S21ME Series

European Safety Standard Approved, Long Creepage Distance Type Phototriac couplers

※ Lead forming type (I type) of S21 ME series is also available. (S21 ME3I/S21ME4I/S21ME3FI/S21ME4FI) (Page 656)
※ Taping reel type (P type) of S21ME series is also available. (S21ME3P/S21ME4P/S21ME3FP/S21ME4FP) (Page 656)
※ DIN-VDE0884 approved type is also available as an option.

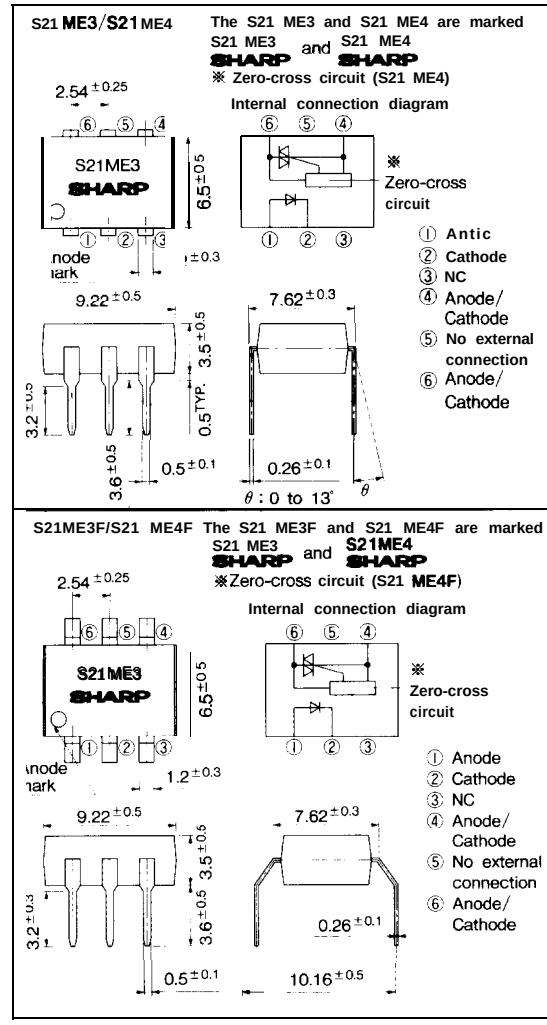
■ Features

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
   S21 **ME3/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/S21 ME3F, S21 ME4F
   (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	IF	50	mA
	Reverse voltage	V_R	6	v
output	RMS ON-state current	IT	100	mA_{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}	5000	V_{rms}
Operating temperature		T_{opr}	–30 to +100	℃
Storage temperature		T_{stg}	–55 to + 125	℃
*3 Soldering temperature		T_{sol}	260	℃

*1 50 Hz, 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.	'111'.	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	IT= 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 S21 ME3F	dV/dt	$V_{DRM}=1/\sqrt{2}$. Rated	500	–	—	V/μs
		S21 ME4 S21ME4F			100		—	
	Zero-cross voltage	S21 ME4 **S21** ME4F	Vox	Resistance load, IF= 15mA	–	–	35	v
Transfer charac - teristics	Minimum trigger current		IFT	V_D=6V, R_L=100Ω	—		7.0	mA
	Isolation resistance		Riso	DC500V, **40** to **60%** R H	5 x 10^{10}	10^{11}	—	Ω
	Turn-on time	S21ME3 S21ME3F	ton	V_D=6V, R_L=100Ω, I_F=20mA	—	40	100	μs
		S21ME4 S21ME4F		f=50Hz	—	—	1/2	cycle
	Turn-off time	**S21ME4** S21ME4F	toff	f=50Hz	—	·	1/2	cycle

