

S12ME1/S12ME1F

European Safety Standard Approved, Long Creepage Distance Type Photothyristor Coupler

- ✿ Lead forming type (I type) and taping reel type (P type) of S12ME1/S12ME1F are also available. (S12ME1I/S12ME1FI, S12ME1P/S12ME1FP)
- ✿ DIN-VDE0884 approved type is also available as an option.

■ Features

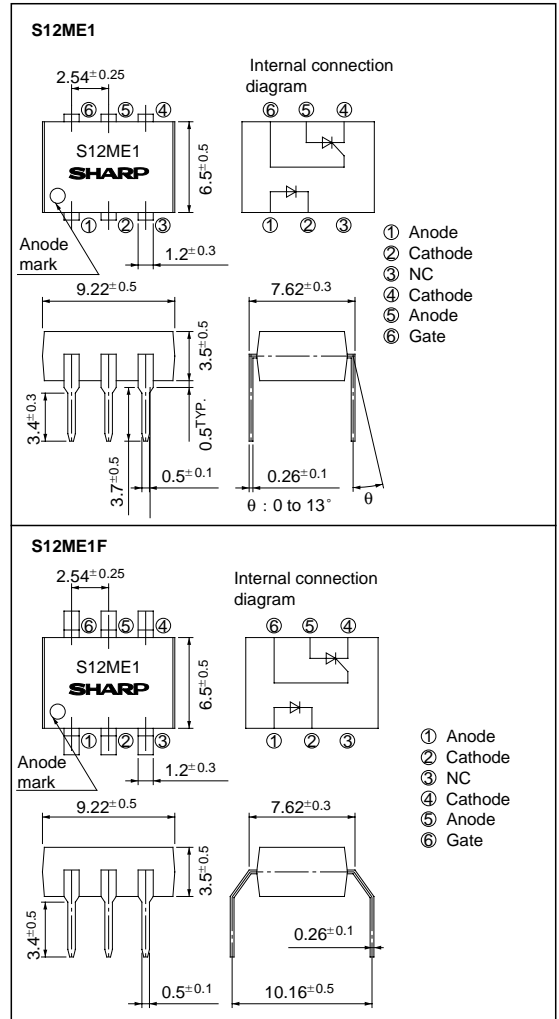
- Internal insulation distance : 0.4mm or more
- Creepage distance : 8mm or more
Space distance : 5mm or more (S12ME1)
8mm or more (S12ME1F)
- Recognized by UL file No. E64380
Approved by BSI (BS415 : NO.7088, BS7002 : NO.7410)

■ Applications

- ON-OFF operation for low power load
- For triggering medium or high power thyristor and triac
- Over voltage detection of switching power supplies

■ 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	0.2	A _{rms}
	*1 Peak one cycle surge current	I _{surge}	2	A
	*2 Repetitive peak OFF-state voltage	V _{DRM}	400	V
	*2 Repetitive peak OFF-state reverse voltage	V _{RRM}	400	V
	*3 Isolation voltage	V _{iso}	4 000	V _{rms}
Operating temperature		T _{opr}	- 30 to +100	°C
Storage temperature		T _{sig}	- 55 to +125	°C
*4 Soldering temperature		T _{sol}	260	°C

*1 50Hz sine wave

*2 R_G = 20kΩ

*3 40 to 60% RH, AC for 1 minute, f = 60Hz

*4 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	μA
Output	Repetitive peak OFF-state current	I _{DRM}	V _{DRM} = Rated, R _G = 20kΩ	-	-	1	μA
	Repetitive peak OFF-state reverse voltage	I _{RRM}	V _{DRM} = Rated, R _G = 20kΩ	-	-	1	μA
	ON-state voltage	V _T	I _T = 0.2A	-	1.0	1.4	V
	Holding current	I _H	V _D = 6V, R _G = 20kΩ	-	-	1.0	mA
	Critical rate of rise of OFF-state voltage	dV/dt	V _{DRM} = 1/√2 • Rated, R _G = 20kΩ	3	-	-	V/μs
Transfer characteristics	Minimum trigger current	I _{FT}	V _D = 6V, R _L = 100Ω, R _G = 20kΩ	-	-	10	mA
	Isolation resistance	R _{ISO}	DC500V, 40 to 60% RH	5 x 10 ¹⁰	10 ¹¹	-	Ω
	Turn-on time	t _{on}	V _D = 6V, R _L = 100Ω, I _F = 20mA R _G = 20kΩ	-	-	50	μs

