

S11MD4V/S11MD4T

Phototriac Coupler with Built-in Zero-cross Circuit

Features

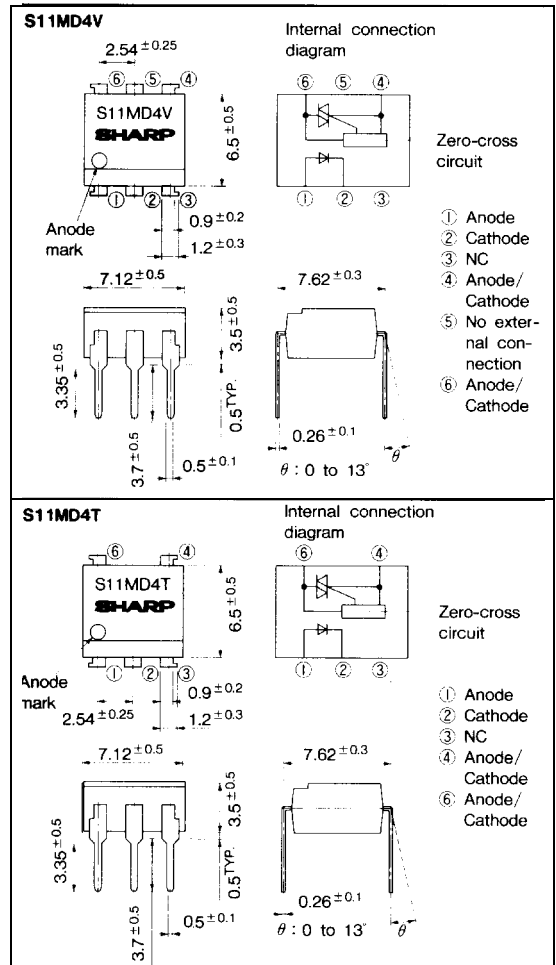
- Pin No. 5 completely molded for external noise resistance (S11MD4T)
 - Dual-in-line package type (S11MD4V)
 - Built-in zero-cross circuit
 - High repetitive peak OFF-state voltage (V_{DRM} : MIN. 400V)
 - Isolation voltage between input and output V_{iso} : 5 000V_{rms} (S11MD4V/S11MD4T)
 - Recognized by UL, file No. E64380
- ※ S11MD4V and S11MD4T are for 100V lines.

Applications

- For triggering medium/high power triacs

Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rating		Unit
		S11MD4V/S11MD4T		
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output	RMS ON-state current	I_T	0.1	A _{rms}
	*Peak one cycle surge current	I_{surge}	1.2	A
	Repetitive peak OFF-state voltage	V_{DRM}	400	V
*isolation voltage	V_{iso}	5 000		V _{rms}
Operating temperature	T_{opr}	-30 to +100		°C
Storage temperature	T_{stg}	-55 to +125		°C
*Soldering temperature	T_{sol}	260		°C

*1 50Hz sine wave

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

*3 For 10 wends

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

■ Electro-optical Characteristics

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	$I_T = 0.1\text{A}$	—	1.7	2.5	V
	Holding current	I_H	$V_D = 6\text{V}$	0.1	1.0	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	$V_{DRM} = 1/\sqrt{2} \cdot \text{Rated}$	100	—	—	$\text{V}/\mu\text{s}$
	Zero-cross voltage	V_{OX}	Resistance load, $I_F = 15\text{mA}$	—	—	35	V
Transfer charac- teristics	Minimum trigger current	I_{FT}	$V_D = 6\text{V}, R_L = 100\Omega$	—	—	10	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

