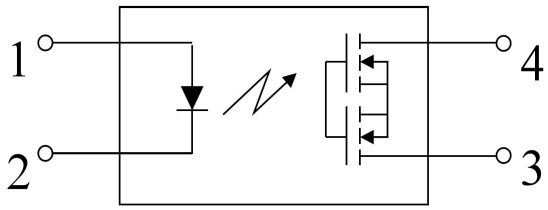
JOR212 Series

60V MOSFET Output Photorelay

Description

The JOR212 PhotoRelay consist of a MOSFET、Photoelectric generator optically coupled to an infrared LED 。

Block Diagram and Package



Features

- Normally opened (SPST)
- Control 60V AC or DC voltage
- Switch 500mA load
- Controls low-level analog sings
- High sensitivity, low conductivity resistance
- Low-level off state leakage current
- High isolation voltage 3750V
- Pb free and RoHS compliant

PIN DEFINITION

1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

PACKAGE OUTLINE

Application

- Communications products (personal computers, laptops)
- Modem/sensor
- Mobile phones/security equipment
- Measuring and testing equipment
- Plant automation equipment
- High-speed inspection machines

ORDERING AND MARKING INFORMATION

MARKING INFORMATION

JOR : Company Abbr.
212 : Part Number
YAWW : LOT NO.

ORDERING INFORMATION

JOR212(Y)(Z)-G

JOR – Company Abbr
212 – Part Number
Y – Lead Form Option (M/S/SL/None)
Z – Tape and Reel Option (T1/T2)
G – Green

LABEL INFORMATION

Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Rating	Unit	Note
Input	LED Forward Current	I_F	50	mA	
	LED Reverse Voltage	V_R	5	V	
	Peak Forward Current	I_{FP}	1	A	f =100 Hz, Duty factor= 0.1%
	Power Dissipation	P	75	mW	
Output	Load Voltage (peak AC)	V_L	60	V	
	Continuous load current (peak AC)	I_L	0.5	A	
	Peak load current	I_{peak}	1.5	A	100 ms (1 shot), V_L= DC
	Power Dissipation	P_{out}	300	mW	
I/O isolation voltage		V_{iso}	3750	Vrms	
Temperature limits	Operating Temperature	T_{opr}	–40°C ~ + 85°C	°C	Non-condensing at low temp
	Storage Temperature	T_{stg}	–40°C ~ + 100°C		

Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	LED turn on current	I_{Fon}	I_L=0.5A	0.5	0.75	3	mA
	LED turn off current	I_{Foff}	I_L=0.5A	0	0.55	3	mA
	LED dropout voltage	V_F	I_F=5mA	1	1.3	1.4	V
Output	On resistance	R_{on}	I_F=5mA，I_L=0.5A，Within 1s on time	-	0.9	1.5	Ω
	Off state leakage current	I_{Leak}	I_F=0mA，V_L=60V	-	-	1000	nA
Transfer Characteristics	Turn on time	T_{on}	I_F=5mA，I_L=0.5A	0.2	0.36	2	ms
	Turn off time	T_{off}	I_F=5mA，I_L=0.5A	0.05	0.14	1	ms
	I/O capacitance	C_{iso}	f=1MHz，V_B=0	-	0.8	1.5	pF
	Initial I/O isolation resistance	R_{iso}	500V DC	1,000	-	-	MΩ