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

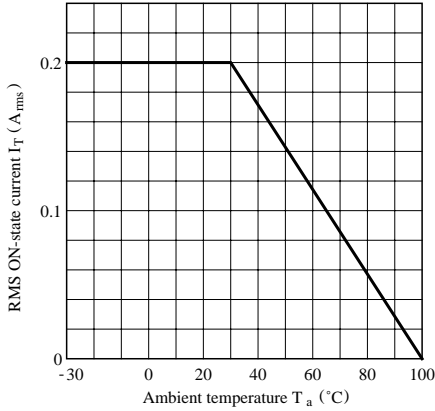


Fig. 2 Forward Current vs. Ambient Temperature

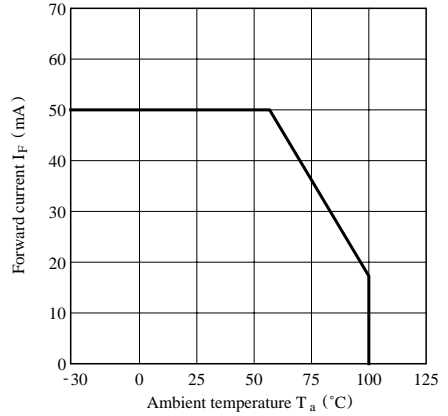


Fig. 3 Forward Current vs. Forward Voltage

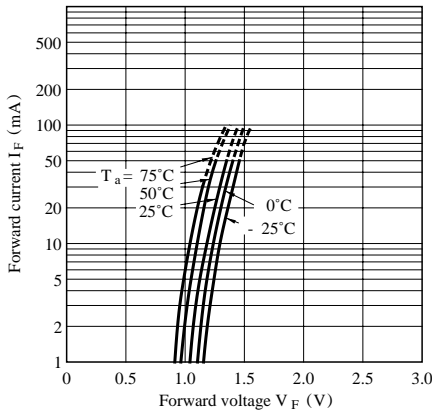


Fig. 4 Minimum Trigger Current vs. Ambient Temperature

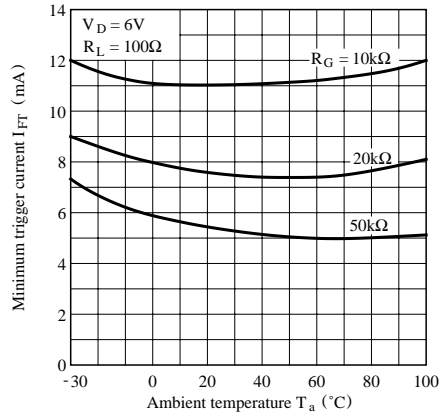


Fig. 5 Minimum Trigger Current vs. Gate Resistance

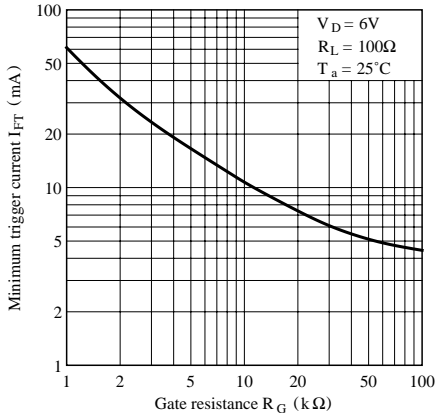


Fig. 6 Break Over Voltage vs. Ambient Temperature

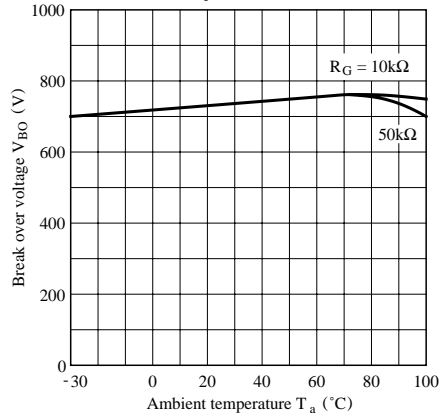


Fig. 7 Critical Rate of Rise of OFF-state Voltage vs. Ambient Temperature

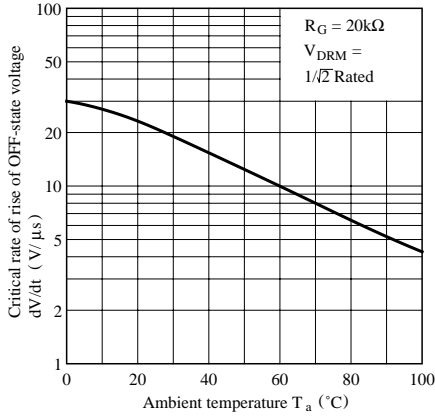