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

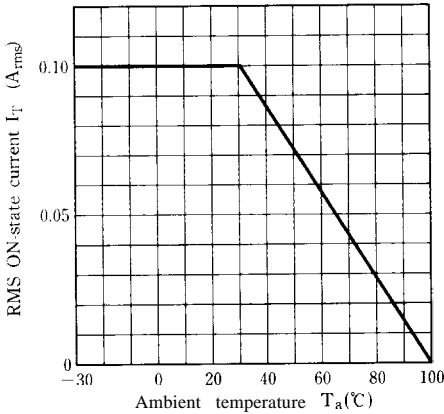


Fig. 2 Forward Current vs. Ambient Temperature

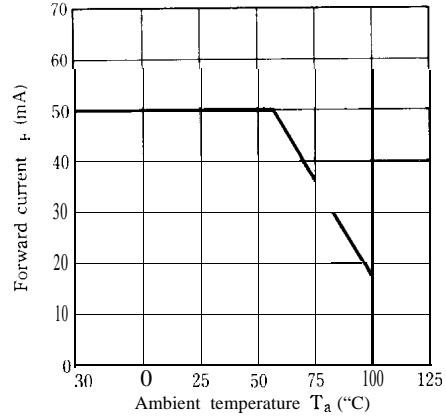


Fig. 3 Forward Current vs. Forward Voltage

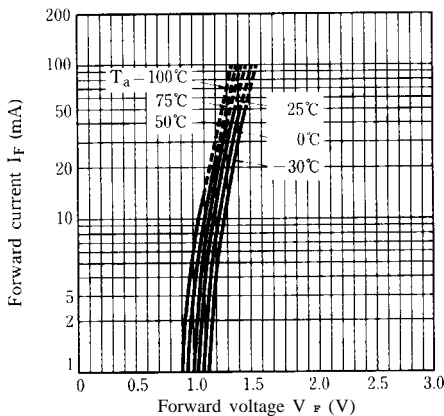


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

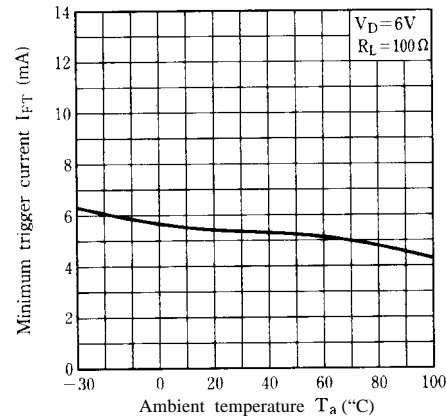


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

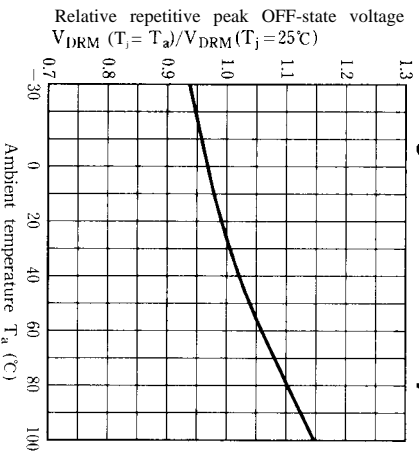


Fig. 6 ON-state Voltage vs. Ambient Temperature

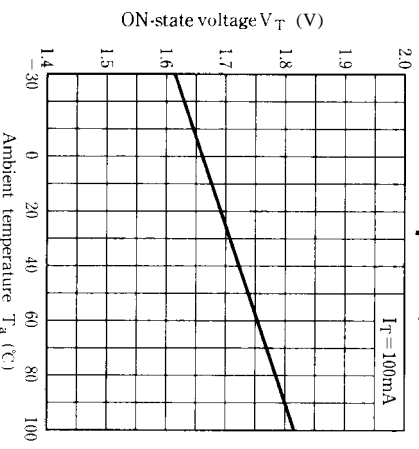


Fig. 7 Holding Current vs. Ambient Temperature

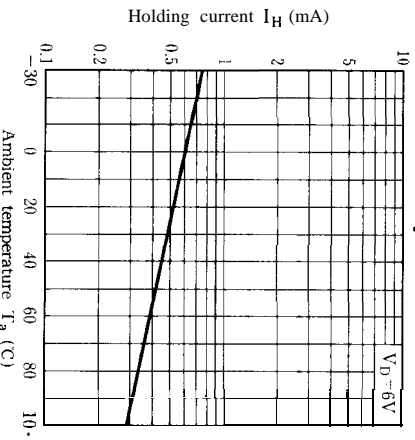


Fig. 8 Repetitive Peak OFF-state Current vs. OFF-state Voltage

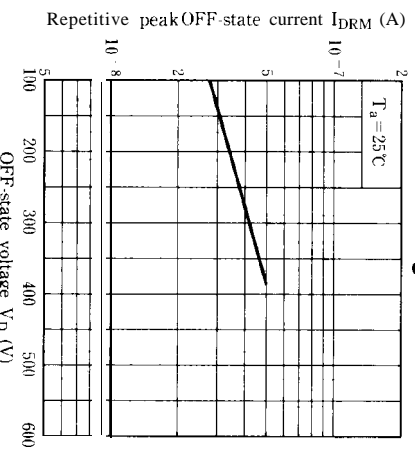


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

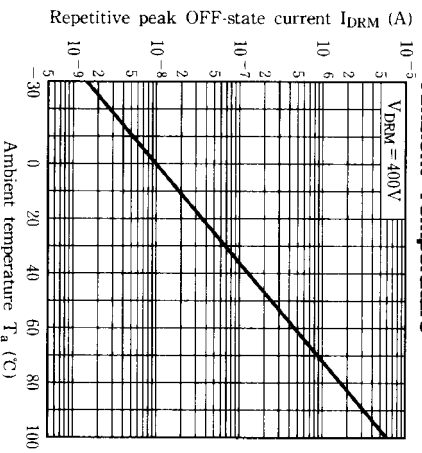


Fig. 10 Zero-cross Voltage vs. Ambient Temperature

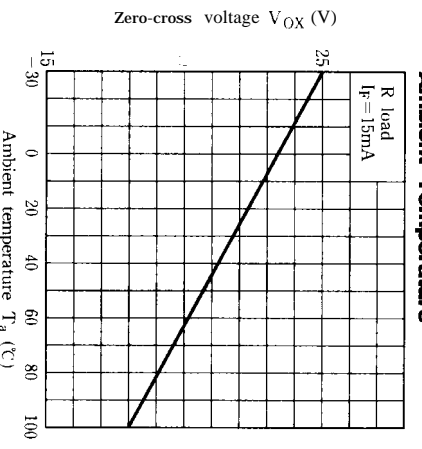
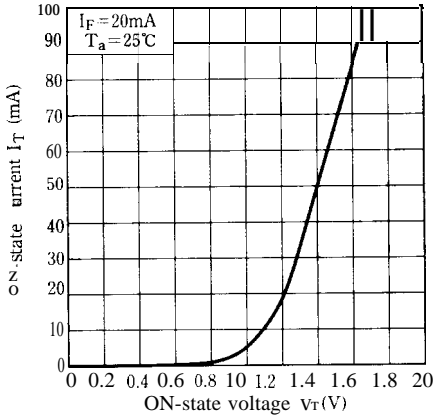
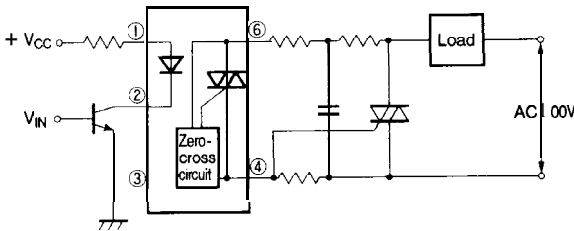


Fig. 1 ON-state Current vs. ON-state Voltage



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).