

PR308T11ESZ/ PR308T21ESZ

■ Features

- Approved by European Safety Standards.
Thickness of the internal insulation:0.4mm or more
Creepage distance:6.4mm or more
Clearance:6.4mm or more
- Isolation voltage ($V_{iso(rms)}$):3kV
- RMS ON-state current $I_T(rms)$:8A ($T_c \leq 80^\circ\text{C}$)
- Low profile package (23×16×4t mm)
- Built-in zero-cross circuit (**PR308T21ESZ**)

■ Applications

- Copiers
- Facsimiles
- Laser Printers

■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output	*1 RMS ON-state current	$I_T(rms)$	8	A
	*2 Peak one cycle surge current	I_{surge}	80	A
	Repetitive peak OFF-state voltage	V_{DRM}	600	V
	Non repetitive peak OFF-state voltage	V_{DSM}	600	V
	Critical rate of rise of ON-state current	dI_T/dt	50	A/ μs
	Operating frequency	f	45 to 65	Hz
	Load supply voltage	$V_{OUT(rms)}$	260	V
	Operating temperature	T_{opr}	-25 to +100	°C
Storage temperature	T_{stg}	-30 to +125	°C	
*3 Isolation voltage	$V_{iso(rms)}$	3.0	kV	
Soldering temperature	T_{sol}	260 (For 10s)	°C	

*1 Sine wave, practical value, Refer to Fig.1, 2

*2 50Hz sine wave, start at $T_j=25^\circ\text{C}$

*3 AC60Hz, for 1 min, 40 to 60%RH

Isolation voltage measuring method

1) Dielectric withstand voltage tester with zero cross circuit shall be used.

2) The applied voltage waveform shall be sine wave.

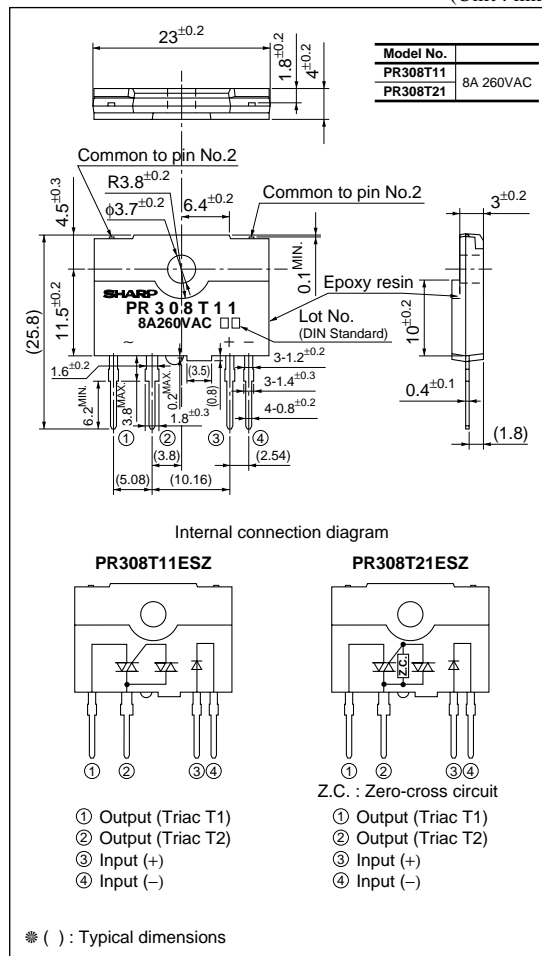
3) Voltage shall be applied between input and output.

(Input and output terminals shall all be shorted respectively.)

Solid State Relay Approved by European Safety Standard

■ Outline Dimensions

(Unit : mm)



