

JORX213 Series

Rev.A.1.2

## DESCRIPTION:

The JORX213 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon zero-cross photo triac to drive a power triac in a plastic DIP7 package with different lead forming options. The products are widely used in solenoid/valve controls, lighting controls, motor controls, temperature controls, static AC power switches, solid state relays, interfacing microprocessors to 265 V<sub>AC</sub> peripherals.

## MAIN FEATURES

High isolation 5000 Vrms

DC input with triac output

Operating temperature range - 40°C to 85 °C

REACH & RoHS compliance

MSL class 2

HBM: H3A; MM: M4

CQC approved

VDE approved

UL approved

## ABSOLUTE MAXIMUM RATINGS (Temperature=25°C)

Parameter		Symbol	Value	Unit
Input	Forward Current	I <sub>F</sub>	60	mA
	Peak Forward Current	I <sub>FP</sub>	1 <sup>7</sup>	A
	Reverse Voltage	V <sub>R</sub>	6	V
Output	Repetitive peak off-state voltage	V <sub>DRM</sub>	600	V
	Repetitive peak off-state voltage	V <sub>RSM</sub>	600	V
	Critical rate of rise of on-state current	di/dt	100	A s

Output

JOR0213

On-state RMS Current

I<sub>T(RMS)</sub>

	peak on-state current (full cycle , $t_p=20ms$ )	JOR1213	6	
		JOR2213	9	
		JOR3213	12	
Isolation Voltage		$V_{iso}$	$5000^8$	Vrms
Operating Temperature		$T_{opr}$	-40~85	
Storage Temperature		$T_{stg}$	-40~125	
Soldering Temperature		$T_{sol}$	$260^9$	

NOTE1 100 $\mu s$  pulse, 100Hz frequency

NOTE2 AC for 1minute, R.H.=40~60%

NOTE3 For 10seconds

**ELECTRICAL CHARACTERISTICS** (Sample Temperature=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	$V_F$	$I_F=20mA$	-	1.25	1.4	V
	Reverse Current	$I_R$	$V_R=6V$	-	-	1	A
Output	Peak Off-state Current, Either Direction	$I_{DRM}$	$V_{DRM}/V_{RRM}=600V, I_F=0$	-	-	10	\$
		$I_{RRM}$		-	-	10	
	Peak On-state Voltage, Either Direction	$V_{TM}$	$I_{TM}=I_{TM}$ Rated	-	-	2	V
	Critical Rate of Rise of Off-state voltage	$dV/dt$	$V_D=400V,$ Gate Open $I_F=0,$ $T_j=85$	1000	-	-	9 V
	Critical Rate of Rise of Commutating Voltage	$(dV/dt)_c$	$(dI/dt)_c=1.5A/ms,$ $T_j=85$	10	-	-	9 V
Transfer Characteristics	LED Trigger Current	$I_{FT}$	Terminal Voltage=6V $R_L=100$	-	-	10	mA
	Holding Current	$I_H$	$V_D=6V$	-	-	25	mA
	Isolation Resistance	$R_{ISO}$	DC500V 40~60%R.H.	$10^{12}$	$10^{14}$	-	
	Response Time	$t_{on}$	$V_D=6V,$ $R_L$ $I_F=20mA$	-	20	100	V
Zero Crossing	Inhibit Voltage	$V_{IH}$	$I_F=10mA$	-	-	20	V
	Leakage in Inhibit State	$I_{DRM2}$	$I_F=10mA,$ $V_{DRM}=600V$	-	-	500	\$

ORDERING AND MARKING INFORMATION

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MARKING INFORMATION

### Characteristics Curves

FIG.1: Forward Current vs. Ambient Temperature



FIG.2: On-state Terminal Current vs. Ambient Temperature



TEST CIRCUITS

FIG.11: Test Circuits of Turn On Time

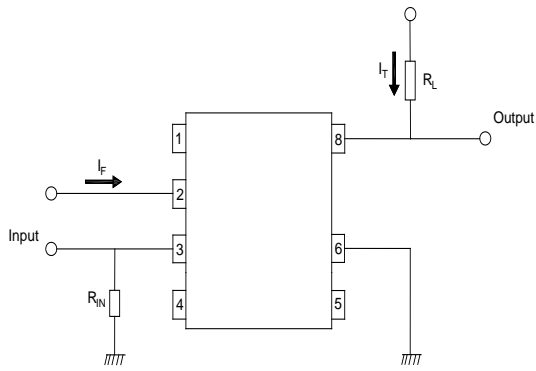
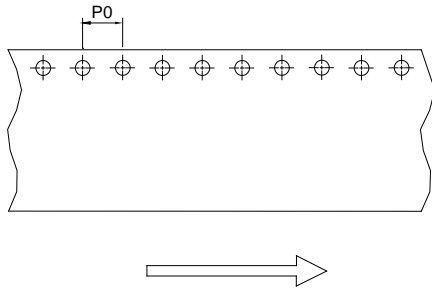


