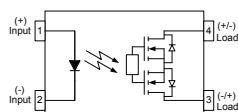
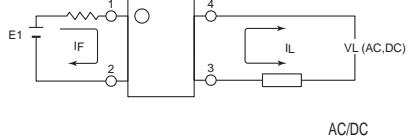
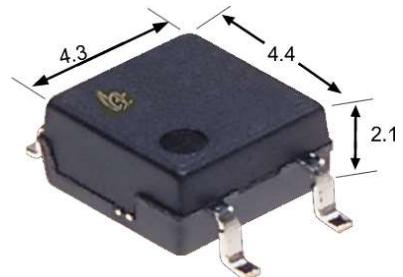




| Parameter     | Symbol   | Rating | Units    |
|---------------|----------|--------|----------|
| Load Voltage  | $V_L$    | 400    | V        |
| Load Current  | $I_L$    | 0.1    | A        |
| On-Resistance | $R_{on}$ | 20     | $\Omega$ |
| On-Resistance | $V_{io}$ | 1500   | Vrms     |



(Unit: mm)



## APSEMI PhotoRelays

APSEMI Photorelays are the most reliable, technically advanced logic-to-power interface devices. Their basic function is to take a low current signal from a microprocessor to control the switching of both AC and DC loads, while providing an isolation barrier between logic and power.

While this function is common to all relays, Photorelays provide distinct advantages over their mechanical counterparts including:

- Long life (No limit on mechanical and electrical lifetime)
- Bounce-free switching
- Higher speed and high frequency switching
- Higher sensitivity (less power consumption)
- Immunity to EMI or RFI
- No have voltaic arc, bounce, and noise
- More resistant to vibration and impact AC or DC load
- switching
- Small package size

## Function

APSEMI Photorelays operate by taking a low level input current (<5mA) that energizes an input Infrared LED, which is optically-coupled to a Photo-diode array chip. This IC in turn generates a photo voltage that powers two MOSFETs typically connected in a source-to-source configuration, allowing for both AC and DC output loads. Photorelay basically move photons to accomplish their switching function, they incur no mechanical wear and tear, providing consistent reliable switching.

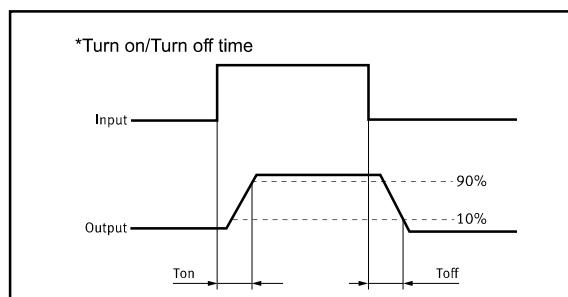
## Applications

These advantages make APSEI Photorelays the ideal choice for:

- Telecom/Datacom switching
- Multiplexers
- Meter reading systems
- Data acquisition
- Medical equipment
- Battery monitoring
- I/O Sub-Systems
- Robotics
- Aerospace
- Home/Safety security systems
- Process Control
- Energy Management
- Reed Relay EMR Replacement
- Programmable Controllers

## TPYES

| Category | Output Rating |              | Package | Part No. | Packing Quantity |
|----------|---------------|--------------|---------|----------|------------------|
|          | Load Voltage  | Load Current |         |          |                  |
| AC/DC    | 400V          | 0.1A         | SOP-4   | APY210S  | 2000pcs /reel    |



**Absolute Maximum Ratings (Ta = 25°C)**

| Item                      |                          | Symbol            | Value      | Units            | Note                |
|---------------------------|--------------------------|-------------------|------------|------------------|---------------------|
| Input                     | Continuous LED Current   | I <sub>F</sub>    | 50         | mA               |                     |
|                           | Peak LED Current         | I <sub>FP</sub>   | 1000       | mA               | f=100Hz,<br>duty=1% |
|                           | LED Reverse Voltage      | V <sub>R</sub>    | 5          | V                |                     |
|                           | Input Power Dissipation  | P <sub>In</sub>   | 75         | mW               |                     |
| Output                    | Load Voltage             | V <sub>L</sub>    | 400        | V(AC peak or DC) |                     |
|                           | Load Current             | I <sub>L</sub>    | 0.1        | A                |                     |
|                           | Peak Load Current        | I <sub>Peak</sub> | 0.6        | A                | 100ms(1 pulse)      |
|                           | Output Power Dissipation | P <sub>out</sub>  | 300        | mW               |                     |
| Total Power Dissipation   |                          | P <sub>T</sub>    | 350        | mW               |                     |
| I/O Breakdown Voltage     |                          | V <sub>I/O</sub>  | 1500       | Vrms             | RH=60%, 1min        |
| Operating Temperature     |                          | T <sub>opr</sub>  | -40 to +85 | °C               |                     |
| Storage Temperature       |                          | T <sub>stg</sub>  | 40 to +10  | °C               |                     |
| Pin Soldering Temperature |                          | T <sub>sol</sub>  | 260        | °C               | 10 sec max.         |

