S11MD3 High Noise-reduction Type Phototriac Coupler

T-41-87

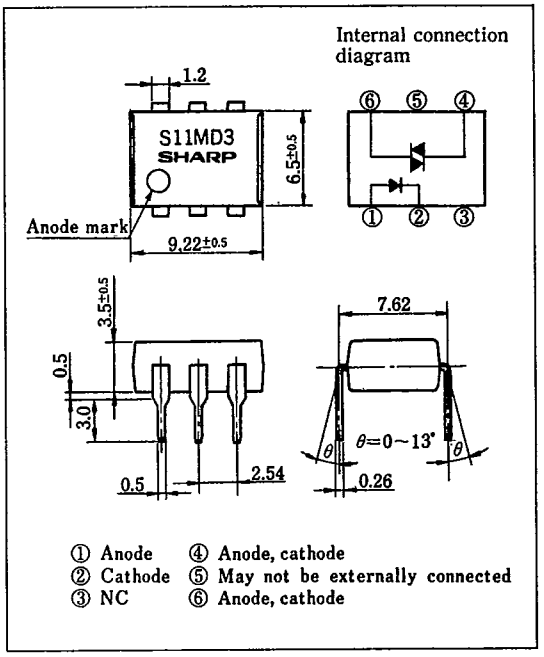
■ Features

1. High critical rate of rise of off-state voltage (dv/dt: MIN. 100V/μs)
2. Low trigger current (I_{FT}: MAX. 10mA)
3. High repetitive peak off-state voltage (V_{DRM}: MIN. 400V)
4. Isolation voltage between input and output V_{iso}: 2,500Vrms
5. UL recognized, file No. E64380

■ Applications

1. On-off operation for a low power load
2. For triggering high power triac

■ Outline Dimensions (Unit : mm)



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■ 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	100	mArms
	*1Peak one cycle surge current	I_{surge}	1.2	A
	Repetitive peak off-state voltage	V_{DRM}	400	V
*2Isolation voltage		V_{iso}	2,500	Vrms
Operating temperature		T_{opr}	−30~+100	°C
Storage temperature		T_{stg}	−55~+125	°C
*3Soldering temperature		T_{sol}	260	°C

*1 50Hz, sine wave
*2 RH=40~60%, AC for 1 minute
*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=100mA	—	1.3	2.0	V
	Holding current	I_H	V_D=6V	0.5	1	3.5	mA
	Critical rate of rise of off-state voltage	dv/dt	$V_{DRM}=1/\sqrt{2}$ Rated	100	—	—	V/μs
Transfer characteristics	Minimum trigger current	I_{FT}	V_D=6V, R_L=100Ω	—	—	10	mA
	Isolation resistance	R_{ISO}	DC 500V, RH=40~60%	5×10^{10}	10^{11}	—	Ω
	Turn-on time	t_{on}	V_D=6V, I_F=20mA, R_L=100Ω	—	40	100	μs