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

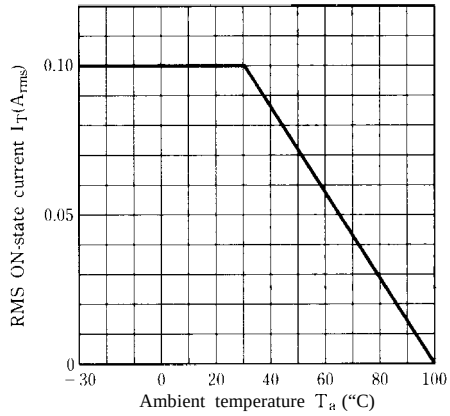


Fig. 2 Forward Current vs. Ambient Temperature

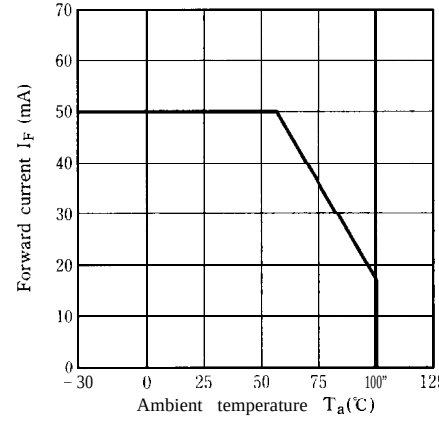


Fig. 3 Forward Current vs. Forward Voltage

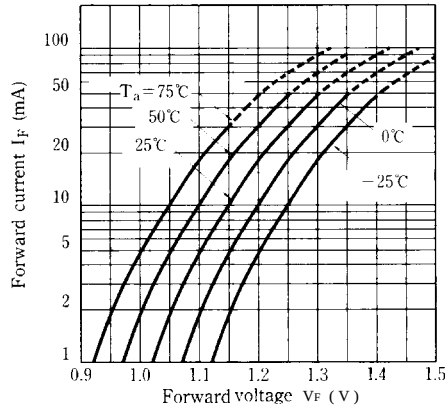


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

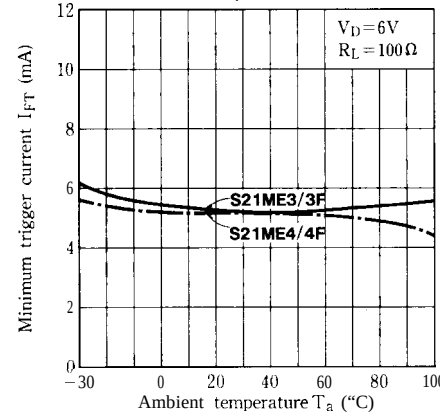


Fig. 5 Relative Repetitive Peak OFF-state Voltage vs. Ambient Temperature

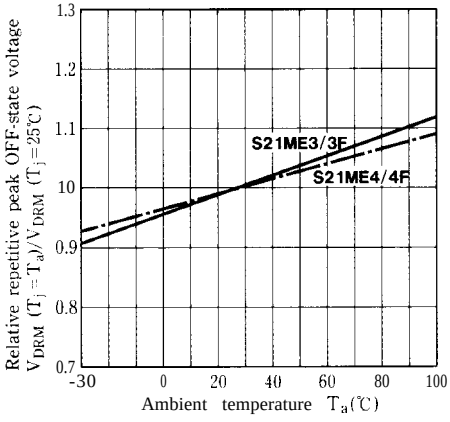


Fig. 6 ON-state Voltage vs. Ambient Temperature

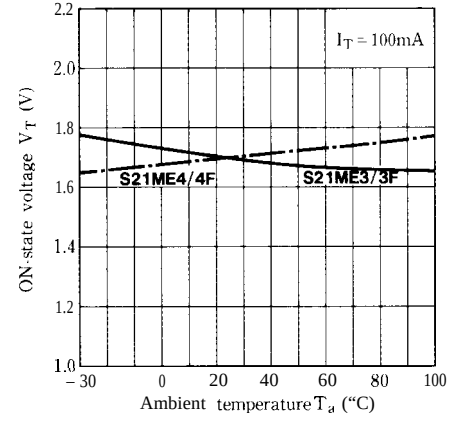


Fig. 7 Holding Current vs. Ambient Temperature

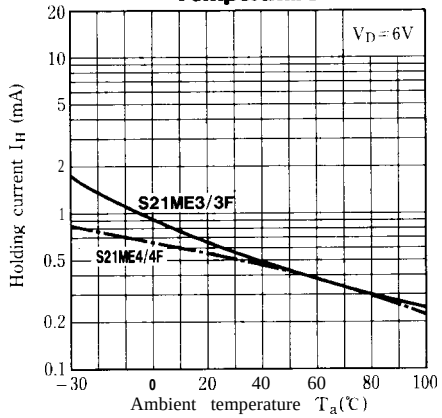


Fig. 8-a Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21 ME3/S21ME3F)

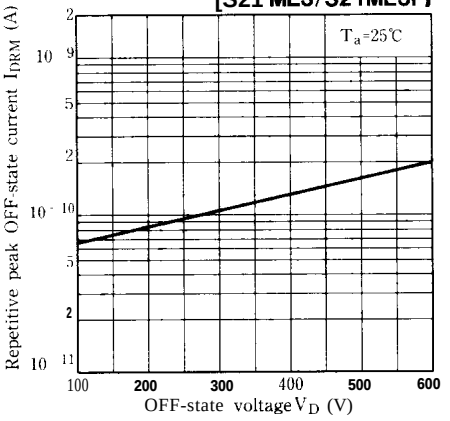


Fig. 8-b Repetitive Peak OFF-state Current vs. OFF-state Voltage (S21 ME4/S21ME4F)

