S11MD4V/S11MD4T

Phototriac Coupler with Built-in Zero-cross Circuit

■ Features

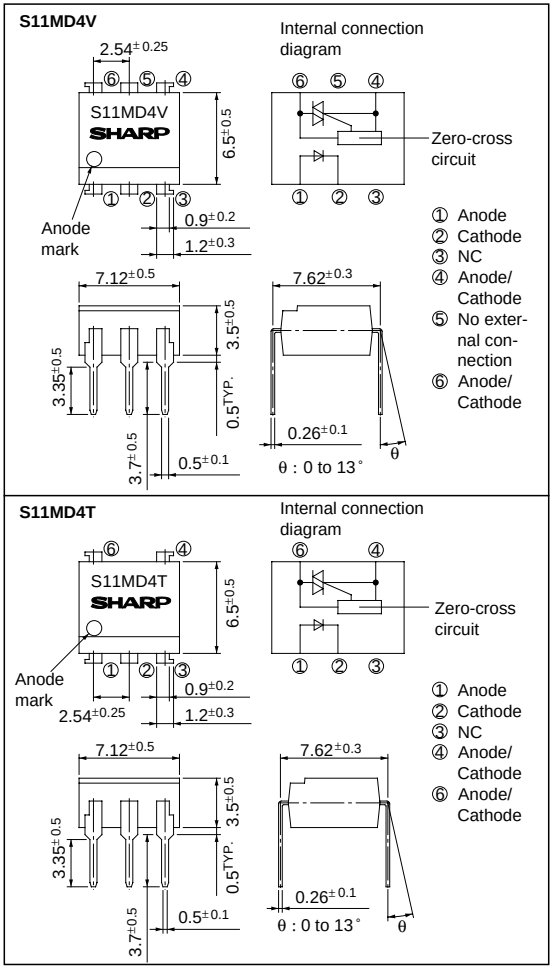
1. Pin No. 5 completely molded for external noise resistance **(S11MD4T)**
2. Dual-in-line package type **(S11MD4V)**
3. Built-in zero-cross circuit
4. High repetitive peak OFF-state voltage (V_{DRM} : MIN. 400V)
5. Isolation voltage between input and output V_{iso} : 5 000V_{rms} **(S11MD4V/S11MD4T)**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

(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 = 0.1A	-	1.7	2.5	V
	Holding current	I_H	V_D = 6V	0.1	1.0	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	V_{DRM} = 1/√2 • Rated	100	-	-	V/μs
	Zero-cross voltage	V_{OX}	Resistance load, I_F = 15mA	-	-	35	V
Transfer characteristics	Minimum trigger current	I_{FT}	V_D = 6V. R_L = 100Ω	-	-	10	mA
	Isolation resistance	R_{ISO}	DC500V, 40 to 60% RH	5 x 10^{10}	10^{11}	-	Ω
	Turn-on time	t_{on}	V_D = 6V, R_L = 100Ω , I_F = 20mA	-	20	50	μs