FIG.12: Waveforms of Turn On Time



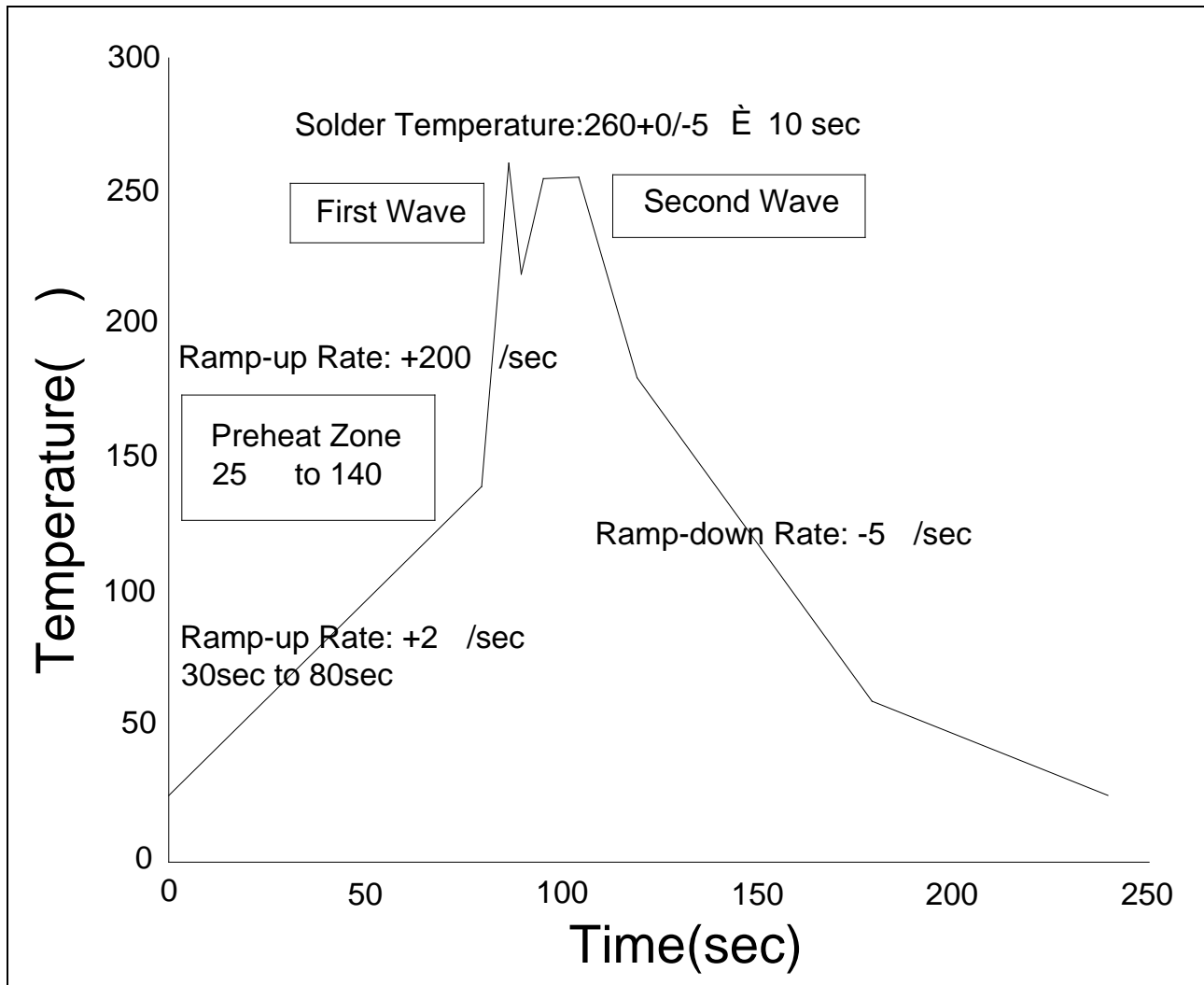


CARRIER TAPE SPECIFICATIONS (Dimensions in mm unless otherwise stated)





WAVESOLDERING



<b>HAND SOLDERING BY SOLDERING IRON</b>	
Soldering Temperature	360± 5
Soldering Time	3s max.

## Document Revision History

Date	Revision	Changes
Feb.21, 2025	A.1.0	Last update
Nov.7, 2025	A.1.1	Add (dV/dt)c
Feb.27, 2026	A.1.2	Revise Package Dimension

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