■ Electrical Characteristics

(Ta=25°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^{-4}	A	
Output	Repetitive peak OFF-state current	I_{DRM}	$V_D=V_{DRM}$	–	–	10^{-4}	A	
	ON-state voltage	$V_{T(rms)}$	$I_{T(rms)}=2\text{A}$, Resistance load, $I_F=20\text{mA}$	–	–	1.5	V	
	Holding current	I_H	–	–	–	50	mA	
	Critical rate of rise of OFF-state voltage	dV/dt	$V_D=2/3V_{DRM}$	30	–	–	V/ μs	
	Commutation critical rate of rise of OFF-state voltage	$(dV/dt)_C$	$T_j=125^\circ\text{C}$, $V_D=2/3V_{DRM}$ $dI_T/dt=-4.0\text{A/mS}$	5	–	–	V/ μs	
Transfer characteristics	Minimum trigger current	PR308T11ESZ	I_{FT}	$V_D=12\text{V}$, $R_L=30\Omega$	–	–	10	mA
		PR308T21ESZ		$V_D=6\text{V}$, $R_L=30\Omega$				
	Isolation resistance	R_{iso}	DC=500V, 40 to 60%RH	10^{10}	–	–	Ω	
	Zero-cross voltage	PR308T21ESZ	V_{OX}	$I_F=10\text{mA}$	–	–	35	V
	Turn-on time	PR308T11ESZ	t_{on}	$V_D(rms)=200\text{V}$, AC50Hz $I_{T(rms)}=2\text{A}$, Resistance load, $I_F=20\text{mA}$	–	–	1	ms
PR308T21ESZ		10						
Turn-off time		t_{off}						
Thermal resistance (Between junction and case)		$R_{th(j-c)}$	–	–	4.5	–	$^\circ\text{C/W}$	
Thermal resistance (Between junction and ambience)		$R_{th(j-a)}$	–	–	40	–	$^\circ\text{C/W}$	

■ Recommend Operating Conditions

Parameter		Symbol	Conditions	Unit
Input	Signal current at ON	$I_{F(on)}$	20 to 30	mA
	Signal current at OFF	$I_{F(off)}$	0 to 0.1	mA
Output	Load supply voltage	$V_{OUT(rms)}$	80 to 240	V
	Load supply current	$I_{OUT(rms)}$	0.5 to 2.0 ^{*1}	A
			0.5 to 8.0 ^{*2}	
Operating frequency	f	47 to 63	Hz	

*1 Without external heat sink (Ta≤40°C)

*2 With external heat sink (Tc≤80°C)

Fig.1 Forward Current vs. Ambient Temperature

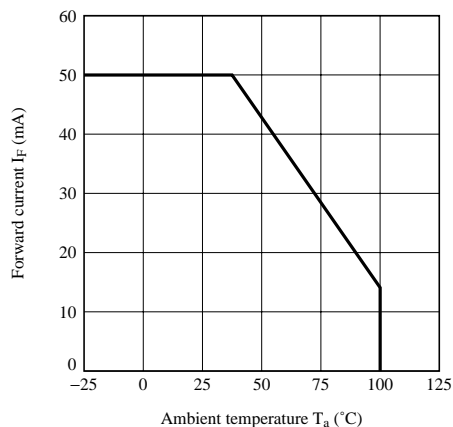
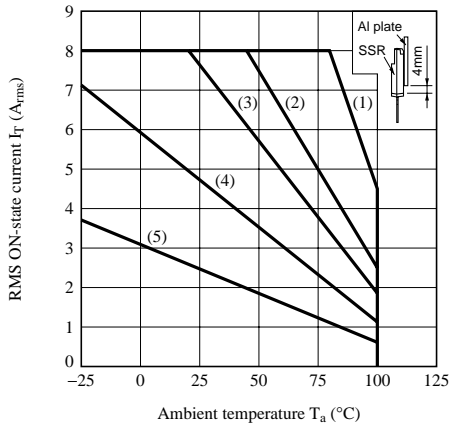


Fig.2 RMS ON-state Current vs. Ambient Temperature



- (1) With infinite heat sink
- (2) With heat sink (200×200×2mm Al plate)
- (3) With heat sink (100×100×2mm Al plate)
- (4) With heat sink (50×50×2mm Al plate)
- (5) Without heat sink

(Note) With the Al heat sink set up vertically, tighten the device with a torque of 0.4N•m and apply thermal conductive silicone grease on the mounting face of heat sink. Forced cooling shall not be carried out. (Please use an isolation sheet if necessary.)

Fig.3 RMS ON-state Current vs. Case Temperature

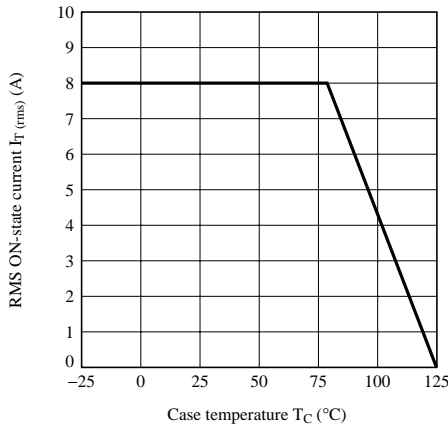


Fig.4 Forward Current vs. Forward Voltage (Typical Value)

