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S21ME Series

European Safety Standard Approved, Long Creepage Distance Type Phototriac Couplers

- * Lead forming type (I type) of **S21ME** series is also available. (**S21ME3I/S21ME4I/S21ME3FI/S21ME4FI**)
- * Taping reel type (P type) of **S21ME** series is also available. (**S21ME3P/S21ME4P/S21ME3FP/S21ME4FP**)
- * DIN-VDE0884 approved type is also available as an option.

■ Features

1. Long creepage distance type
(Creepage distance : 8mm or more)
2. Internal insulation distance : 0.5mm or more
3. Description of approved safety standards
(Lead forming type is also registered as **S21ME3/S21ME4**)
Recognized by UL 1577 (double protection included)
file No. E64380

Approved by VDE, No. 68328

Approved by BSI (BS415 : No. 6690, BS7002 : No. 7421)

Approved by SEMKO

S21ME3/S21ME3F No. 8705122

S21ME4/S21ME4F No. 8705123

Approved by DEMKO, No. 84857

Approved by EI

S21ME3/S21ME3F No. 099443-01

S21ME4/S21ME4F No. 099444-01

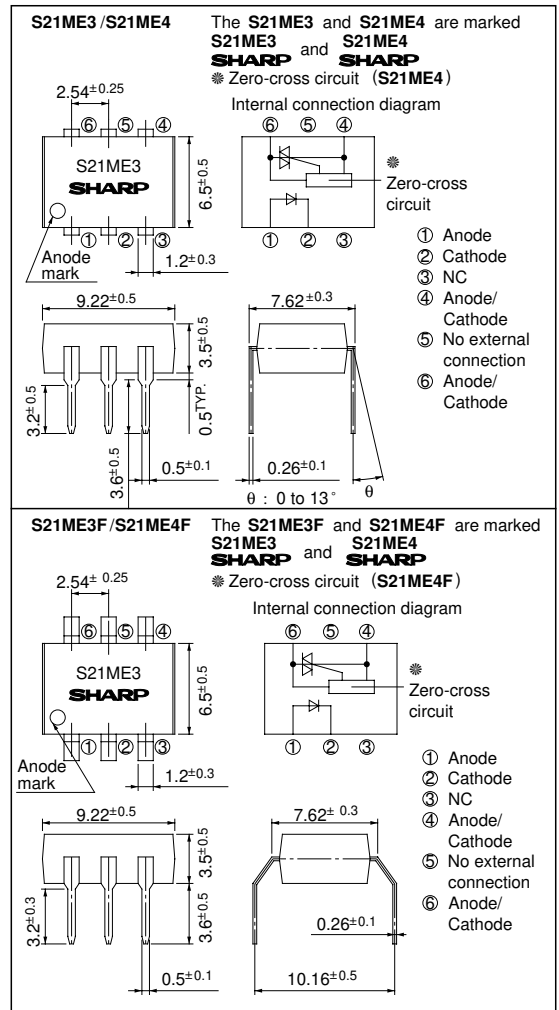
4. Low minimum trigger current
(I_{FT} : MAX. 7mA)
5. Built-in zero-cross circuit
(**S21ME4/S21ME4F**)
6. Lead forming type/**S21ME3F, S21ME4F**
(Distance between lead pins : 10.16mm)
7. High repetitive peak OFF-state voltage
(V_{DRM} : MIN. 600V)
8. High isolation voltage between input and output
(V_{iso} : 5 000V_{rms})

■ Applications

1. For triggering medium/high power triac

■ Outline Dimensions

(Unit : mm)



■ 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	mA _{rms}
	*1Peak one cycle surge current	I _{surge}	1.2	A
	Repetitive peak OFF-state voltage	V _{DRM}	600	V
	*2Isolation voltage	V _{iso}	5 000	V _{rms}
Operating temperature		T _{opr}	- 30 to + 100	°C
Storage temperature		T _{stg}	- 55 to + 125	°C
*3Soldering 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 = 100mA	-	1.7	3.0	V	
	Holding current	I _H	V _D = 6V	0.05	-	3.5	mA	
	Critical rate of rise of OFF-state voltage	S21ME3 S21ME3F S21ME4 S21ME4F	dV/dt	V _{DRM} = 1/√2 • Rated	500	-	-	V/μs
					100	-	-	
Zero-cross voltage	S21ME4 S21ME4F	V _{OX}	Resistance load, I _F = 15mA	-	-	35	V	
Transfer characteristics	Minimum trigger current	I _{FT}	V _D = 6V, R _L = 100Ω	-	-	7.0	mA	
	Isolation resistance	R _{ISO}	DC500V, 40 to 60% RH	5 x 10 ¹⁰	10 ¹¹	-	Ω	
	Turn-on time	S21ME3 S21ME3F S21ME4 S21ME4F	t _{on}	V _D = 6V, R _L = 100Ω, I _F = 20mA	-	40	100	μs
				f = 50Hz	-	-	1/2	cycle
Turn-off time	S21ME4 S21ME4F	t _{off}	f = 50Hz	-	-	1/2	cycle	

