S11MD5T/S21MD3TV/ S21MD4TV

High Noise-resistance Type Phototriac Coupler

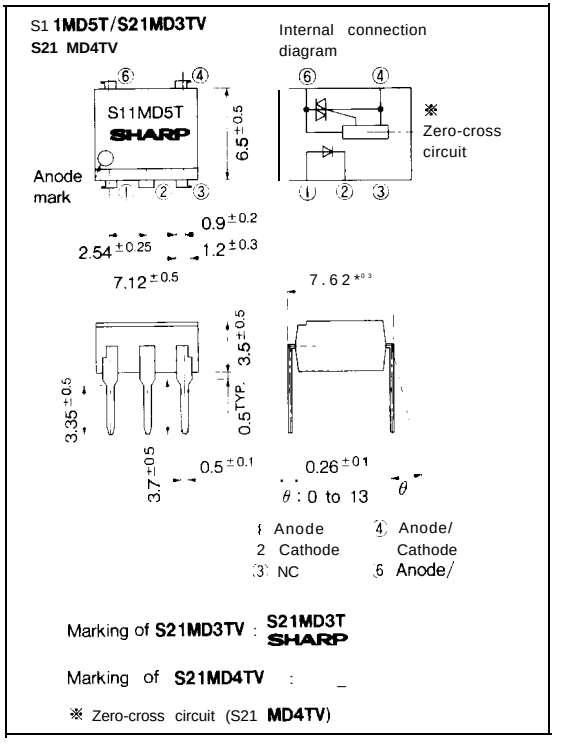
■ Features

1. NO.5 pin completely sealed in the mold for external noise resistance
2. Built-in zero-cross circuit (S21 **MD4TV)**
3. High repetitive peak OFF-state voltage.
   s 11M D 5T V_{DRM} : MIN. 400V
   S 2 1 **MD3TV/S21MD4TV** V_{DRM} : MIN. 600V
4. Isolation voltage between input and output (Viso : 5 000 Vrms)
5. Recognized by UL: recognized, file No. E64380

■ Applications

1. For triggering of power triac

■ Outline Dimensions (Unit : mm)



■ Model Line-ups

100V	S11 **MD5T**
200V	**S21 MD3TV/S21MD4TV**

■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating		Unit
			S11MD5T	S21MD3TV/S21MD4TV	
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	600	V
*2 Isolation voltage		V_{iso}	5000		V_{rms}
Operating temperature		T_{opr}	−30 to +100		‘c
Storage temperature		T_{stg}	−55 to +125		‘c
*3 Soldering temperature		T_{sol}	260		℃

*1 Sine wave
*2 40 to 60%RH, AC for 1 minute, f=60Hz
*3 For 10 seconds

■ Electro-optical Characteristics

(Ta = 25℃)

	Parameter		Symbol	Conditions	MIN.	TYP.	MAX,	Unit
Input	Forward S[illegible] voltage	S11MD5T/S21MD4TV	V_F	I_F = 20mA	–	1.2	1.4	v
		S21MD3TV		I_F = 30mA				
	Reverse current		I_R	V_R = 3V	–		10^{-5}	A
	Repetitive peak OFF-state current		I_{DRM}	V_{DRM} = Rated		–	10^{-6}	A
output	ON-state voltage	S11MD5T	V_T	I_T = 0.1A	–	1,3	2.0	v
		S21MD3TV/S21MD4TV			–	1.7	2.5	v
	Holding current		In	V_D = 6V	0.1	1	3.5	mA
	Critical rate of rise off OFF-state voltage	S11MD5T/S21MD4TV	dV/dt	V_{DRM} = 1/√2 Rated	100	–		V/μs
		S21MD3TV			500	–		V/μs
	Zero-cross voltage	S21MD4TV	Vox	Resistance load IF= 15mA	–		35	v
Transfer characteristics	Minimun trigger current		I_{F-T}	VD=6V R_L = 100Ω	–	–	10	mA
	Isolation resistance		R_{ISO}	DC500V 40 to 60%RH	5×10^{10}	10^{11}	–	Ω
	Turn-on time	S11MD5T	t_{on}	V_D = 6V, *2I_F = 20mA R_L = 100Ω	–	80	200	μs
		S21MD3TV			–	60	100"	μs
		S21MD4TV			=	20	50	μs

