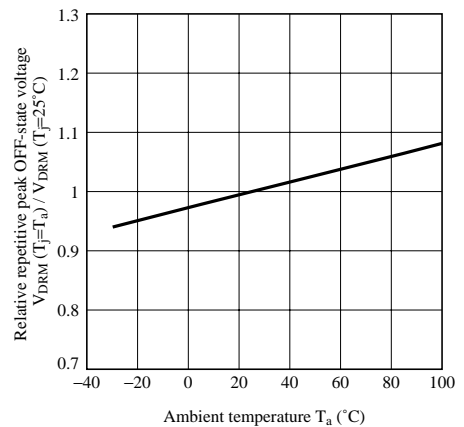


Fig.9 Turn-on Time vs. Forward Current

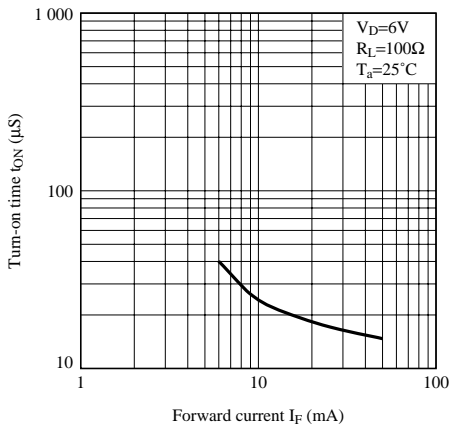


Fig.10 Zero-cross Voltage vs. Ambient Temperature

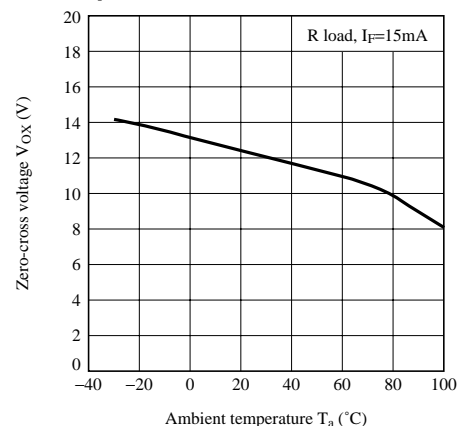
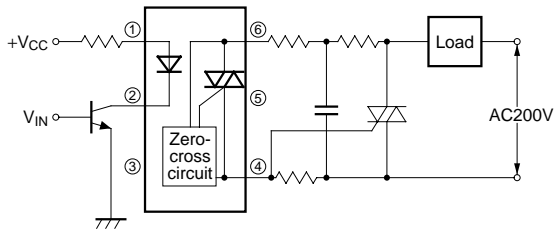


Fig.11 Basic Operation Circuit

Medium/High Power Triac Drive Circuit



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

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