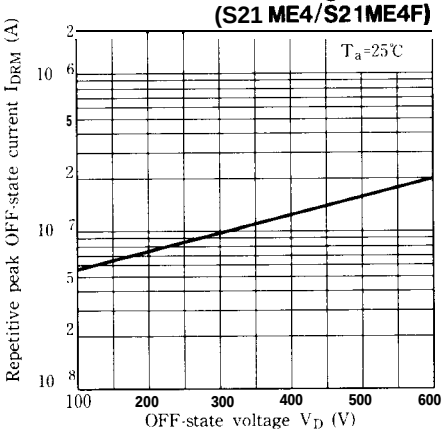


Fig. 9-a Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME3/S21ME3F)

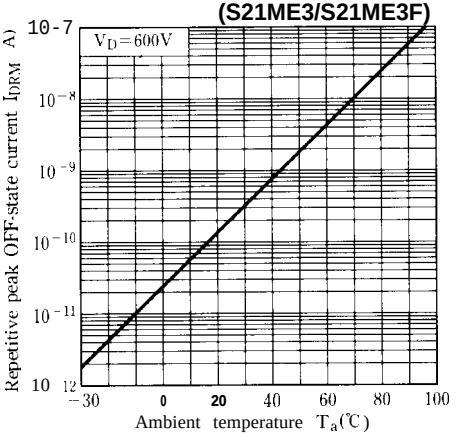


Fig. 9-b Repetitive Peak OFF-state Current vs. Ambient Temperature (S21ME4/S21ME4F)

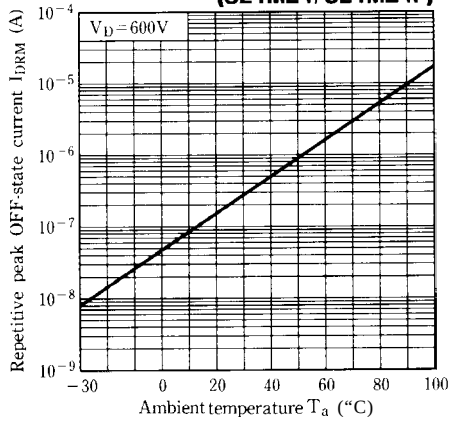
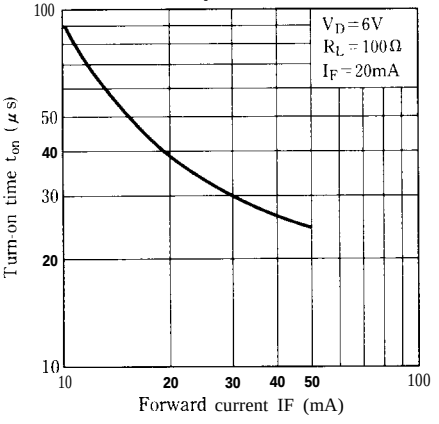


Fig.10 Turn-on Time ve. Forward Current (S21 ME3/S21ME3F)



7 Phototriac Couplers

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

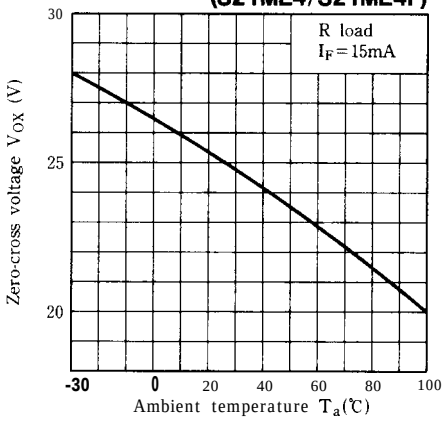
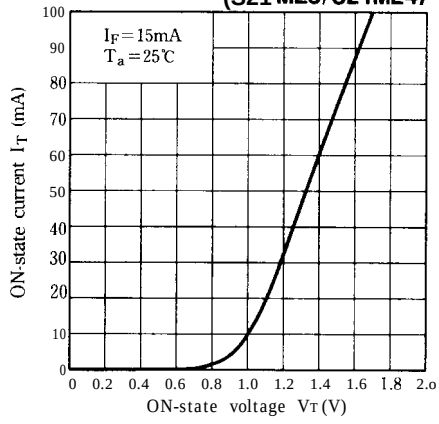


Fig.12 ON-state Current vs. ON-state Voltage (S21 ME3/S21ME4)



● Please refer to the chapter “Precautions for Use” (Page 78 to 93),