

S21 MD4V

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

※ Lead forming type of S21MD4V is also available (**S21MD4W**) (Page 656)

※ TÜV (DIN-VDE0884) approved type is also available as an option.

■ Features

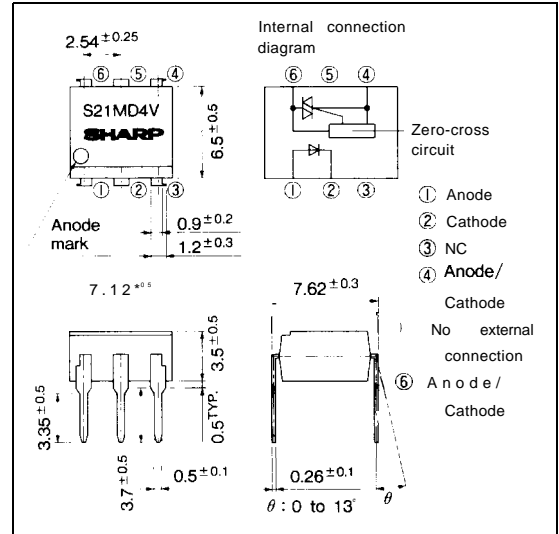
1. Built-in zero-cross circuit
 2. High critical rate of rise of OFF-state voltage (dV/dt : MIN. $100V/\mu s$)
 3. High repetitive peak OFF-state voltage (V_{DRM} : MIN. 600V)
 4. Isolation voltage between input and output V_{iso} : 5 000Vrms
 5. UL recognized, file No. E64380 (**S21MD4V/S21MD4W**)
-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

■ Applications

1. For triggering medium/high power triac

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

($T_a = 25^\circ C$)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	5(l)	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, $f=60\text{HZ}$

*3 For 10 seconds

■ Electro-optical Characteristics

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

Parameter		Symbol	Conditions				
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	$V_{DRM} \cdot 1/\sim \text{Rated}$	100	—	—	V/ μs
	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	mA
	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
	Turn-off time	t_{off}	$f = 50\text{Hz}, 60\text{Hz}$	—	—	1/2	cycle