*1 S21MD3TV···30mA

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

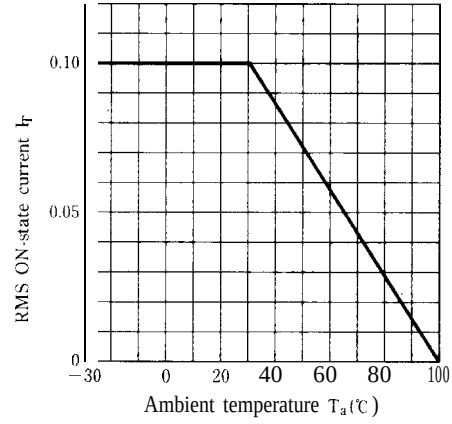


Fig. 2 Forward Current vs. Ambient Temperature

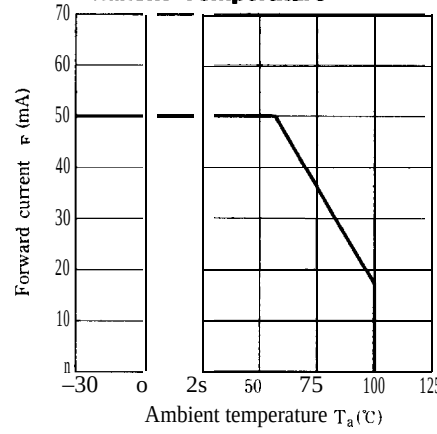


Fig. 3 Forward Current vs. Forward Voltage

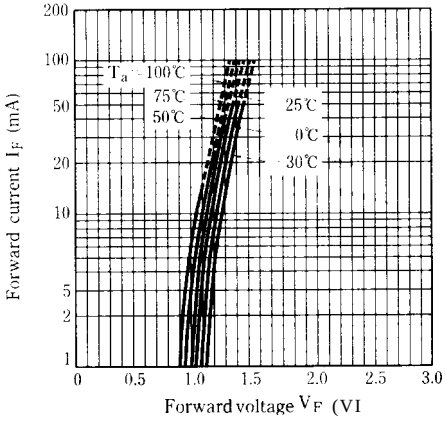


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

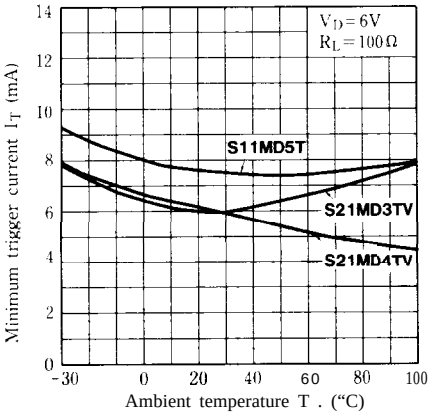


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

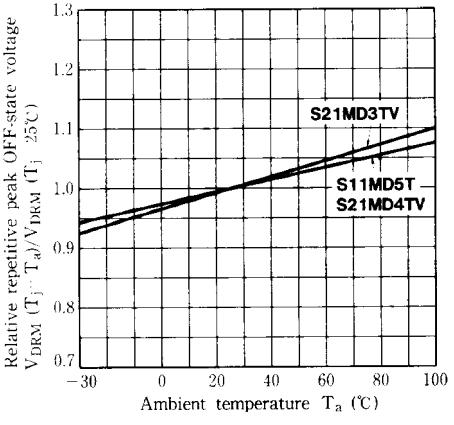


Fig. 6-a ON-state Voltage vs. Ambient Temperature (S11MD5T)

