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.

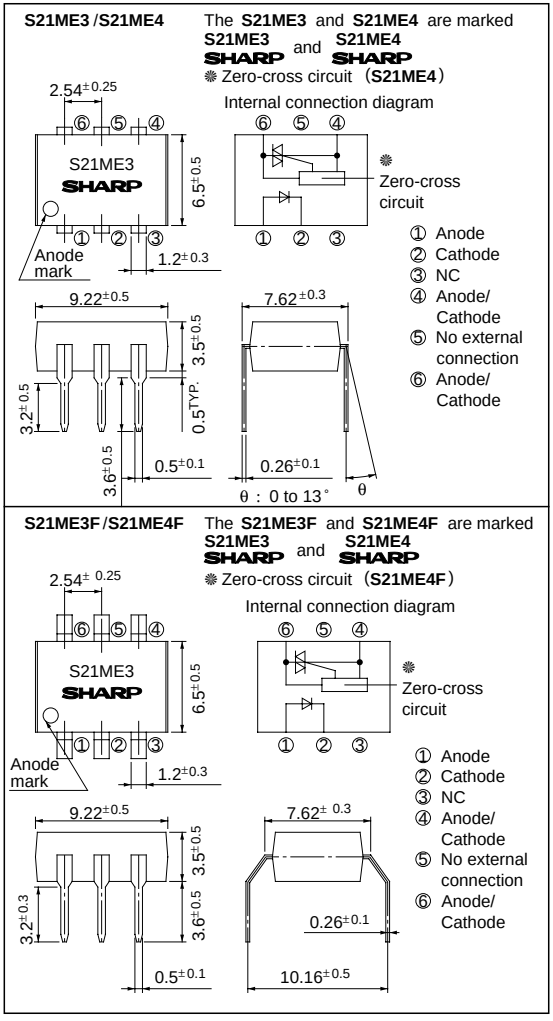
■ Features

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**.)
   Recoginized 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**	dV/dt	$V_{DRM} = 1/\sqrt{2}$ • Rated	500	-	-	V/µs
		S21ME4 S21ME4F			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	5×10^{10}	10^{11}	-	Ω
	Turn-on time	**S21ME3 S21ME3F**	t_{on}	V_D = 6V, R_L = 100Ω, I_F = 20mA	-	40	100	µs
		S21ME4 S21ME4F		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