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

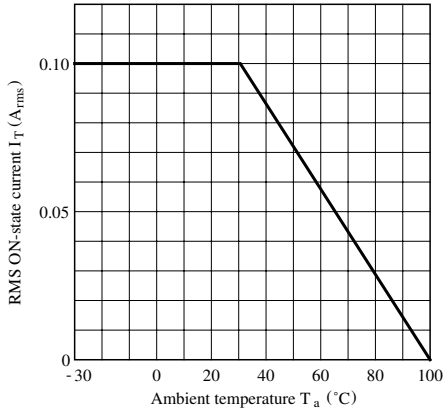


Fig. 2 Forward Current vs. Ambient Temperature

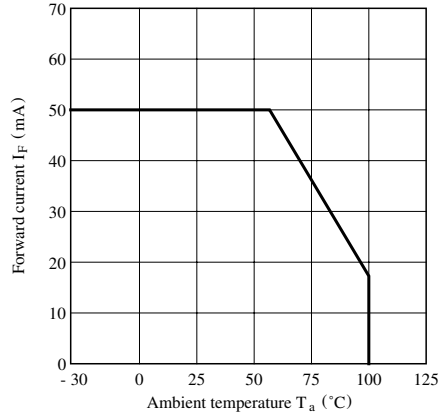


Fig. 3 Forward Current vs. Forward Voltage

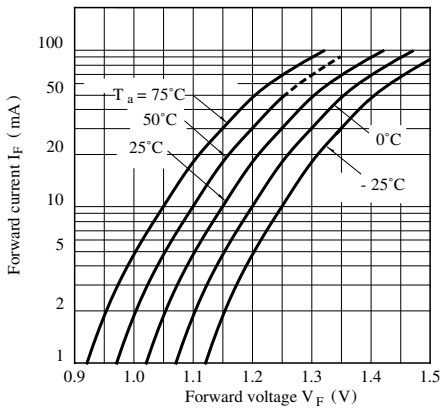


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

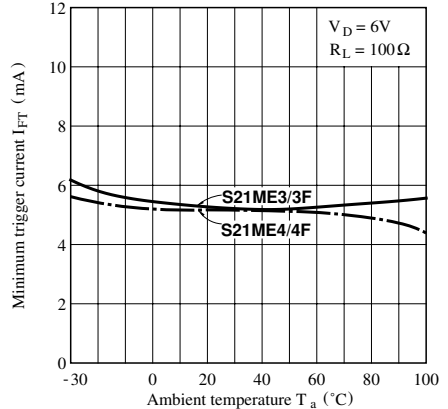


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

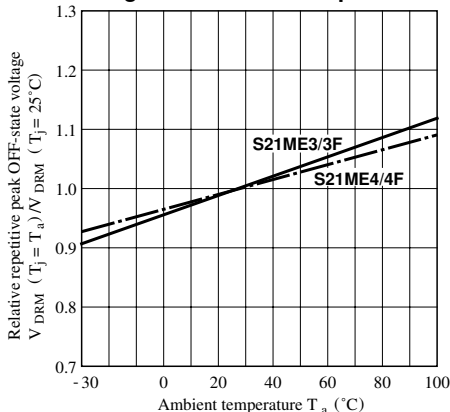


Fig. 6 ON-state Voltage vs. Ambient Temperature

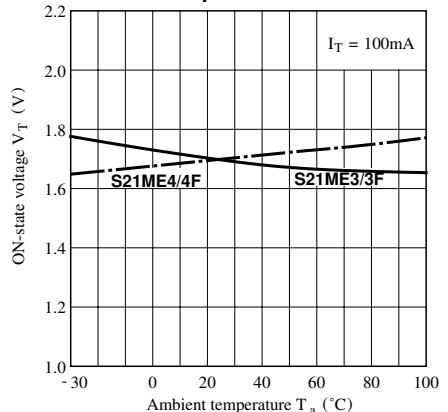


Fig. 7 Holding Current vs. Ambient Temperature

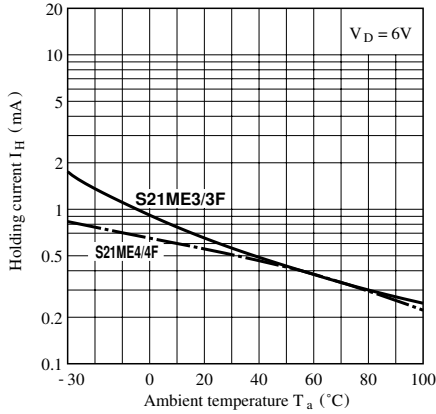


Fig. 8-a Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21ME3/S21ME3F)

