

S21MD10T

High Speed, High Sensitivity Type Phototriac Coupler

* TÜV (DIN-VDE0884) approved type is also available as an option.

■ Features

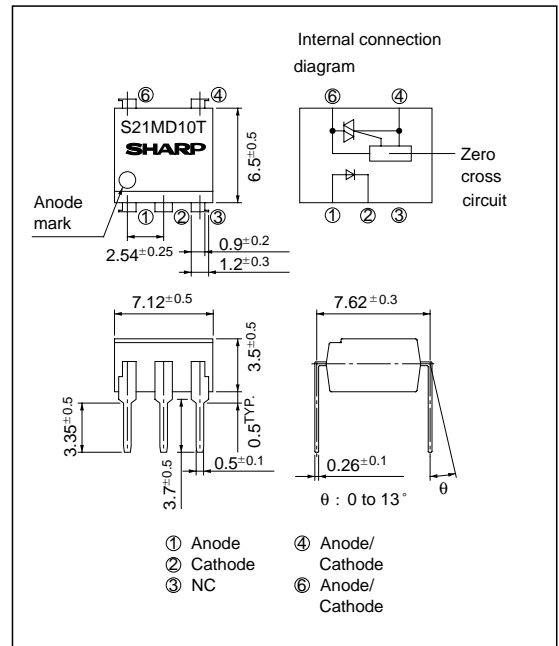
1. High sensitivity (I_{FT} : MAX. 5mA)
2. High speed (Turn-on time : MAX. 20 μ s)
3. Long dielectric distance between AC lines (3.9mm)
4. High isolation voltage between input and output (Viso : 5 000Vrms)
5. Recognized by UL, file No. E64380

■ Applications

1. For triggering medium/high power triac

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

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

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output	RMS ON-state current	I_T	0.1	A_{rms}
	*1 Peak one cycle surge current	I_{surge}	1.2	A
	Repetitive peak OFF-state voltage	V_{DRM}	600	V
	*2 Isolation voltage	V_{iso}	5 000	V_{rms}
Operating temperature		T_{opr}	- 30 to + 100	$^\circ\text{C}$
Storage temperature		T_{stg}	- 55 to + 125	$^\circ\text{C}$
*3 Soldering temperature		T_{sol}	260	$^\circ\text{C}$

*1 50Hz sine wave

*2 40 to 60% RH, AC for 1 minute, $f = 60\text{Hz}$

*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	$I_T = 0.1\text{A}$	-	2.0	3.0	V
	Holding current	I_H	$V_D = 6\text{V}$	0.1	0.5	3.5	mA
	Critical rate of rise of OFF-state voltage	dV/dt	$V_{DRM} = (1/\sqrt{2}) \cdot \text{Rated}$	100	-	-	V/ μs
	Zero-cross voltage	V_{OX}	Resistance load, $I_F = 10\text{mA}$	-	-	35	V
Transfer-characteristics	Minimum trigger current	I_{FT}	$V_D = 6\text{V}, R_L = 100\Omega$	-	-	5	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	μs

