

# PR29MF11NSZ Series/ PR39MF11NSZ Series

## ■ Features

1. Compact 8-pin dual-in-line package type
2. RMS ON-state current  $I_{T(rms)}$ :0.9A
3. Built-in zero-cross circuit  
**(PR29MF21NSZ/PR39MF21NSZ)**
4. High repetitive peak OFF-state voltage  
**PR29MF11NSZ/PR29MF21NSZ**  $V_{DRM}$ :MIN. 400V  
**PR39MF11NSZ/PR39MF21NSZ**  $V_{DRM}$ :MIN. 600V
5. Isolation voltage between input and output  
( $V_{iso(rms)}$ ):4kV)
6. Recognized by UL (No. E94758)
7. Recognized by CSA (No. LR63705)
8. VDE (VDE0884) approved type  
**(PR39MF11YSZ, PR39MF21YSZ)** is also available as an option

## ■ Applications

1. Various types of home appliances

## ■ Absolute Maximum Ratings (T<sub>a</sub>=25°C)

Parameter		Symbol	Rating	Unit	
Input	*1 Forward current	$I_F$	50	mA	
	Reverse voltage	$V_R$	6	V	
Output	*1 RMS ON-state current	$I_{T(rms)}$	0.9	A	
	Peak one cycle surge current	$I_{surge}$	9 (50Hz sine wave)	A	
	Repetitive peak OFF-state voltage	PR29MF11NSZ	$V_{DRM}$	400	V
		PR29MF21NSZ			
		PR39MF11NSZ		600	
PR39MF21NSZ					
*2 Isolation voltage	$V_{iso(rms)}$	4.0	kV		
Operating temperature	PR29MF11NSZ	$T_{opr}$	-25 to +85	°C	
	PR39MF11NSZ				
	PR29MF21NSZ		-30 to +85		
	PR39MF21NSZ				
Storage temperature	$T_{stg}$	-40 to +125	°C		
Soldering temperature	$T_{sol}$	260 (For 10s)	°C		

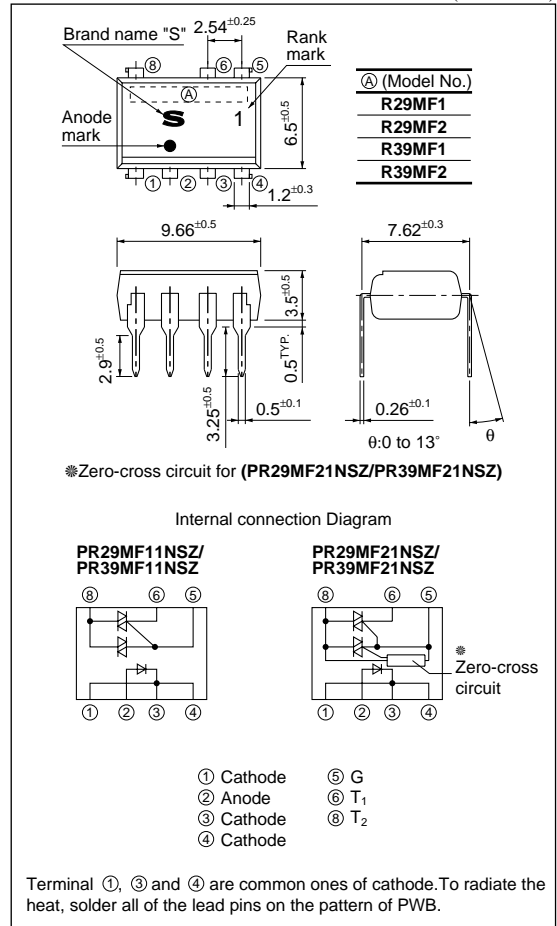
\*1 The derating factors of absolute maximum ratings due to ambient temperature are shown in Fig.1, 2, 3, 4

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

## 8-Pin DIP Type SSR for Low Power Control

## ■ Outline Dimensions

(Unit : mm)



## ■ Model Line-up

	For 100V line	For 200V line
No built-in zero-cross circuit	<b>PR29MF11NSZ</b>	<b>PR39MF11NSZ</b> *(PR39MF11YSZ)
Built-in zero-cross circuit	<b>PR29MF21NSZ</b>	<b>PR39MF21NSZ</b> *(PR39MF21YSZ)

