

S11MD4V/S11MD4T

Phototriac Coupler with Built-in Zero-cross Circuit

■ Features

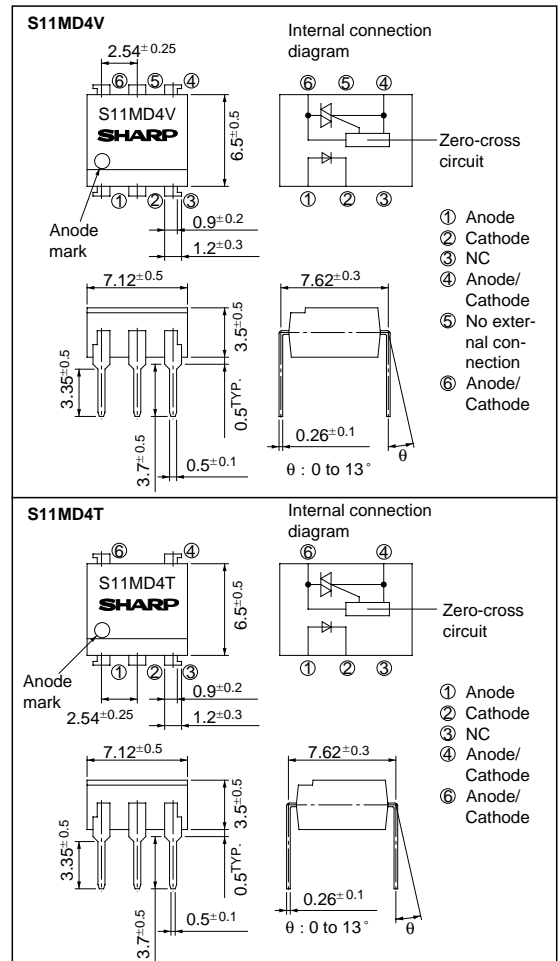
1. Pin No. 5 completely molded for external noise resistance (**S11MD4T**)
2. Dual-in-line package type (**S11MD4V**)
3. Built-in zero-cross circuit
4. High repetitive peak OFF-state voltage (V_{DRM} : MIN. 400V)
5. Isolation voltage between input and output V_{iso} : 5 000V_{rms} (**S11MD4V/S11MD4T**)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

■ Applications

1. For triggering medium/high power triacs

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	
		S11MD4V/S11MD4T	Unit
Input	Forward current	I_F	50 mA
	Reverse voltage	V_R	6 V
Output	RMS ON-state current	I_T	0.1 A _{rms}
	*1 Peak one cycle surge current	I_{surge}	1.2 A
	Repetitive peak OFF-state voltage	V_{DRM}	400 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 50Hz 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	$I_T = 0.1\text{A}$	-	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 characteristics	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