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

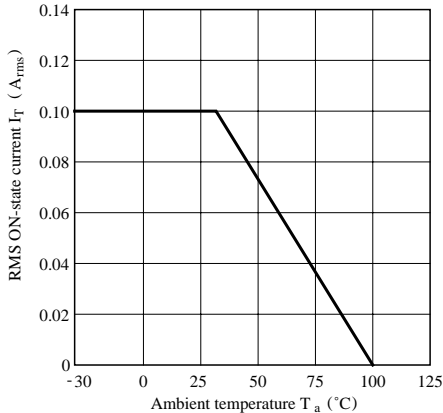


Fig. 2 Forward Current vs. Ambient Temperature

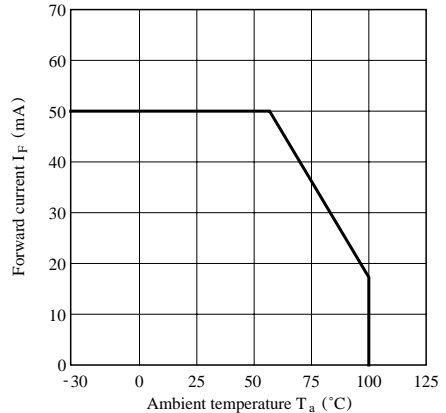


Fig. 3 Forward Current vs. Forward Voltage

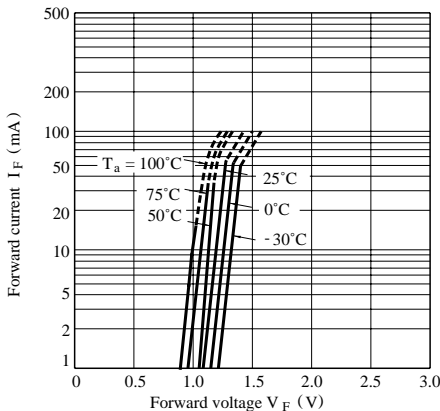


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

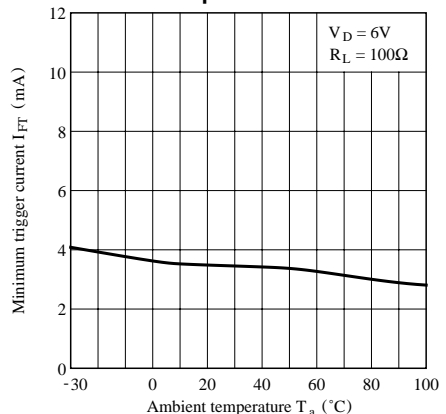


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

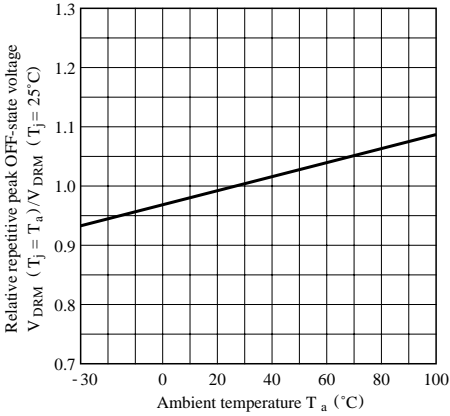


Fig. 6 ON-state Voltage vs. Ambient Temperature

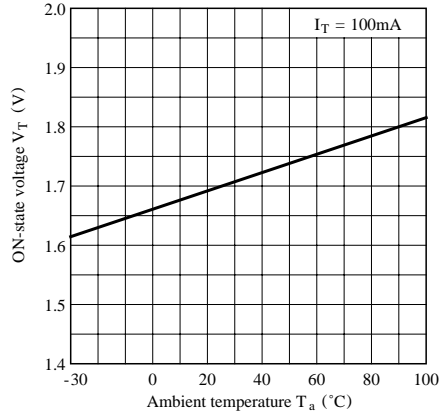


Fig. 7 Holding Current vs. Ambient Temperature