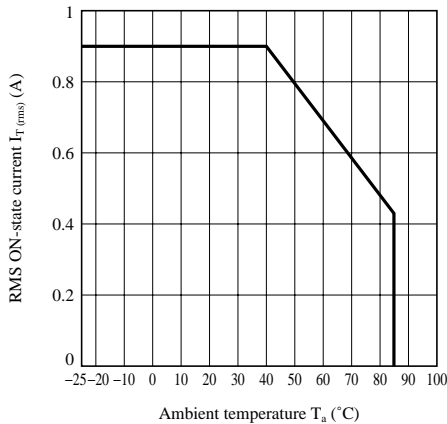
\* VDE (VDE0884) approved type

**■ Electrical Characteristics**

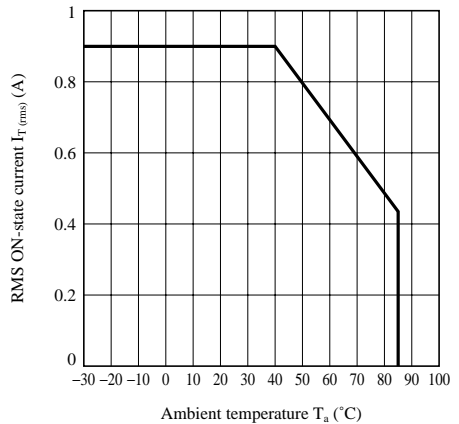
( $T_a=25^{\circ}\text{C}$ )

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	$\mu\text{A}$	
Output	Repetitive peak OFF-state current	$I_{\text{DRM}}$	$V_D=V_{\text{DRM}}$	—	—	100	$\mu\text{A}$	
	ON-state voltage	$V_T$	$I_T=0.9\text{A}$	—	—	3.0	V	
	Holding current	$I_H$	$V_D=6\text{V}$	—	—	25	mA	
	Critical rate of rise of OFF-state voltage	dV/dt	$V_D=1/\sqrt{2} \cdot V_{\text{DRM}}$	100	—	—	V/ $\mu\text{s}$	
	Zero-cross voltage	<b>PR29MF21NSZ</b>	$V_{\text{OX}}$	$I_F=15\text{mA}$ , R load	—	—	35	V
		<b>PR39MF21NSZ</b>						
Transfer characteristics	Minimum trigger current	$I_{\text{FT}}$	$V_D=6\text{V}$ , $R_L=100\Omega$	—	—	10	mA	
	Isolation resistance	$R_{\text{ISO}}$	DC=500V, 40 to 60%RH	$5 \times 10^{10}$	$10^{11}$	—	$\Omega$	
	Turn-on time	<b>PR29MF11NSZ/PR39MF11NSZ</b>	$t_{\text{on}}$	$V_D=6\text{V}$ , $R_L=100\Omega$ , $I_F=20\text{mA}$	—	—	100	$\mu\text{s}$
<b>PR29MF21NSZ/PR39MF21NSZ</b>		50						

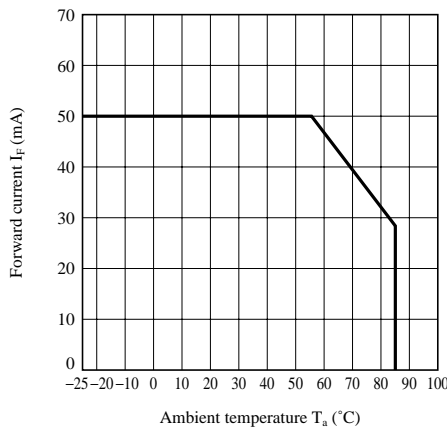
**Fig.1 RMS ON-state Current vs. Ambient Temperature (PR29MF11NSZ/PR39MF11NSZ)**