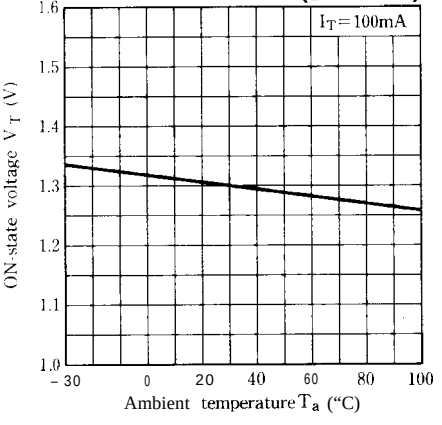


Fig. 6-b ON-state Voltage vs. Ambient Temperature (S21MD3TV/S21MD4TV)

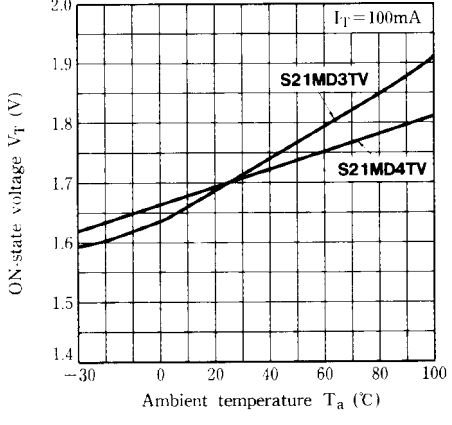


Fig. 7 Holding Current vs. Ambient Temperature

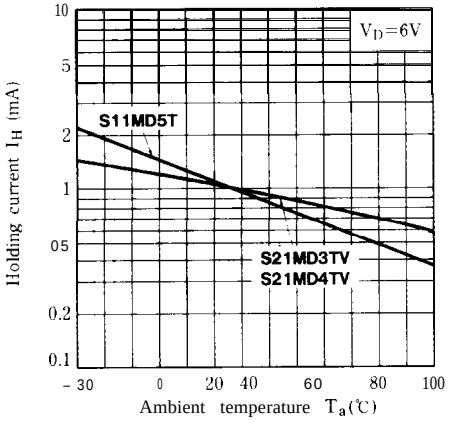


Fig. 8-a Repetitive Peak OFF-state Current vs. OFF-state Voltage (S11MD5T)

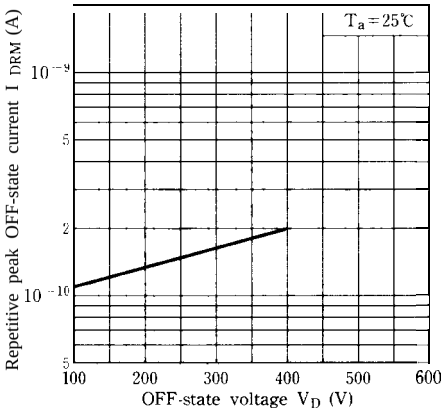


Fig. 8-b Repetitive Peak OFF-state Current vs. OFF-state Voltate (S21MD3TV/S21MD4TV)

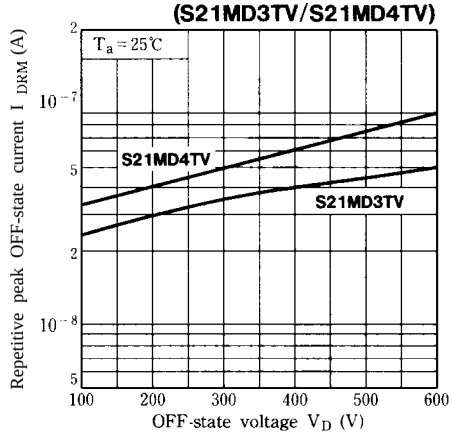


Fig. 9-a Repetitive Peak OFF-state Current vs. Ambient Temperature (S11MD5T)

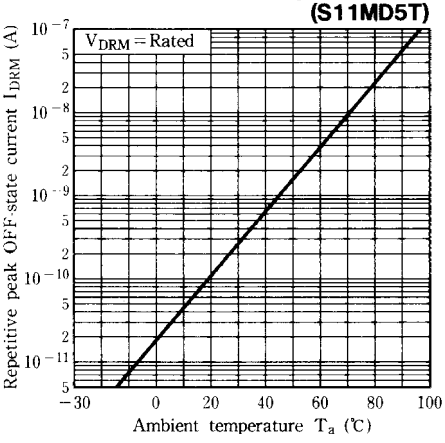


Fig. 9-b Repetitive Peak OFF-state Current vs. Ambient Temperature (S21MD3TV/S21MD4TV)