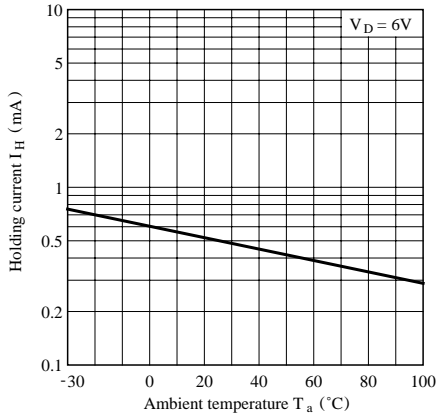


Fig. 8 Repetitive Peak OFF-State Current vs. OFF-State Voltage

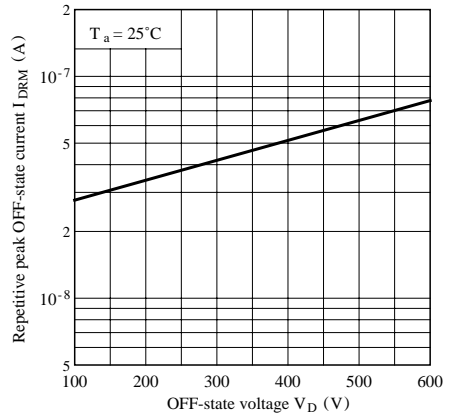


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient Temperature

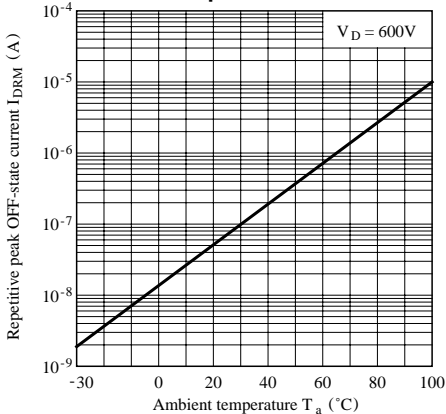


Fig.10 Zero-cross Voltage vs. Ambient Temperature

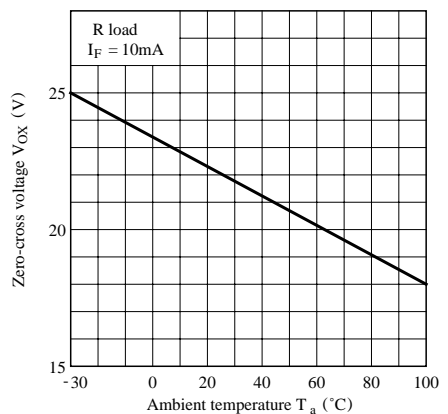


Fig.11 Turn-on Time vs. Forward Current

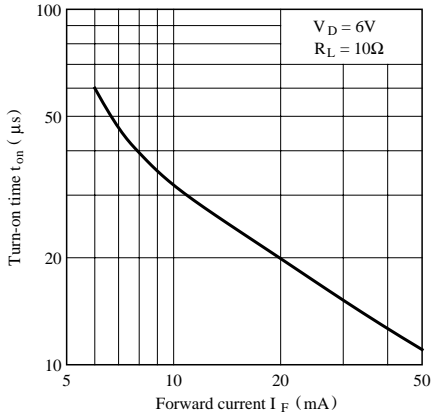
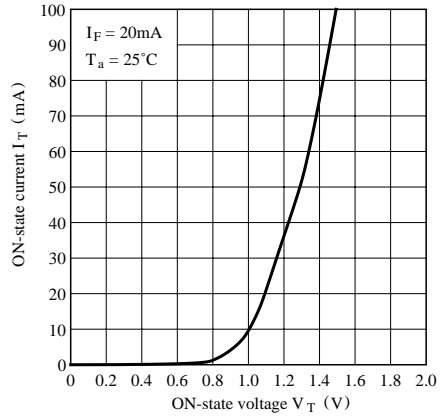
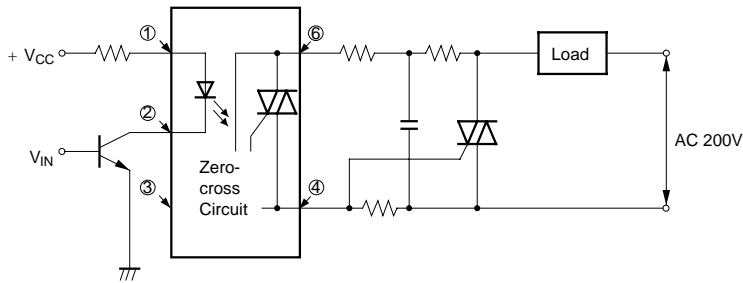


Fig.12 ON-state Current vs. ON-state Voltage



■ Basic Operation Circuit



- Please refer to the chapter “Precautions for Use”