Note: Recommendable LED forward current value: I_F=5 to 10mA

Typical Performance Curves

Fig.1 Load current vs. Ambient temperature characteristics

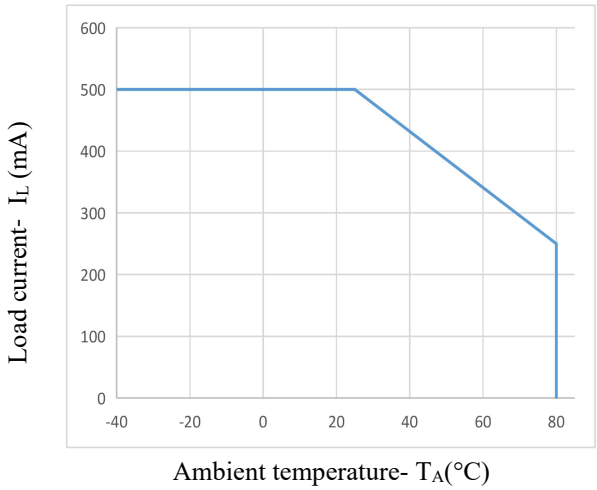


Fig.2 On resistance vs. Ambient temperature characteristics

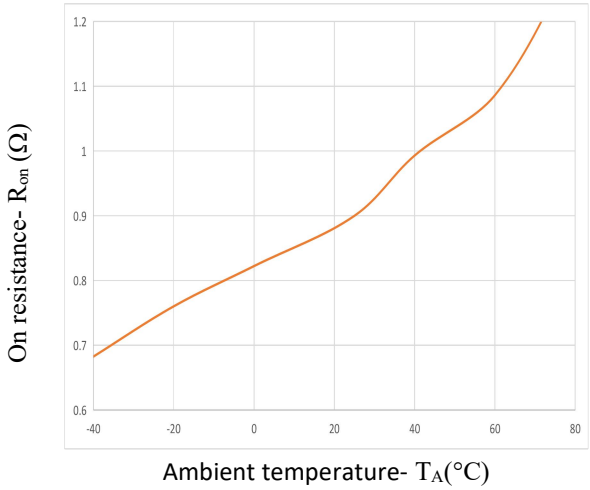


Fig.3 Turn on time vs. Ambient temperature characteristics

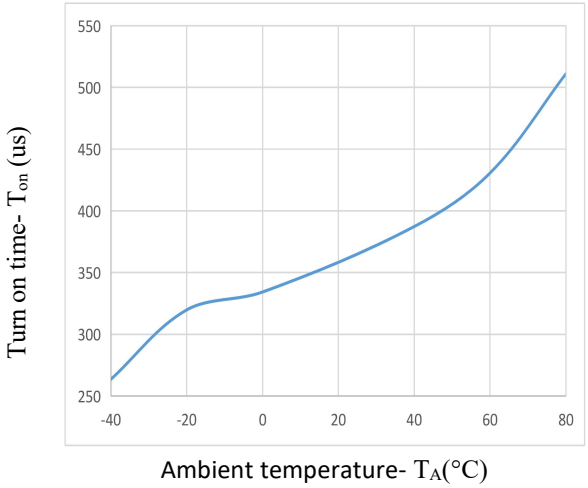


Fig.4 Turn off time vs. Ambient temperature characteristics

