S21MD10V

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/μs)
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

✺ DIN-VDE 0884 approved type is also available as an option
Approved by VDE, No.104842

✺ **S21MD10V** is for 200V line

■ Applications

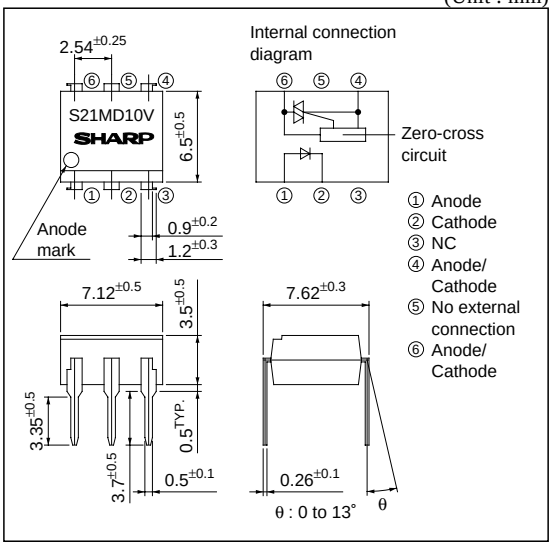
1. For triggering medium/high power triac

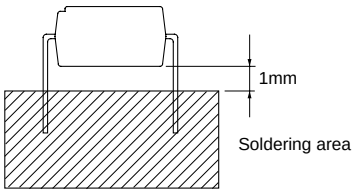
■ Absolute Maximum Ratings (Ta=25˚C)

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 1 min, f=60HZ
*3 For 10s

■ Outline Dimensions (Unit : mm)





■ Electro-optical Characteristics

(Ta=25˚C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	I_F=20mA	–	1.2	1.4	V
	Reverse current	I_R	V_R=3V	–	–	10^{-5}	A
Output	Repetitive peak OFF-state current	I_{DRM}	V_{DRM}=Rated	–	–	10^{-6}	A
	On-state voltage	V_T	I_T=100mA	–	–	3.0	V
	Holding current	I_H	V_D=6V	0.1	–	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	V_{DRM}=1/√2 Rated	1 000	2 000	–	V/µs
	Zero-cross voltage	V_{OX}	Resistance load, I_F=10mA	–	–	20	V
Transfer character istics	Minimum trigger current	I_{FT}	V_D=6V, R_L=100Ω	–	–	5	mA
	Isolation resistance	R_{ISO}	DC500V, 40 to 60%RH	5×10^{10}	1×10^{11}	–	Ω
	Turn-on time	t_{on}	V_D=6V, R_L=100Ω, I_F=20mA	–	–	35	µs