**Fig.2 RMS ON-state Current vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)**



**Fig.3 Forward Current vs. Ambient Temperature (PR29MF11NSZ/PR39MF11NSZ)**



**Fig.4 Forward Current vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)**

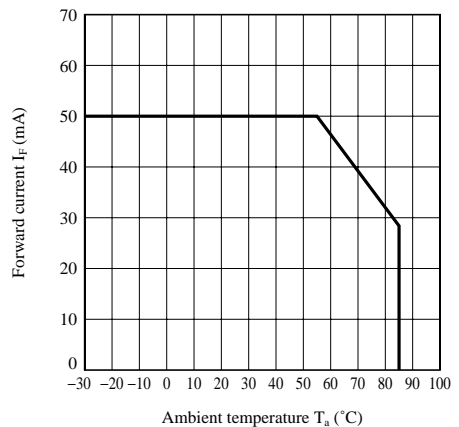


Fig.5 Forward Current vs. Forward Voltage

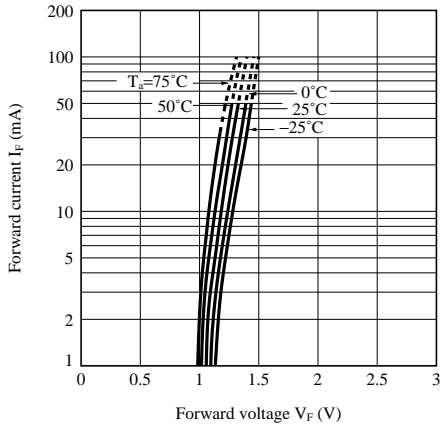


Fig.6 Minimum Trigger Current vs. Ambient Temperature

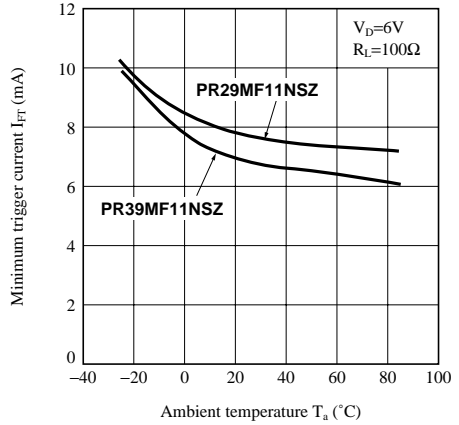


Fig.7 Minimum Trigger Current vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)

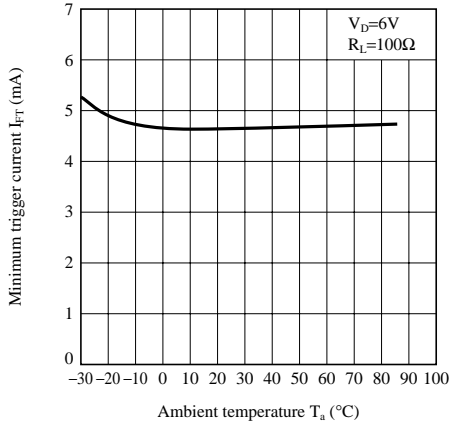


Fig.8 ON-state Voltage vs. Ambient Temperature (PR29MF11NSZ/PR39MF11NSZ)

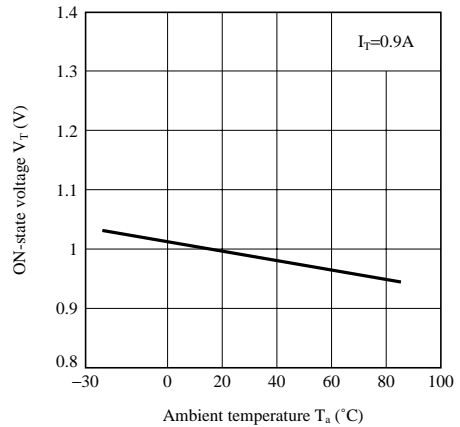


Fig.9 ON-state Voltage vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)

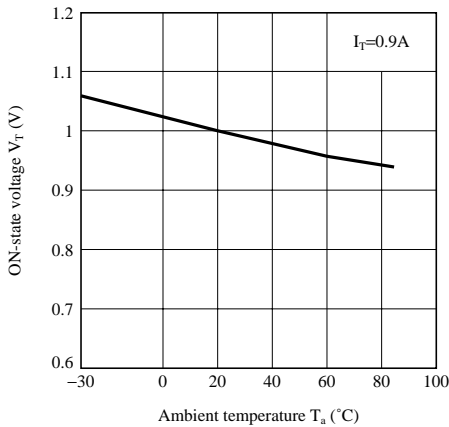
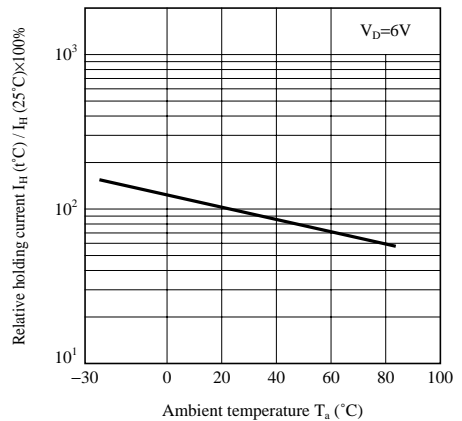
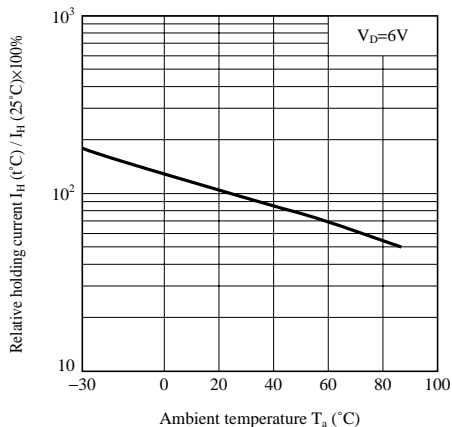