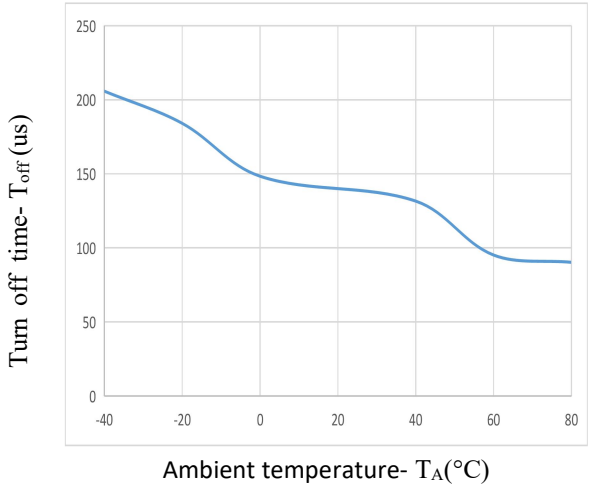


Fig.5 LED turn on current vs. Ambient temperature characteristics

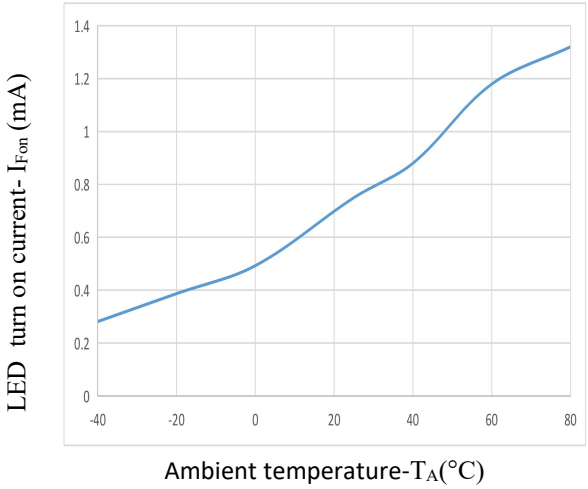


Fig.6 LED turn off current vs. Ambient temperature characteristics

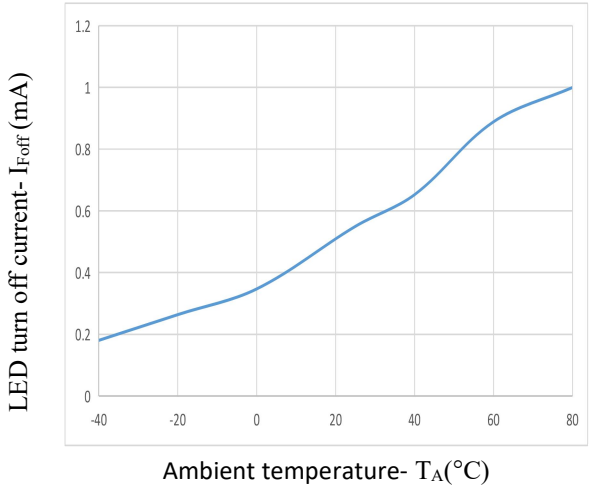


Fig.7 LED dropout voltage vs. Ambient temperature characteristics

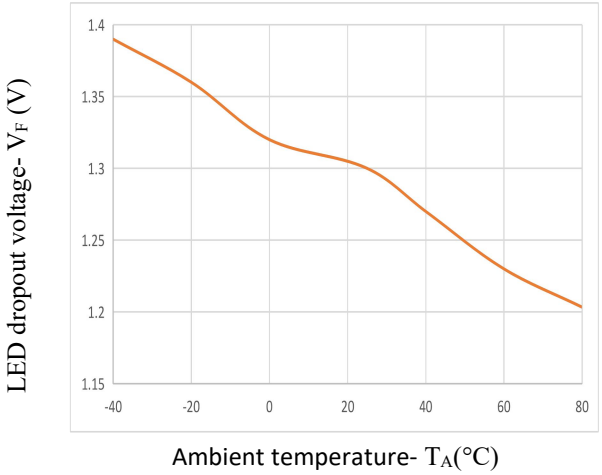


Fig.8 Output current vs Output voltage