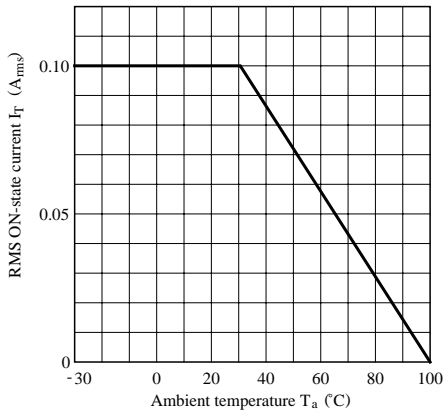


Fig. 2 Forward Current vs. Ambient Temperature

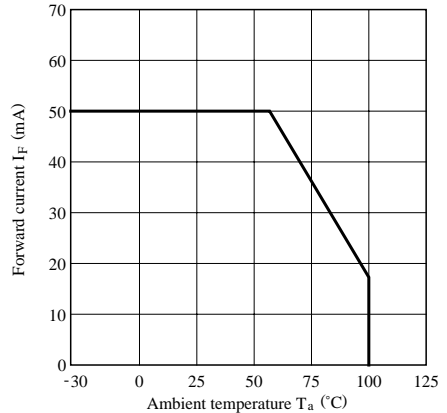


Fig. 3 Forward Current vs. Forward Voltage

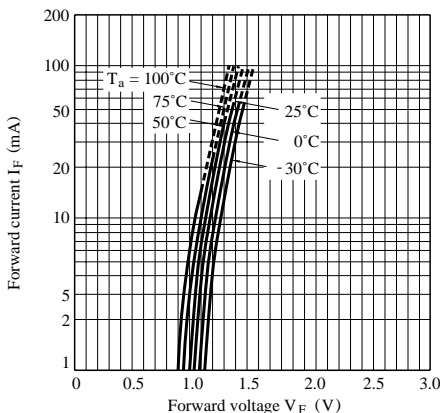


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

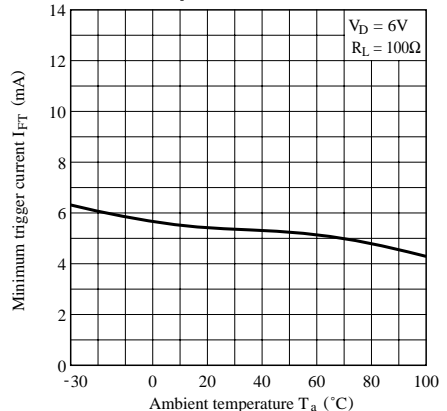


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

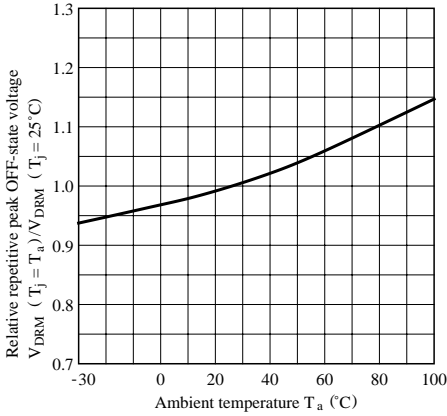


Fig. 6 ON-state Voltage vs. Ambient Temperature

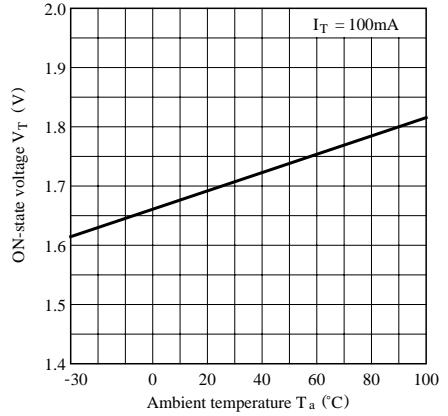


Fig. 7 Holding Current vs. Ambient Temperature

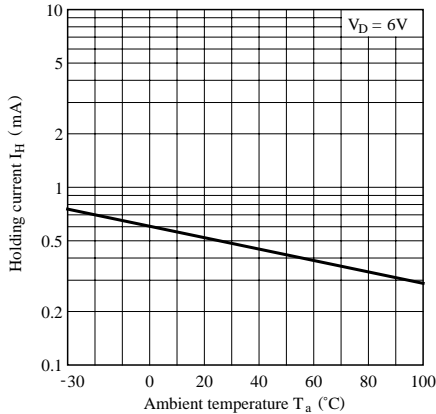


Fig. 8 Repetitive Peak OFF-state Current vs. OFF-state Voltage

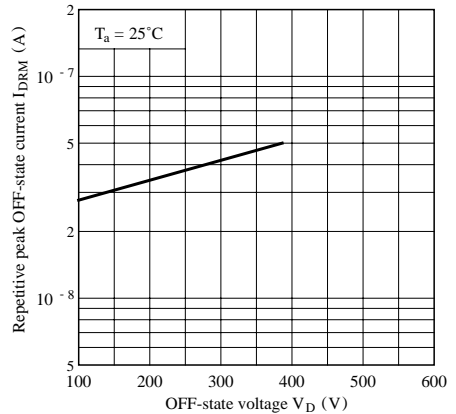


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

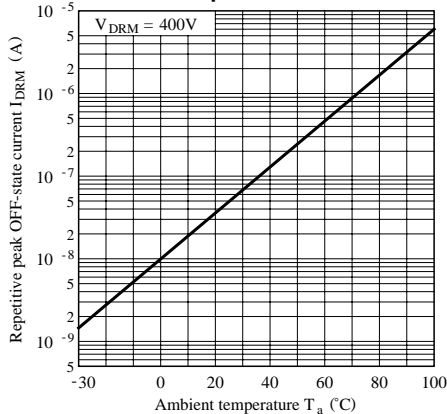


Fig.10 Zero-cross Voltage vs. Ambient Temperature

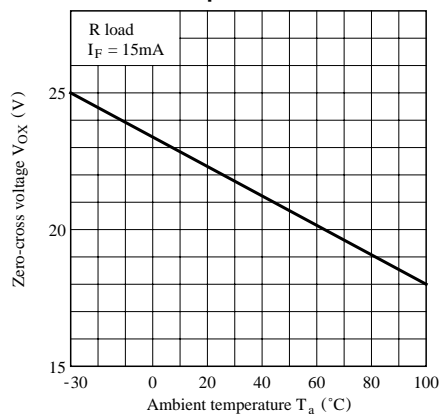
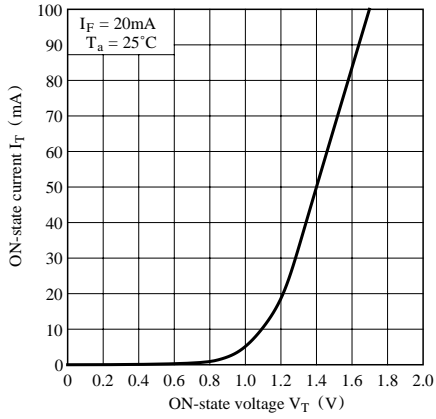
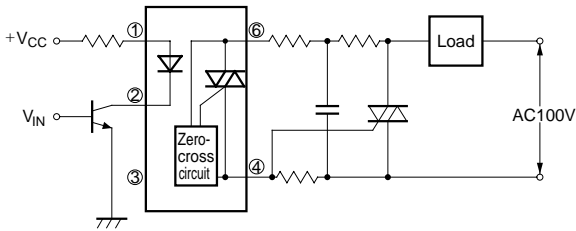


Fig.11 ON-state Current vs. ON-state Voltage



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.”