Fig. 8 Holding Current vs. Ambient Temperature

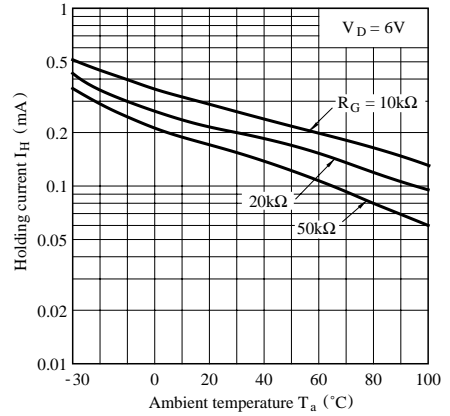


Fig. 9 Repetitive Peak OFF-state Current vs. Ambient temperature

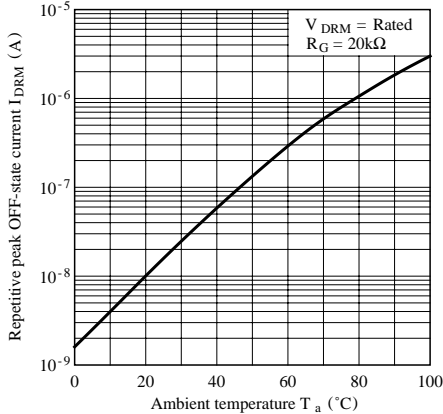


Fig.10 Turn-on Time vs. Forward Current

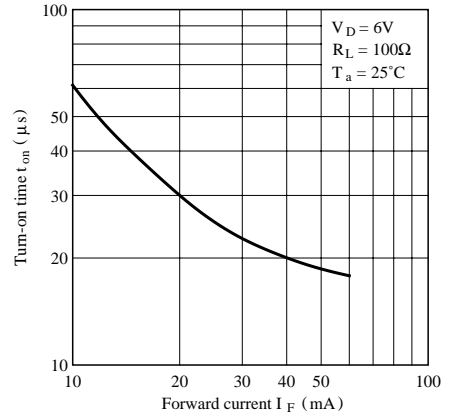
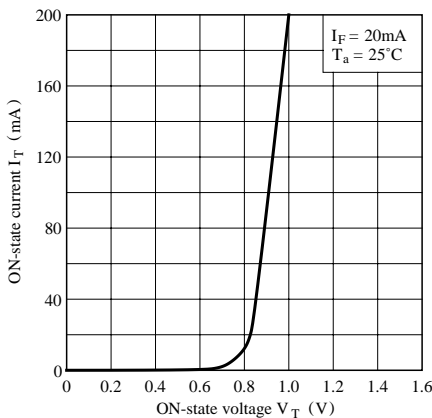
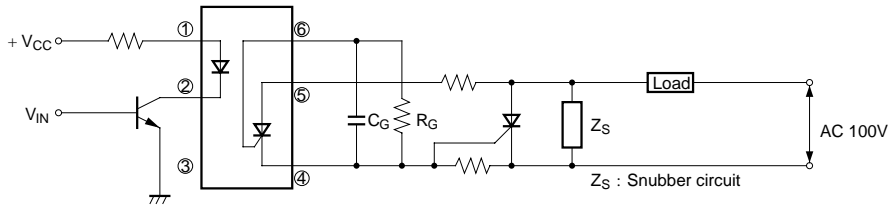


Fig.11 ON-state Current vs. ON-state Voltage

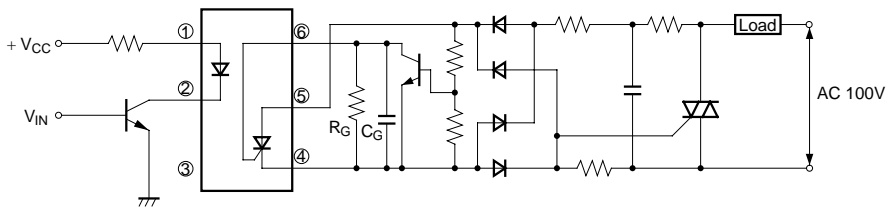


■ Basic Operation Circuit

Medium/High Power Thyristor Drive Circuit



Medium/High Power Triac Drive Circuit (Zero-cross Operation)



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