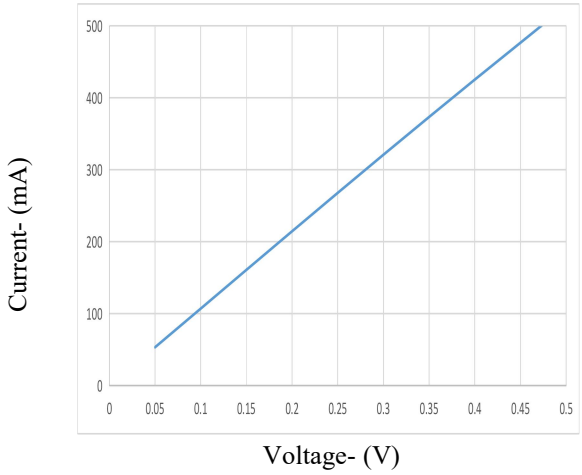


Fig.9 Off state leakage current vs Load voltage characteristics

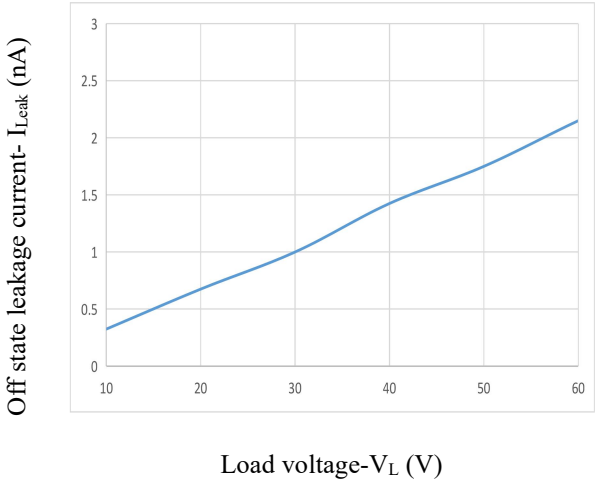


Fig.10 LED turn on time vs Forward current characteristics

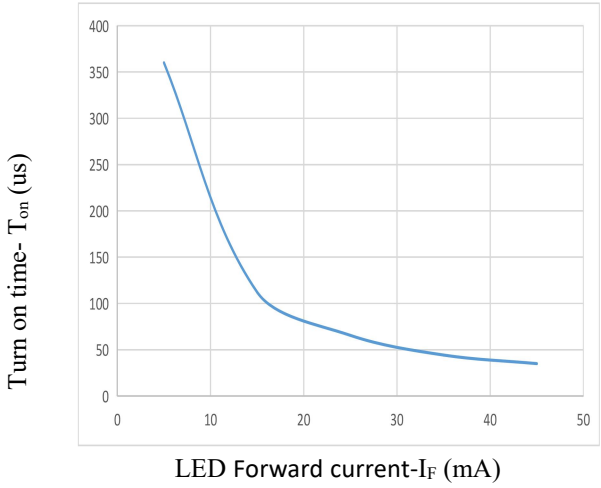
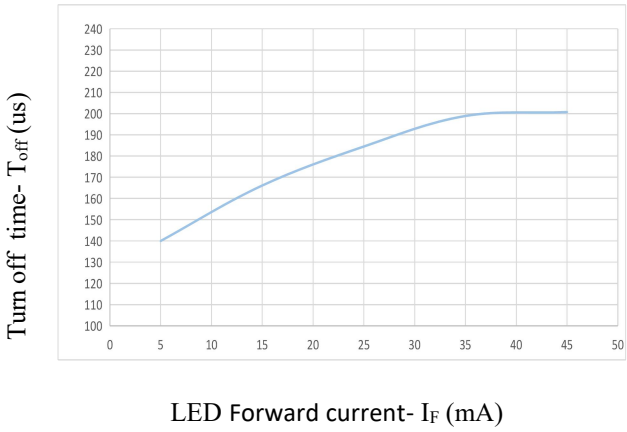
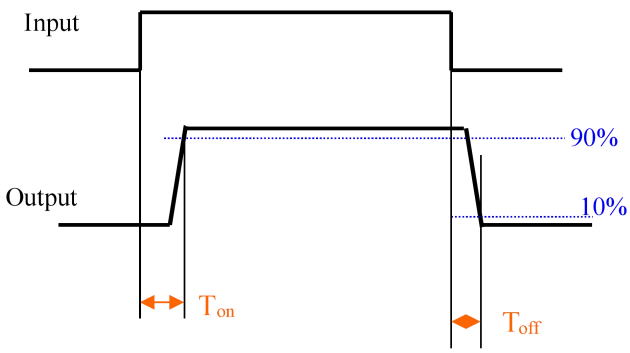


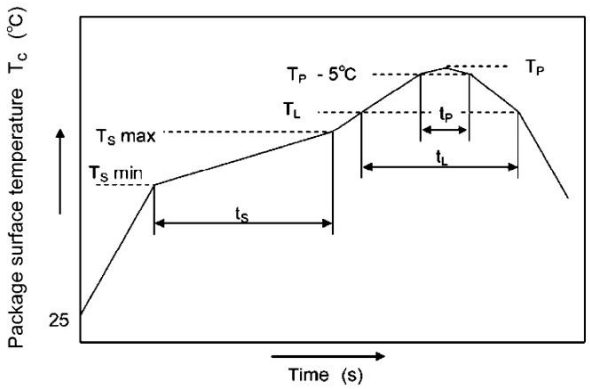
Fig.11 LED turn off time vs Forward current characteristics