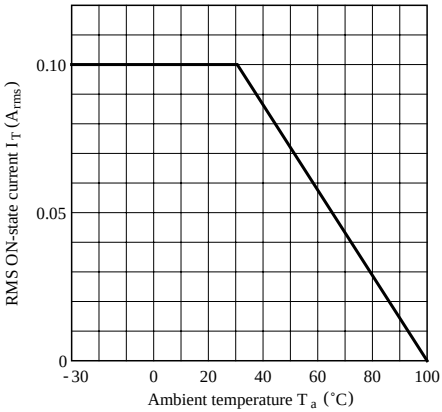


Fig. 2 Forward Current vs. Ambient Temperature

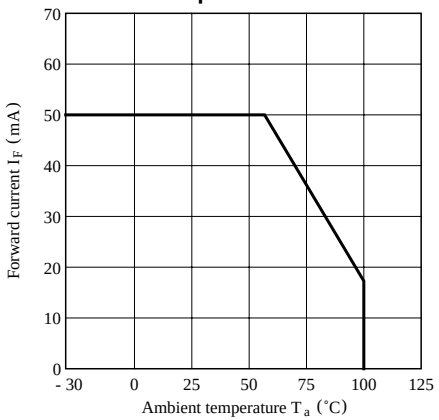


Fig. 3 Forward Current vs. Forward Voltage

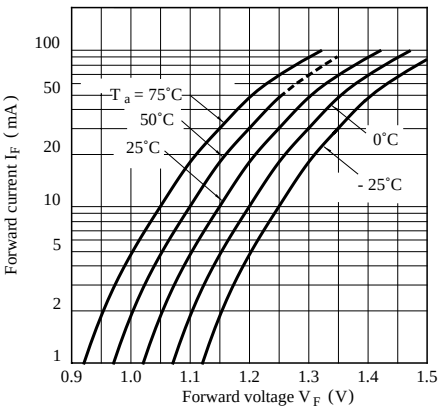


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

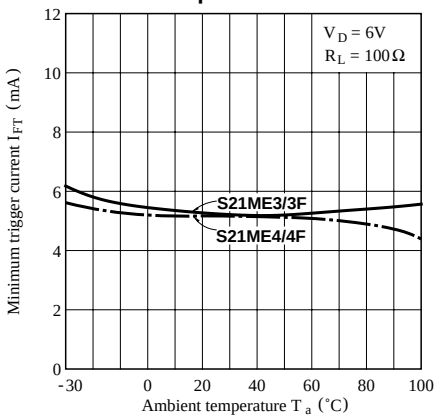


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

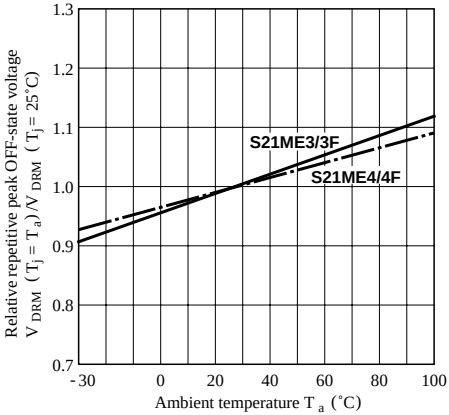


Fig. 6 ON-state Voltage vs. Ambient Temperature

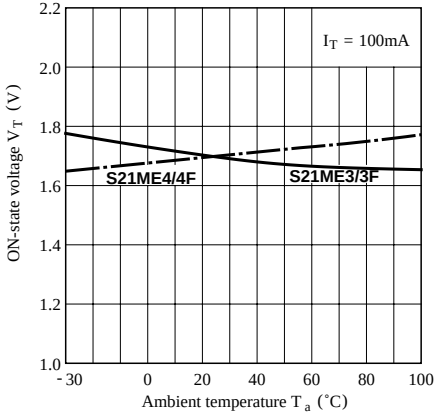


Fig. 7 Holding Current vs. Ambient Temperature

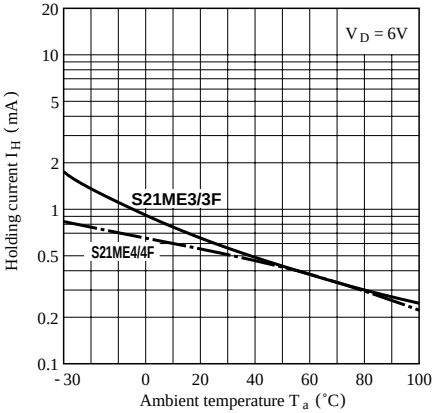


Fig. 8-a Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21ME3/S21ME3F)

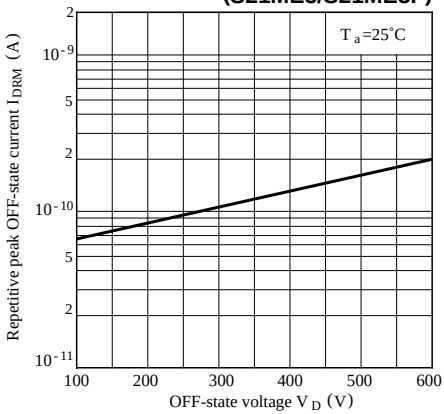


Fig. 8-b Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21ME4/S21ME4F)

