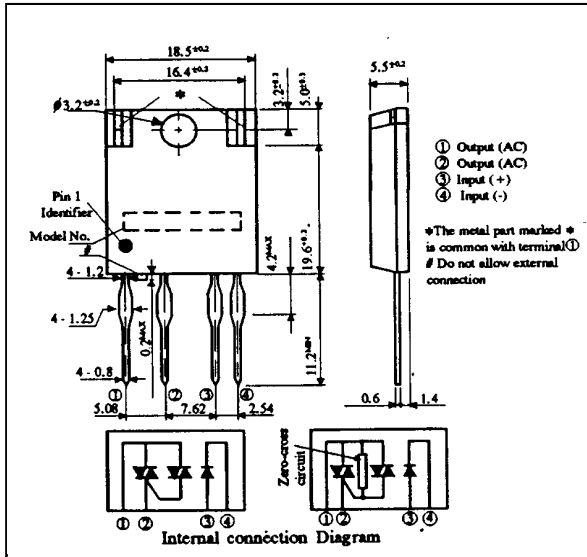


# SOLID STATE RELAYS - 4 PIN PACKAGE



**ISRT44080 / ISRT46080 / ISRT44160 / ISRT46160**  
**ISRX44080 / ISRX46080 / ISRX44160 / ISRX46160**

## PACKAGE DRAWING (dimensions in mm)



## Features

Compact Package - 4 Pin SIP  
 High Off-State Voltage 400 / 600 V  
 Zero-cross Option - ISRX Series  
 High Isolation - 4000Vrms  
 High Current - 8A / 16A

## Available Types

Function	I <sub>MAX</sub>	120Vac	240Vac
Non-Zero-Cross	8A	ISRT44080	ISRT46080
	16A	ISRT44160	ISRT46160
Zero-Cross	8A	ISRX44080	ISRX46080
	16A	ISRX44160	ISRX46160

## Absolute Maximum Ratings ( 25°C unless otherwise stated)

PARAMETER			RATING				UNIT
			ISRT44080 ISRX44080	ISRT46080 ISRX46080	ISRT44160 ISRX44160	ISRT46160 ISRX46160	
INPUT	Forward Current	I <sub>F</sub>	50	50	50	50	mA
	Reverse Current	V <sub>R</sub>	6	6	6	6	V
OUTPUT	RMS on-state current	I <sub>T</sub>	8 *1	8 *1	16 *2	16 *2	A <sub>RMS</sub>
	Peak one cycle surge current	I <sub>S</sub>	80 *3	80 *3	160 *3	160 *3	A
	Repetitive peak off-state Voltage	V <sub>DRM</sub>	400	600	400	600	V
	Non-repetitive peak off-state V	V <sub>DSM</sub>	400	600	400	600	V
	Critical rate of rise of on-state I	dI/dt	50	50	50	50	A/uS
	Operating Frequency	f	45-65	45-65	45-65	45-65	Hz
Isolation Voltage *4		V <sub>ISO</sub>	4000	4000	4000	4000	Vrms
Operating Temperature		T <sub>OPR</sub>	-25 ~ +100	-25 ~ +100	-25 ~ +100	-25 ~ +100	°C
Storage Temperature		T <sub>STG</sub>	-30 ~ +125	-30 ~ +125	-30 ~ +125	-30 ~ +125	°C
Soldering Temperature (10 secs)		T <sub>SOL</sub>	260	260	260	260	°C

\*1 T<sub>c</sub>=80°C, \*2 T<sub>c</sub>=60°C \*3 50/60Hz AC sine wave, T<sub>j</sub>=25°C start

\*4 50/60 Hz AC 1 minute between input and output, zero-cross switching dielectric tester, input shorted, output shorted.