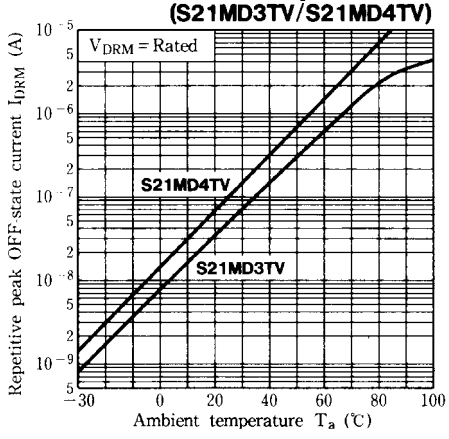


Fig.10 Turn-on Time vs. Forward Current (S11MD5T/S21MD3TV)

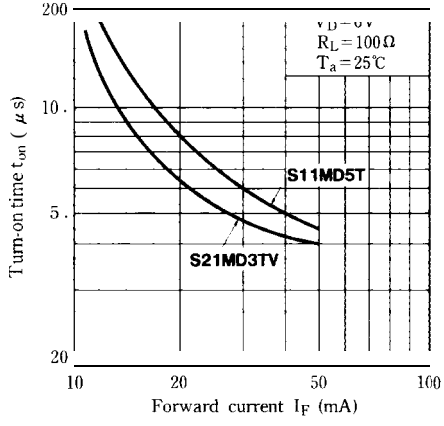


Fig.11 Zero-cross Voltage vs. Ambient Temperature (S21MD4TV)

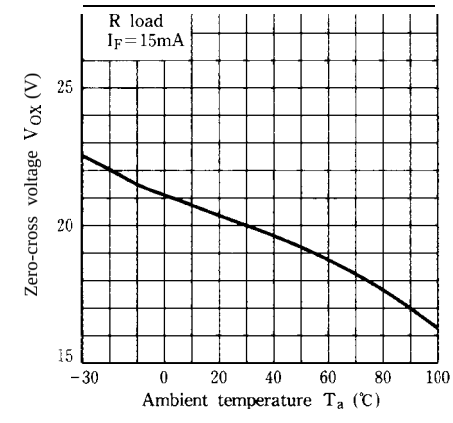
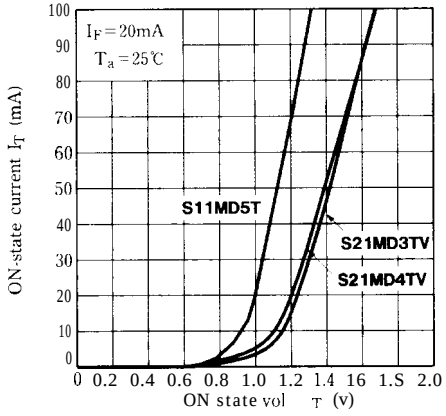
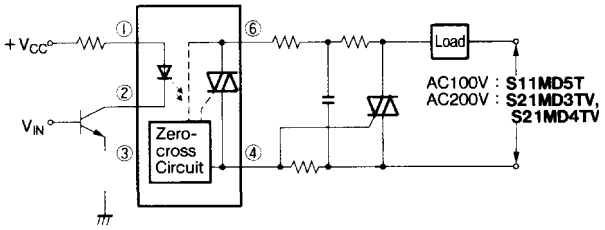


Fig.12 ON-state Current vs. ON-state Voltage



■ Basic Operation Circuit

Medium /High Power Triac Drive Circuit



Note) Please use on condition of the triac for power triggers.
Zero. cross circuit is applied to **S21MD4TV**.

● Please refer to the chapter "Precautions for Use." (Page 78 to 93)