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

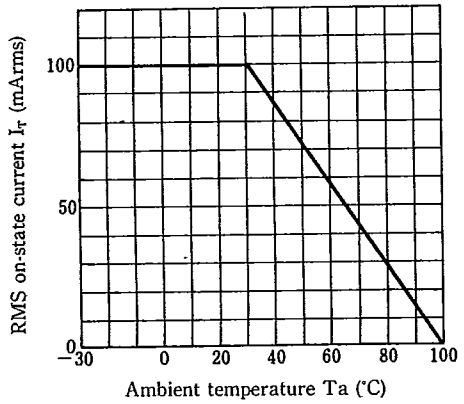

Fig. 2 Forward Current vs. Ambient Temperature

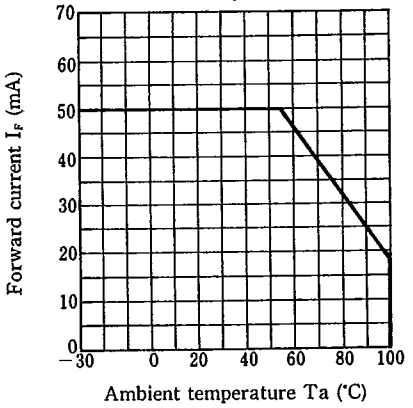

Fig. 3 Forward Current vs. Forward Voltage

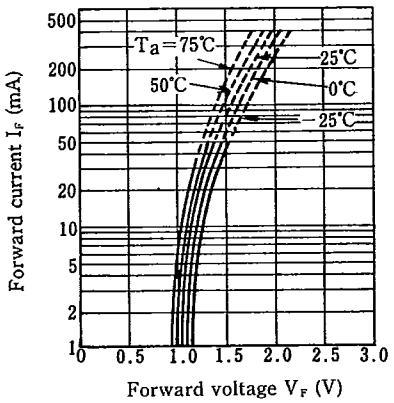

Fig. 4 Minimum Trigger Current vs. Ambient Temperature

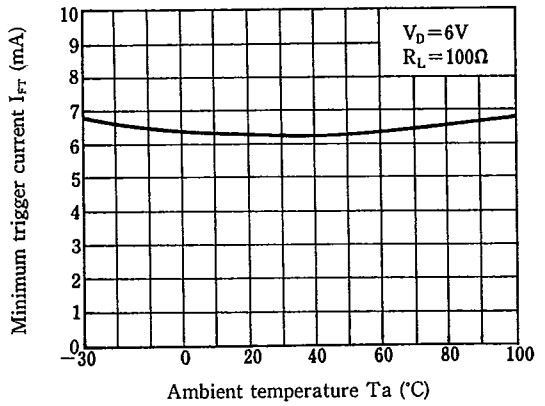

Fig. 5 Relative Repetitive Peak Off-state Voltage vs. Ambient Temperature

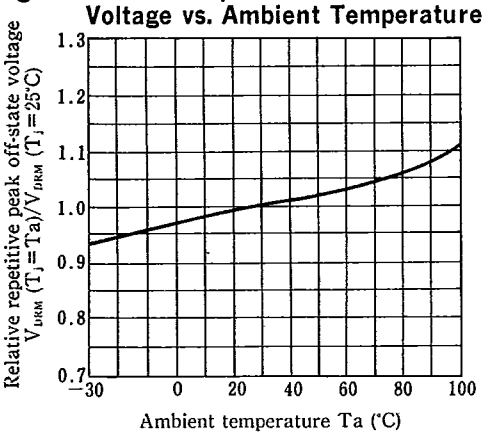

Fig. 6 On-state Voltage vs. Ambient Temperature

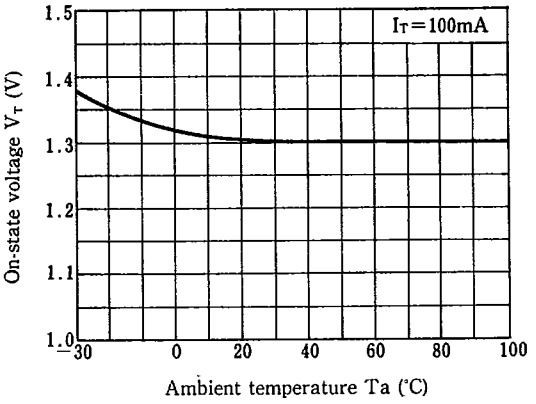

Fig. 7 Holding Current vs. Ambient Temperature

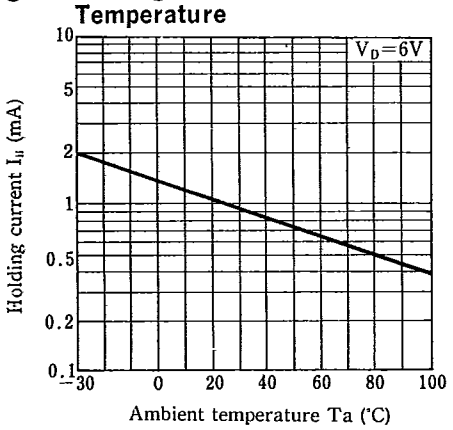

Fig. 8 Repetitive Peak Off-state Current vs. Off-state Voltage

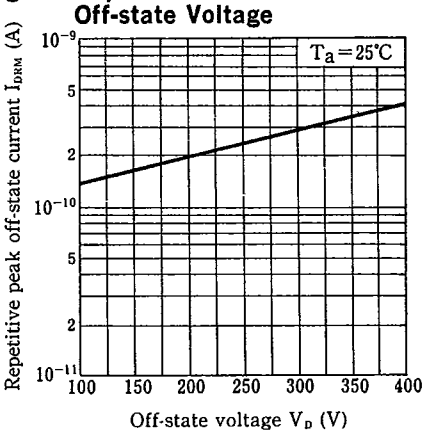

Fig. 9 Repetitive Peak Off-state Current vs. Ambient Temperature

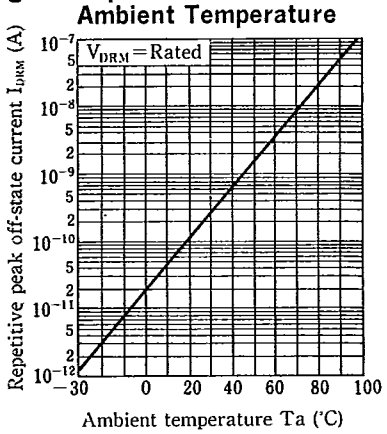

Fig. 10 Turn-on Time vs. Forward Current

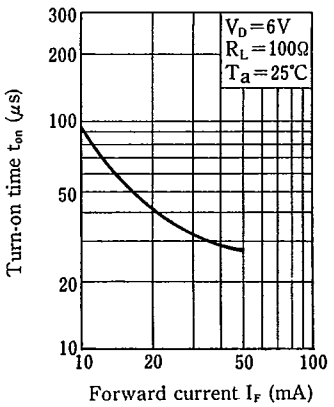

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Fig. 11 On-state Current vs. On-state Voltage

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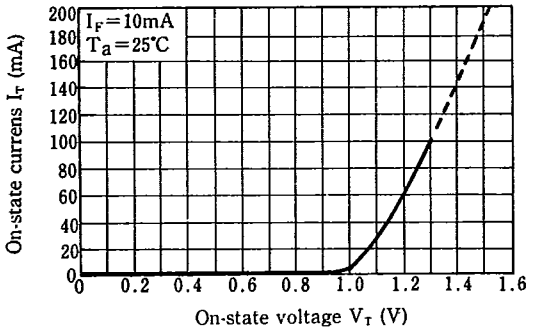

Basic Operation Circuit

High Power Triac Drive Circuit