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

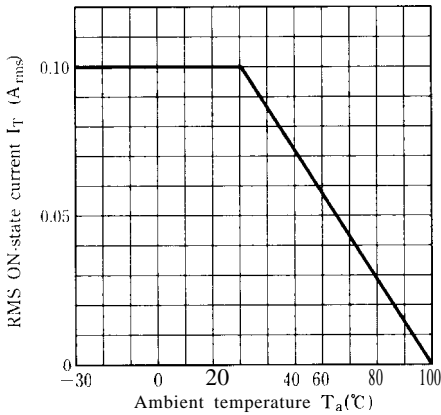


Fig. 2 Forward Current vs. Ambient Temperature

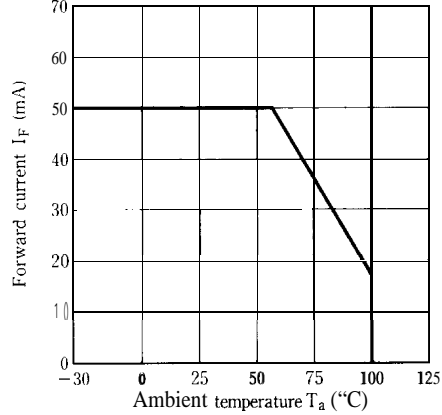


Fig. 3 Forward Current vs. Forward Voltage

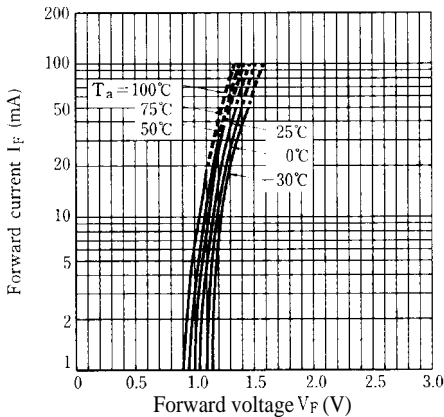


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

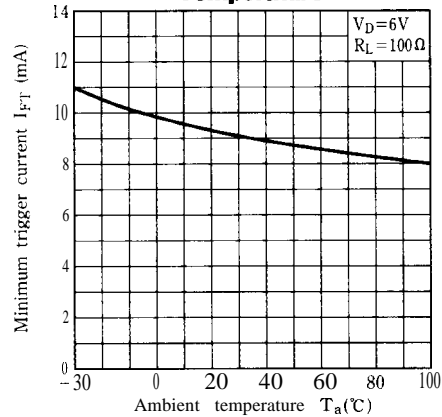


Fig. 5 Relative Repetitive Peak OFF-state voltage vs. Ambient Temperature

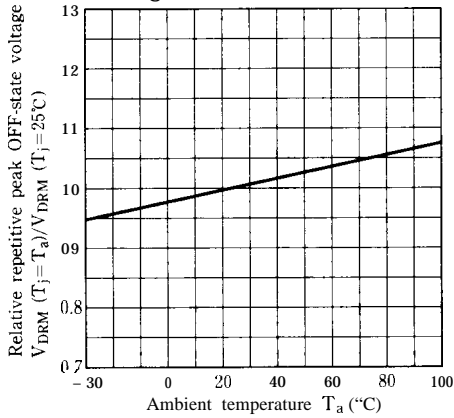


Fig. 6 ON-state Voltage vs. Ambient Temperature

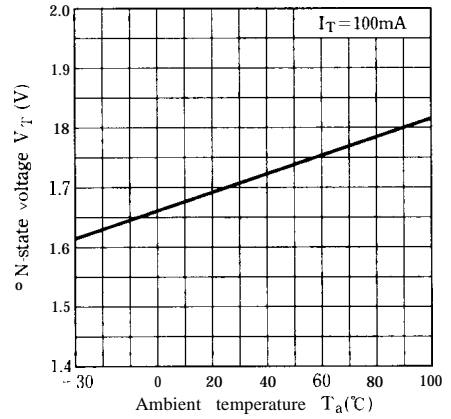


Fig. 7 Holding Current vs. Ambient Temperature

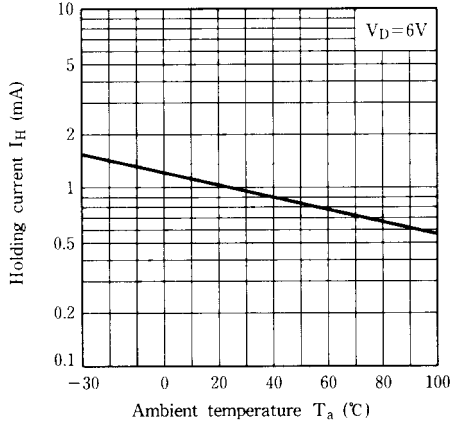


Fig. 8 Repetitive Peak OFF-state Current vs. OFF-state Voltage

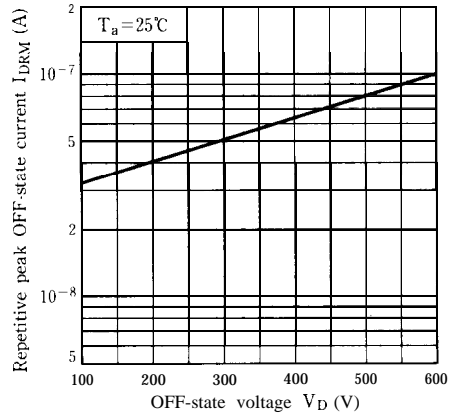


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

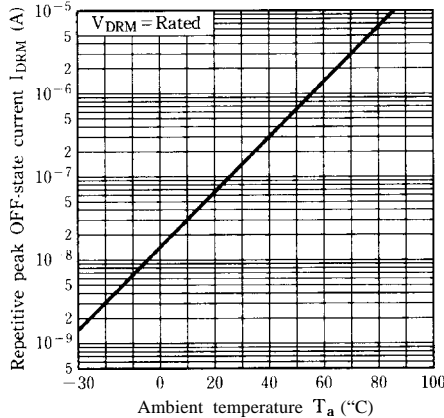


Fig. 10 Zero-cross Voltage vs. Ambient Temperature

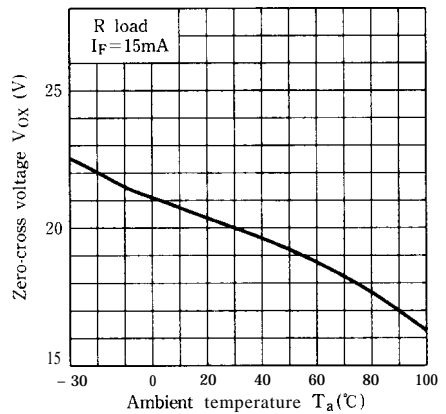
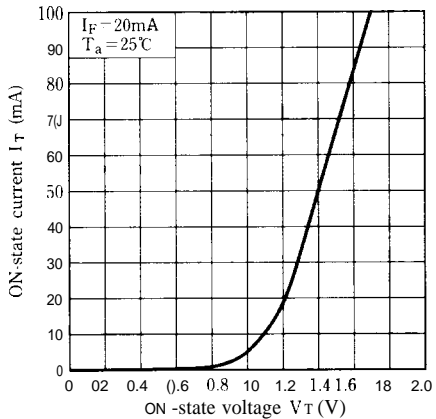
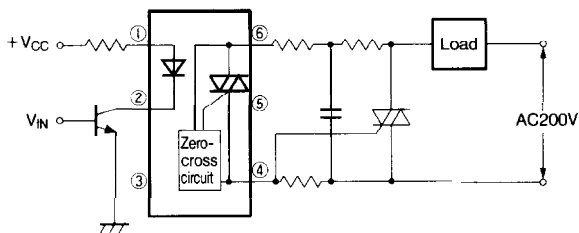


Fig.1 1 ON-state Current vs. ON-state Voltage



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).