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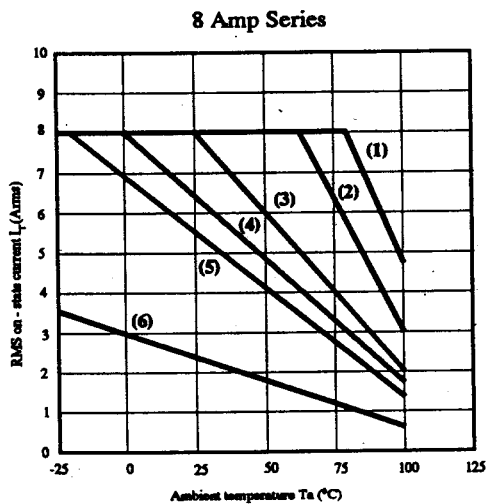
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**ELECTRICAL CHARACTERISTICS (25°C unless otherwise stated)**

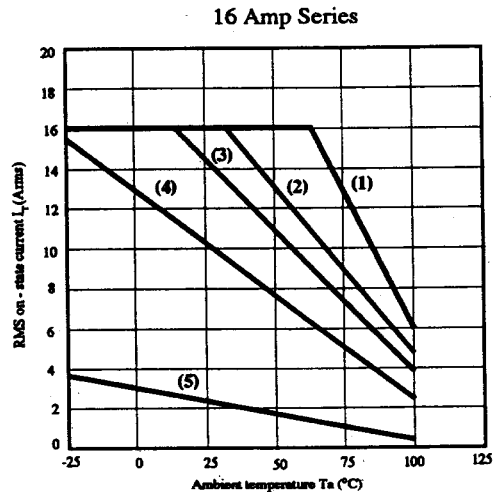
PARAMETER		CONDITION	MIN	TYP	MAX	UNIT
Input	Forward Voltage	$V_F$ $I_F = 20\text{mA}$		1.2	1.4	V
	Reverse Current	$I_R$ $V_R = 3\text{V}$			$10^{-4}$	A
Output	Repetitive off-state Current	$I_{DRM}$ $V_D = V_{DRM}$ (Rated)			$10^{-4}$	A
	On-state Voltage (8 Amp series) (16Amp series)	$V_T$ $I_F = 20\text{mA}, I_T = 2\text{A rms}$ $I_F = 20\text{mA}, I_T = 16\text{A rms}$			1.5	Vrms
					1.5	Vrms
	Holding Current	$I_H$			50	mA
	Critical rate of rise of off-state voltage	$dv/dt$	$V_D = 2/3 \times V_{DRM}$	30		V/us
	Critical rate of rise of commutating off-state voltage	$dv/dt$ (c)	$T_j = 125^\circ\text{C}$ $V_D = 400\text{V}$	5		V/us
Zero-cross Voltage (ISRX series)	$V_{OX}$	$I_F = 8\text{mA}$			35	V
Transfer characteristics	Minimum Trigger Current (ISRT)series (ISRX)series	$I_{FT}$ $V_D = 12\text{V}, R_L = 30\Omega$ $V_D = 6\text{V}, R_L = 30\Omega$			8	mA
					8	mA
	Isolation Resistance	$R_{ISO}$	500VDC, RH = 40-60%	$10^{10}$		Ohms
	Turn-on Time ISRT series ISRX series	$T_{ON}$	50Hz AC			1
50Hz AC					10	ms
Turn-off Time	$T_{OFF}$				10	ms
Thermal Resistance (junction to case)	8 Amp series	$R_{TH}$			4.5	$^\circ\text{C/W}$
	16 Amp series				3.3	$^\circ\text{C/W}$
Thermal Resistance (junction to ambient)		$R_{TH}$			40	$^\circ\text{C/W}$

**Fig. 1 RMS On-state Current vs. Ambient Temperature**

**Fig. 2 RMS On-state Current vs. Ambient Temperature**



- (1) With infinite heat sink
- (2) With heat sink (200 X 200 X 2mm Al plate)
- (3) With heat sink (100 X 100 X 2mm Al plate)
- (4) With heat sink (75 X 75 X 2mm Al plate)
- (5) With heat sink (50 X 50 X 2mm Al plate)
- (6) Without heat sink



- (1) With infinite heat sink
- (2) With heat sink (280 X 280 X 2mm Al plate)
- (3) With heat sink (200 X 200 X 2mm Al plate)
- (4) With heat sink (100 X 100 X 2mm Al plate)
- (5) Without heat sink