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

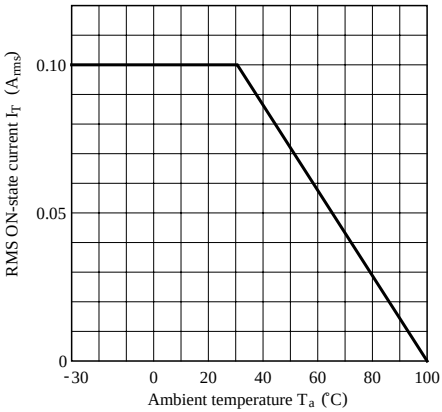


Fig. 2 Forward Current vs. Ambient Temperature

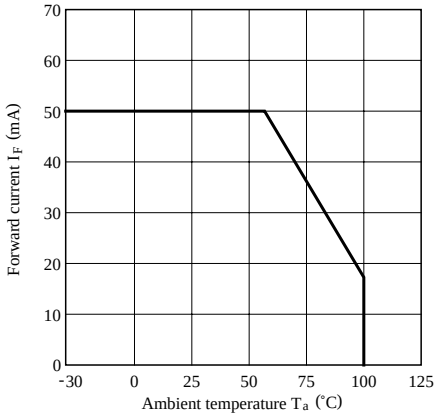


Fig. 3 Forward Current vs. Forward Voltage

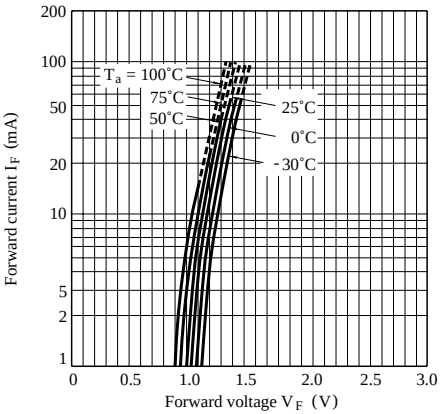


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

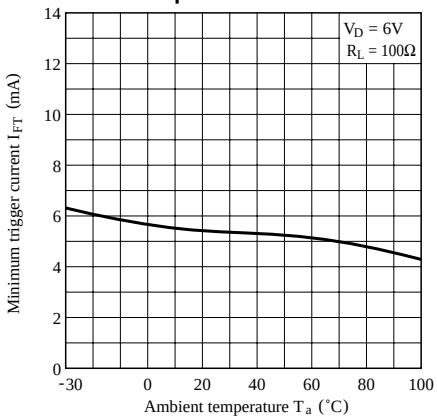


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

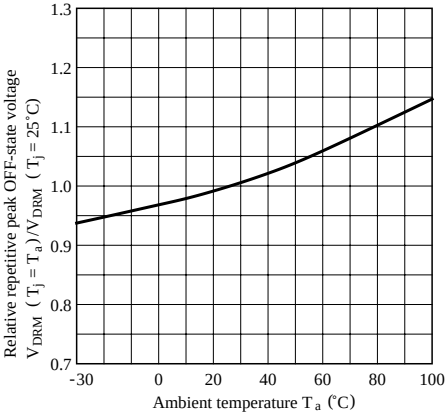


Fig. 6 ON-state Voltage vs. Ambient Temperature

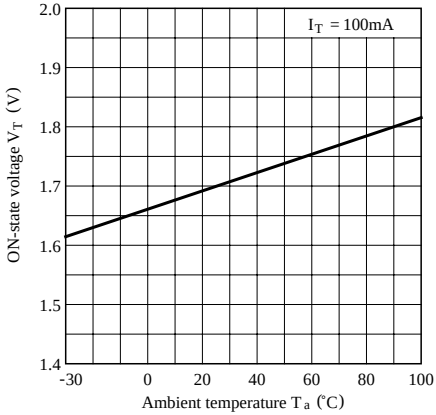


Fig. 7 Holding Current vs. Ambient Temperature

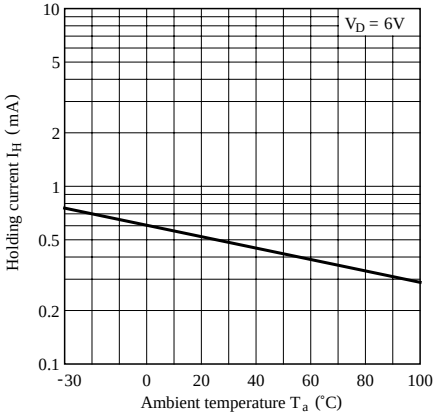


Fig. 8 Repetitive Peak OFF-state Current vs. OFF-state Voltage

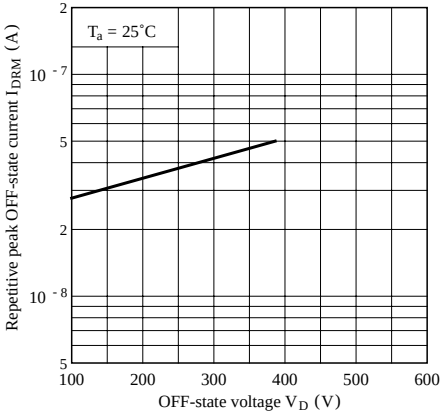


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

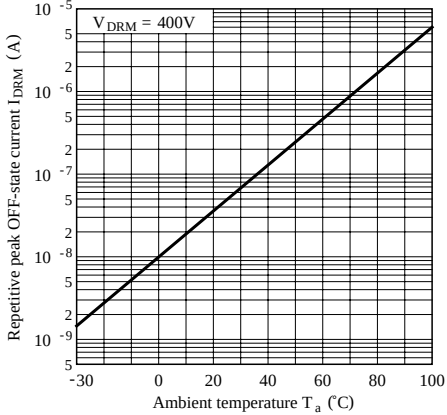


Fig.10 Zero-cross Voltage vs. Ambient Temperature

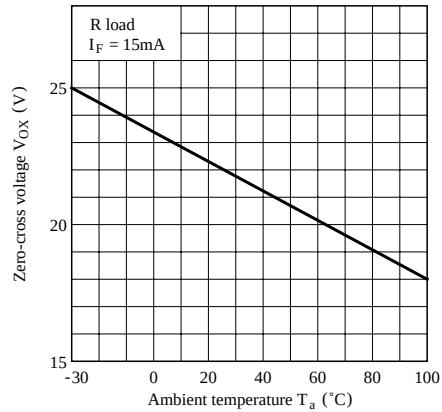
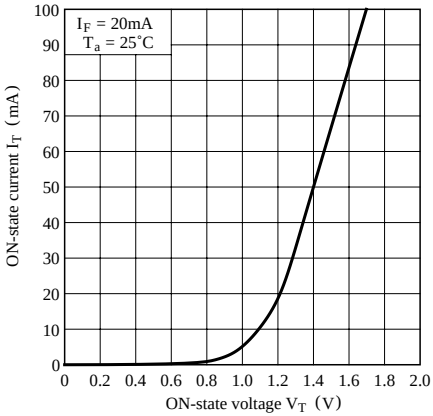
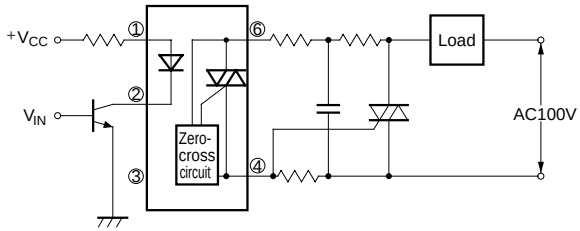


Fig.11 ON-state Current vs. ON-state Voltage



■ 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."

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— Alarm equipment
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