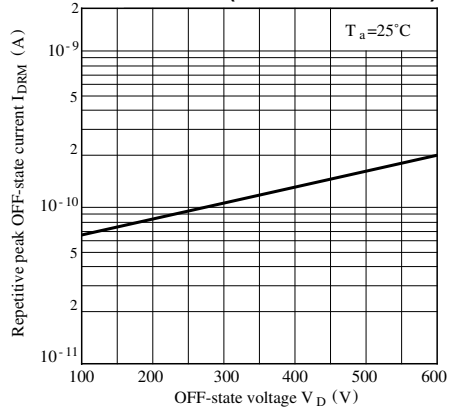


Fig. 8-b Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21ME4/S21ME4F)

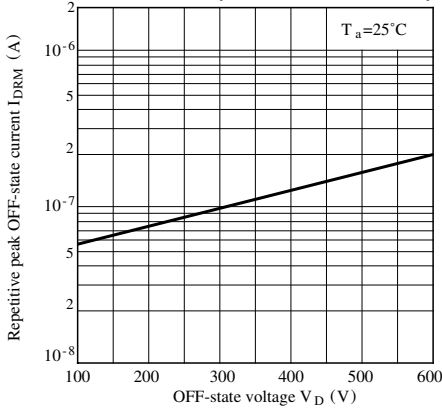


Fig. 9-a Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME3/S21ME3F)

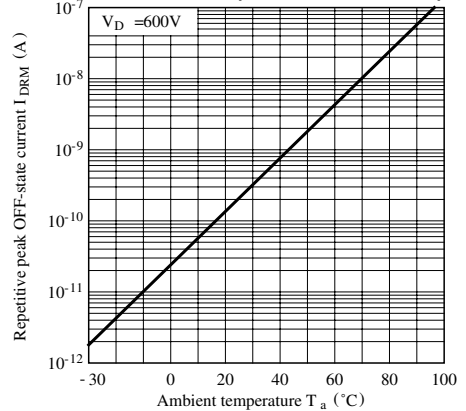


Fig. 9-b Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME4/S21ME4F)

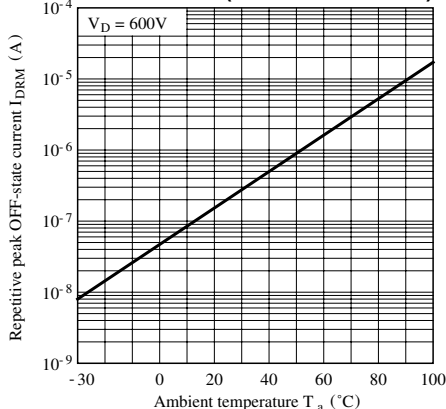


Fig.10 Turn-on Time vs. Forward Current (S21ME3/S21ME3F)

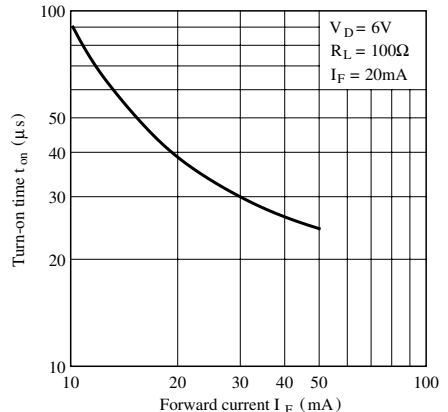


Fig.11 Zero-cross Voltage vs. Ambient Temperature
(S21ME4/S21ME4F)

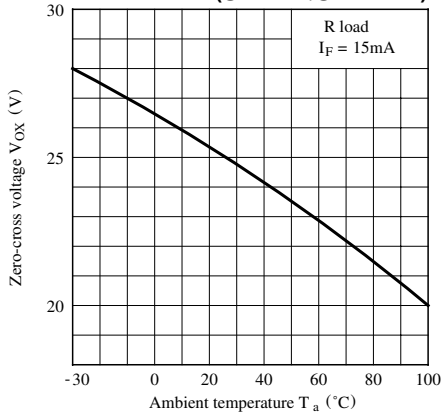
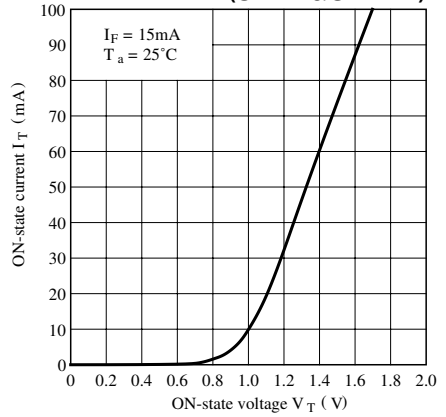


Fig.12 ON-state Current vs. ON-state Voltage
(S21ME3/S21ME4)



- Please refer to the chapter “Precautions for Use” (Page 78 to 93).

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