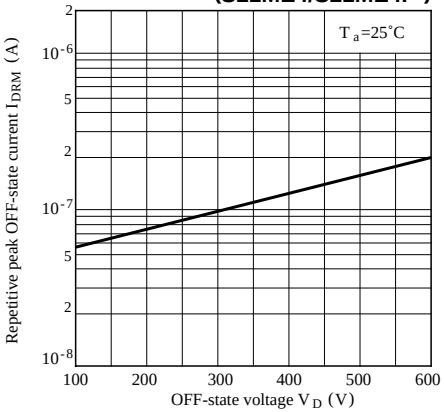


Fig. 9-a Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME3/S21ME3F)

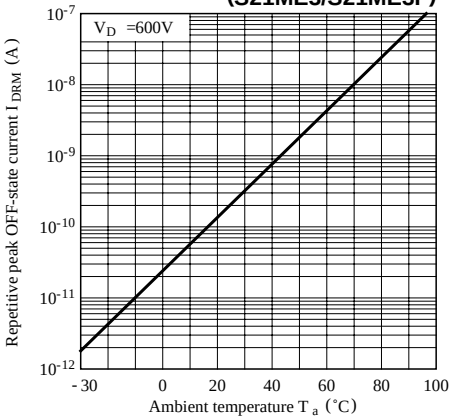


Fig. 9-b Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME4/S21ME4F)

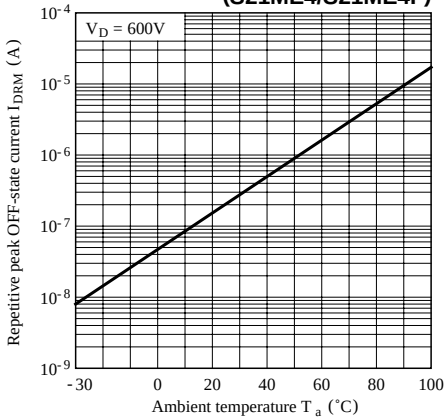


Fig.10 Turn-on Time vs. Forward Current (S21ME3/S21ME3F)

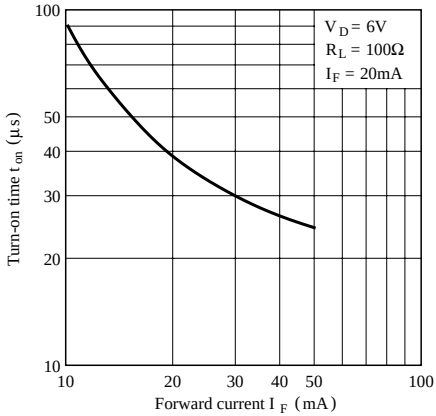


Fig.11 Zero-cross Voltage vs. Ambient Temperature (S21ME4/S21ME4F)

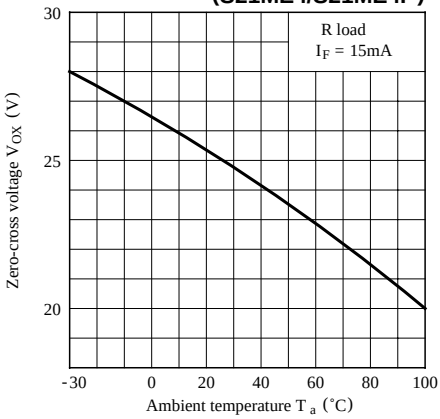
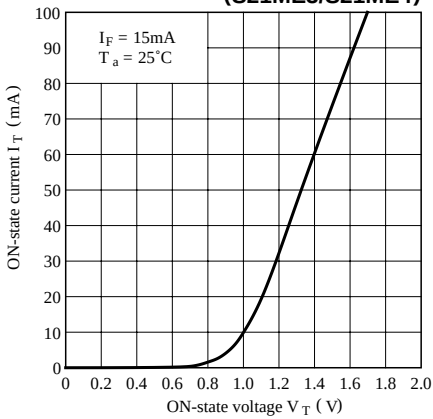


Fig.12 ON-state Current vs. ON-state Voltage (S21ME3/S21ME4)



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

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