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

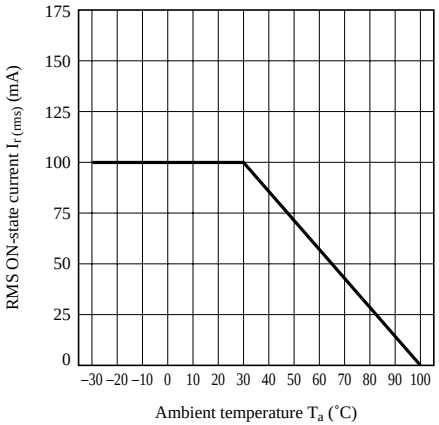


Fig.2 Forward Current vs. Ambient Temperature

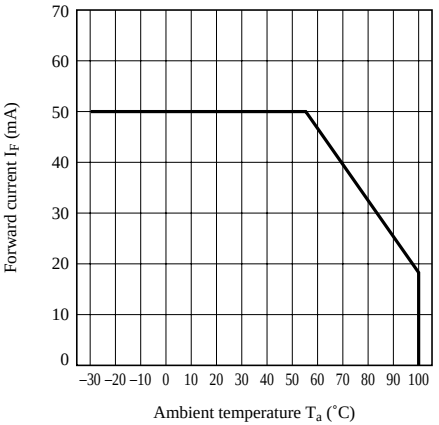


Fig.3 Forward Current vs. Forward Voltage

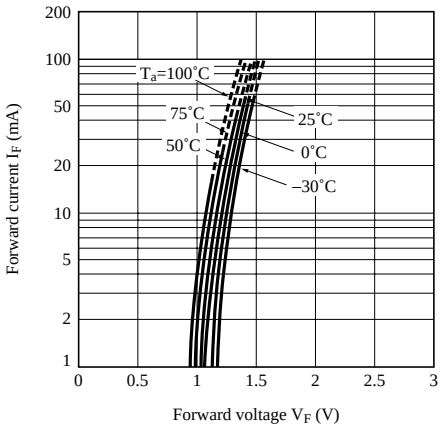


Fig.4 Minimum Trigger Current vs. Ambient Temperature

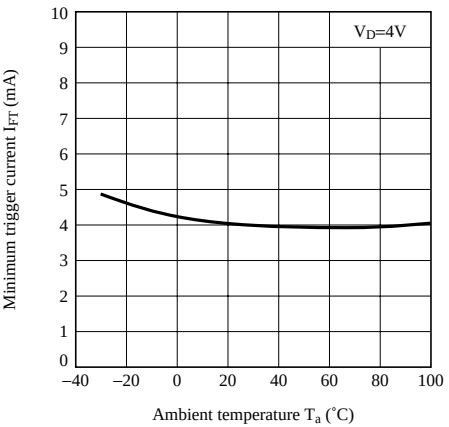


Fig.5 ON-state Voltage vs. Ambient Temperature

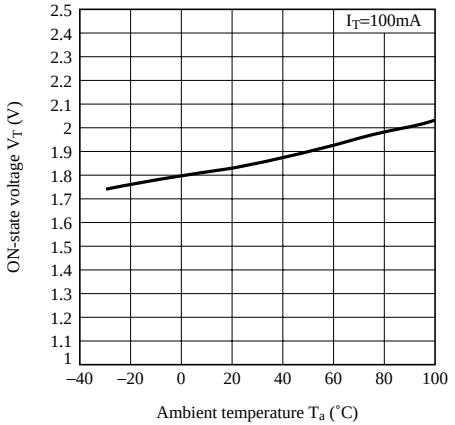


Fig.6 Holding Current vs. Ambient Temperature

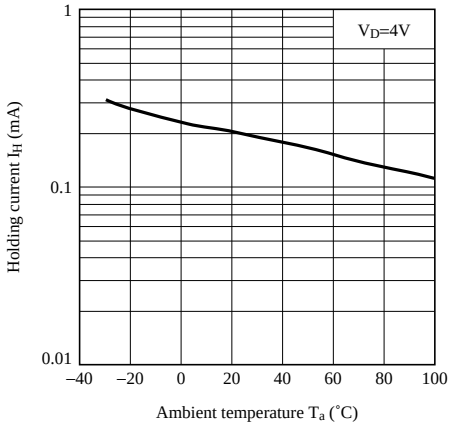


Fig.7 Repetitive Peak OFF-state Current vs. Ambient Temperature

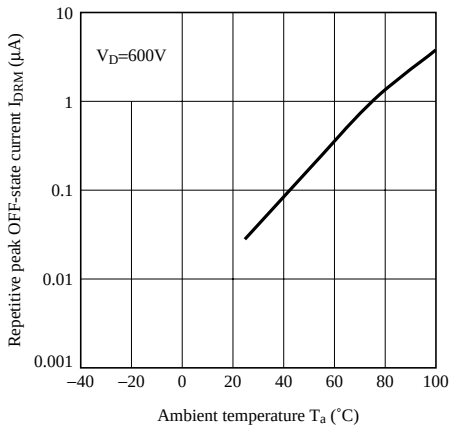


Fig.8 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

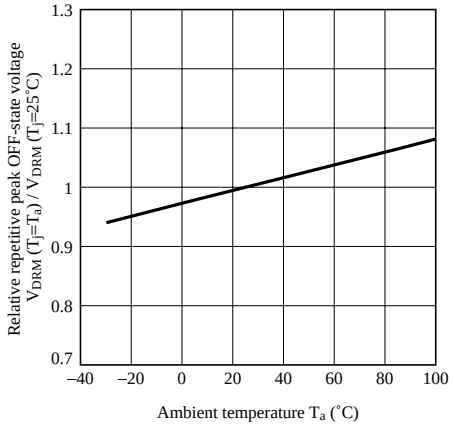


Fig.9 Turn-on Time vs. Forward Current

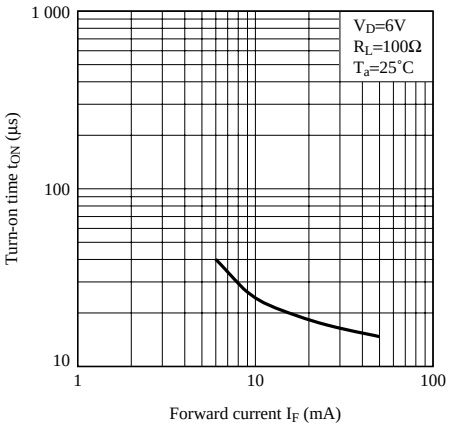


Fig.10 Zero-cross Voltage vs. Ambient Temperature

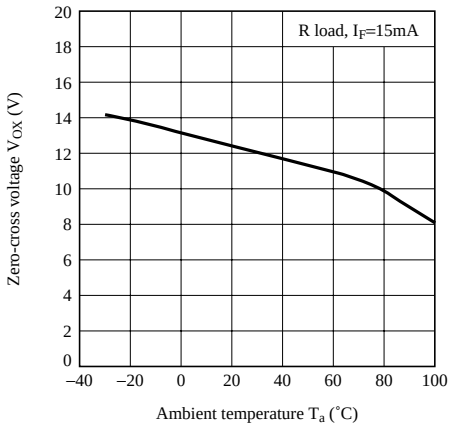
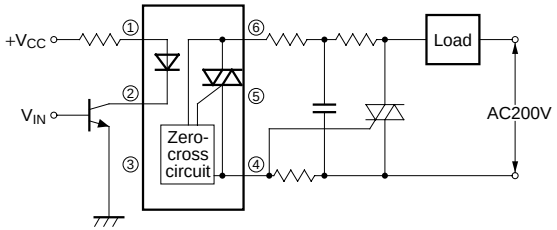


Fig.11 Basic Operation Circuit

Medium/High Power Triac Drive Circuit



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

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- Industrial control
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- Consumer electronics

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