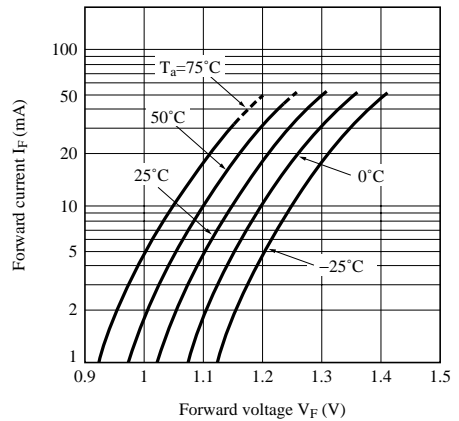


Fig.5 Surge Current vs. Power-on Cycle

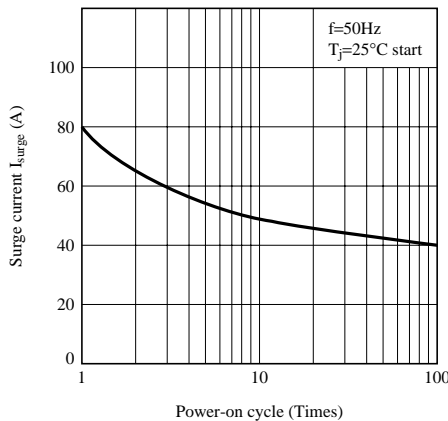


Fig.6 Minimum Trigger Current vs. Ambient Temperature (Typical Value)
(PR308T11ESZ)

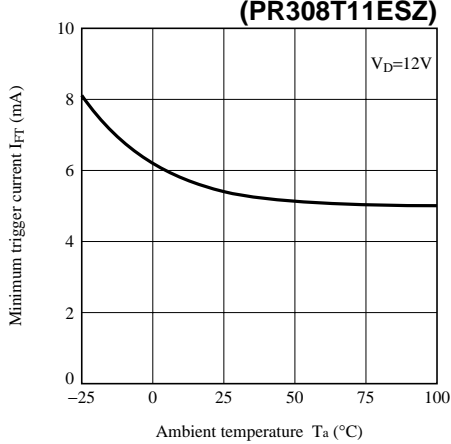


Fig.7 Minimum Trigger Current vs. Ambient Temperature (Typical Value)
(PR308T21ESZ)

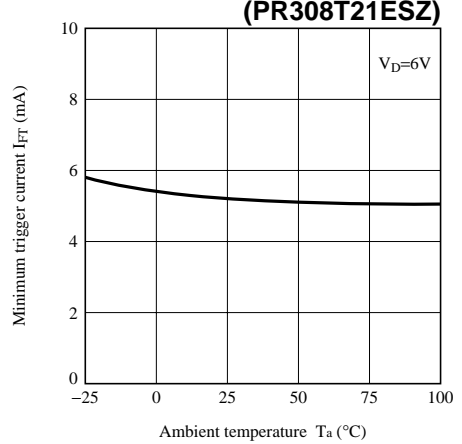


Fig.8 Maximum ON-state Power Dissipation vs. RMS ON-state Current (Typical Value)

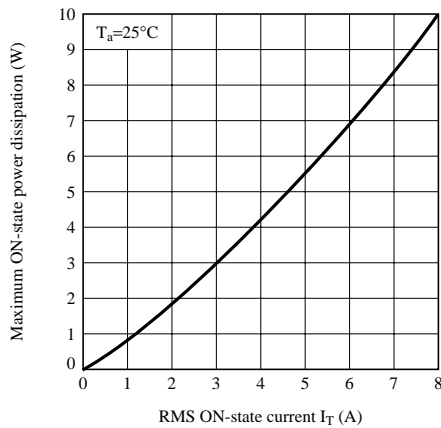
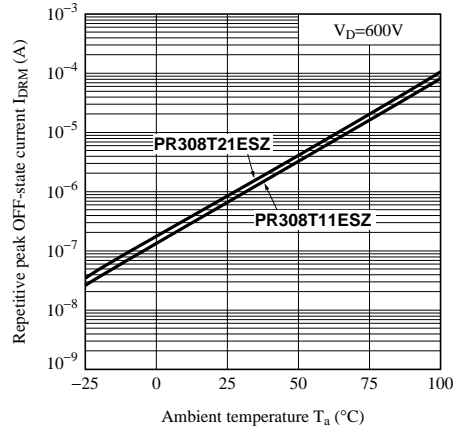


Fig.9 Repetitive Peak OFF-state Current vs. Ambient Temperature (Typical Value)



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