★ Turn on/off time



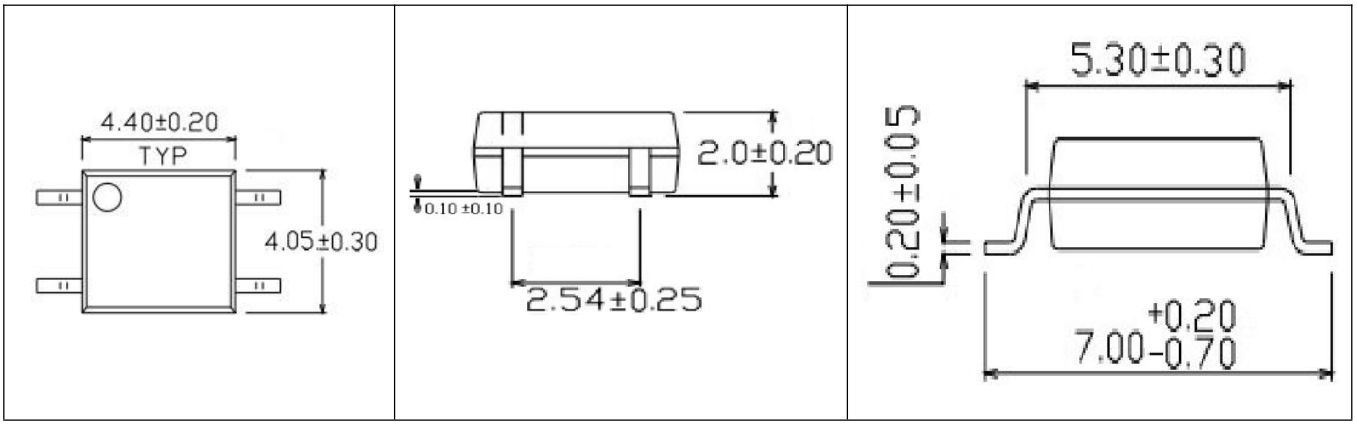
Solder Reflow Profile



	Symbol	Min	Max	Unit
Preheat temperature	T_S	150	200	°C
Preheat time	t_S	60	120	s
Ramp-up rate (T_L to T_P)			3	°C/s
Liquidus temperature	T_L	217		°C
Time above T_L	t_L	60	150	s
Peak temperature	T_P		260	°C
Time during which T_c is between (T_P – 5) and T_P	t_P		30	s
Ramp-down rate (T_P to T_L)			6	°C/s

Outline Dimensions

Unit: mm



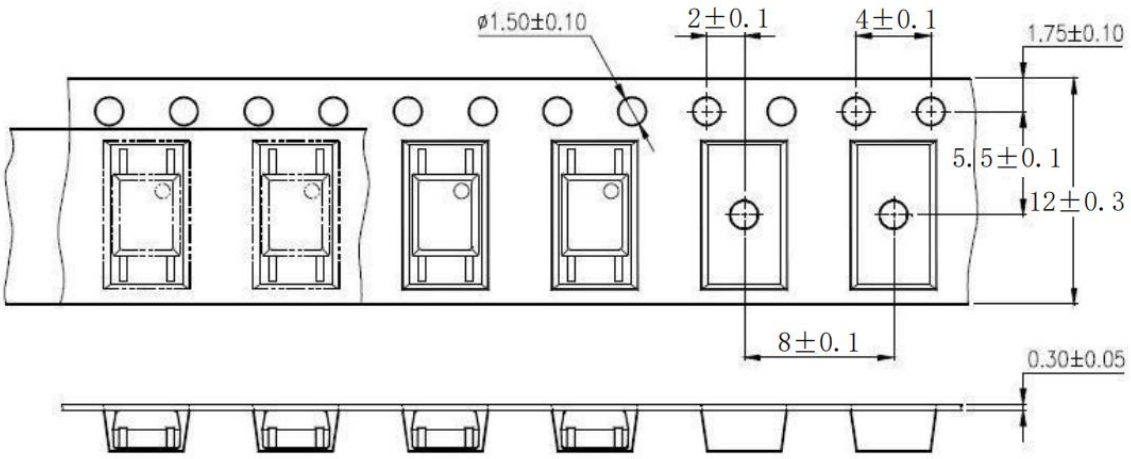
4-pin SOP

Packing

Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SOP-4	Reel (ϕ330mm Blue)	3k pcs/reel	2 reels /box	10 boxes /ctn	380*380mm	340*60*340mm	620*360*365mm	Guard band 200mm min.

■ SOP-4（Reel）

1) Qty/ctn：60000 pcs
2) Qty/reel：3000 pcs
3) Inner packing：2 reels /box
4) Schematic: (unit: mm)


ø1.50±0.10
2±0.1
4±0.1
1.75±0.10
5.5±0.1
12±0.3
8±0.1
0.30±0.05