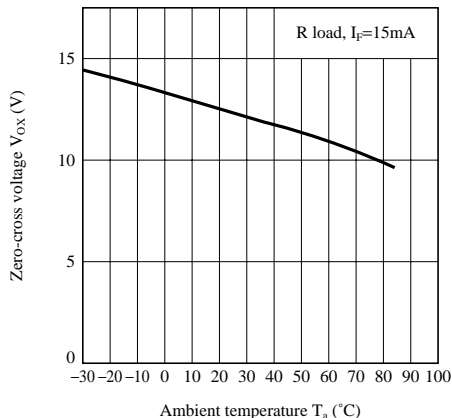
Fig.10 Relative Holding Current vs. Ambient Temperature (PR29MF11NSZ/PR39MF11NSZ)



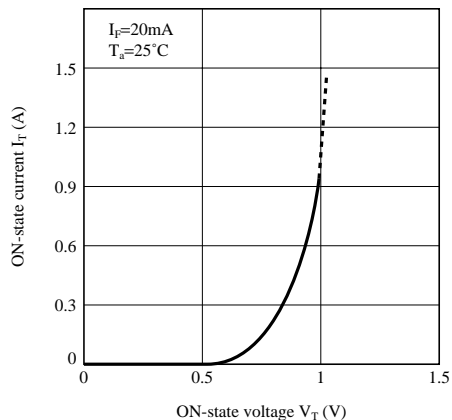
**Fig.11 Relative Holding Current vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)**



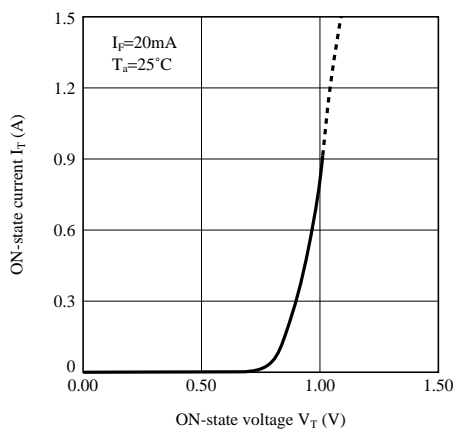
**Fig.12 Zero-cross Voltage vs. Ambient Temperature (PR29MF21NSZ/PR39MF21NSZ)**



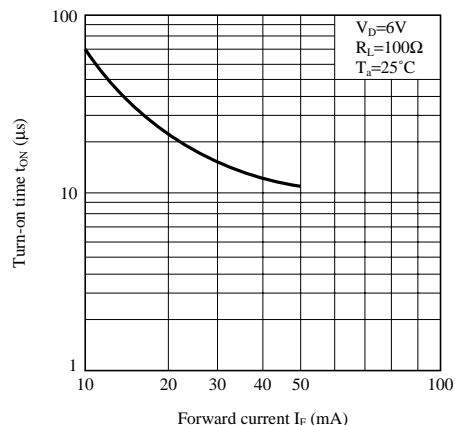
**Fig.13 ON-state Current vs. ON-state Voltage (PR29MF11NSZ/PR39MF11NSZ)**



**Fig.14 ON-state Current vs. ON-state Voltage (PR29MF21NSZ/PR39MF21NSZ)**



**Fig.15 Turn-on Time vs. Forward Current (PR29MF11NSZ)**



**Fig.16 Turn-on Time vs. Forward Current (PR39MF11NSZ)**

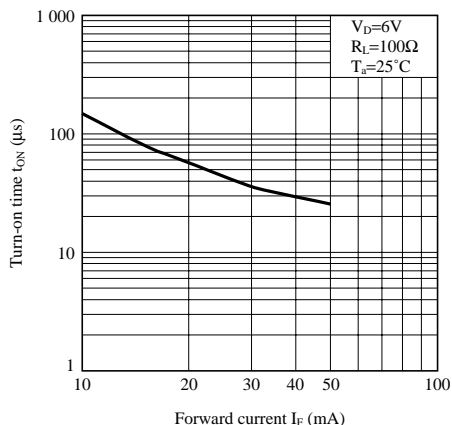
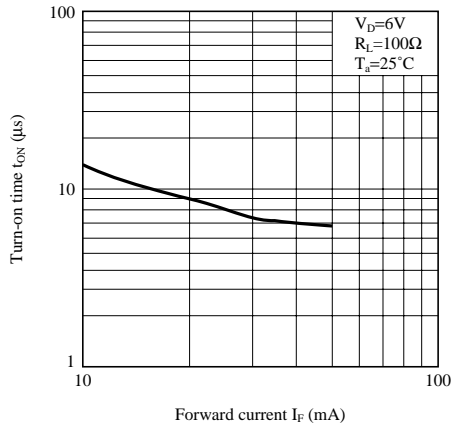


Fig.17 Turn-on Time vs. Forward Current  
(PR29MF21NSZ/PR39MF21NSZ)



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