**Electrical Characteristics (Ta = 25°C)**

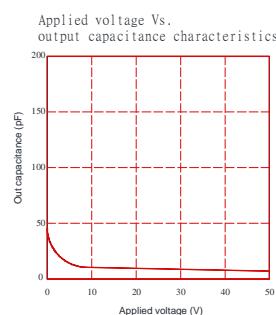
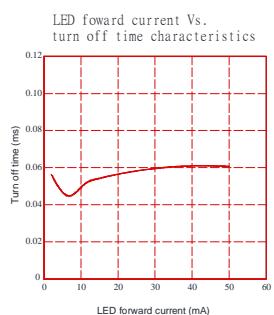
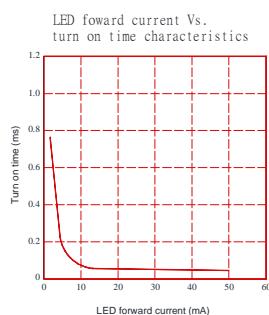
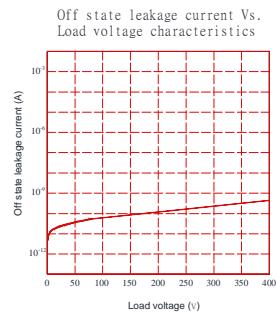
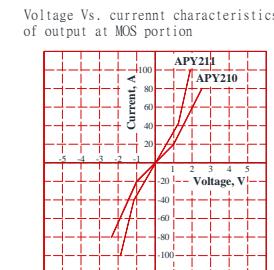
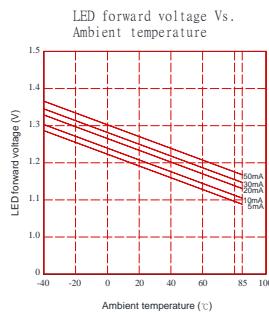
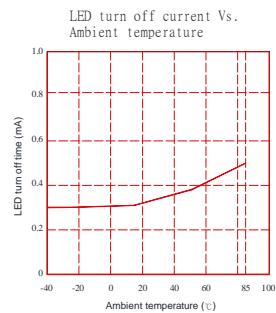
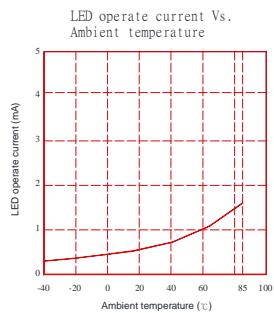
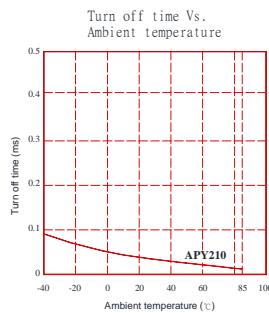
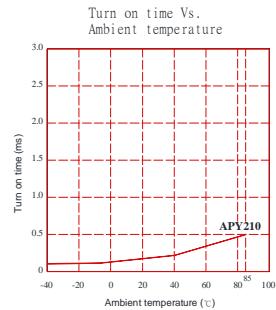
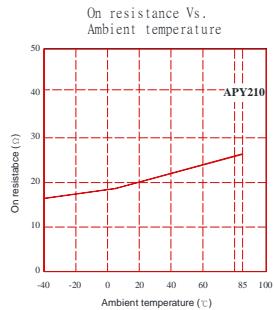
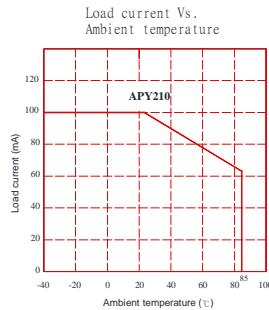
| Item         |                           | Symbol            | MIN.            | TYP. | MAX. | Units | Conditions   |
|--------------|---------------------------|-------------------|-----------------|------|------|-------|--|
| Input        | LED Forward Voltage       | V <sub>F</sub>    |                 | 1.2  | 1.4  | V     | I <sub>F</sub> =10mA   |
|              | Operation LED Current     | I <sub>Fon</sub>  |                 | 0.5  | 1.0  | mA    |  |
|              | Recovery LED Current      | I <sub>Foff</sub> |                 | 0.35 | 0.5  | mA    |  |
|              | Recovery LED Voltage      | V <sub>Foff</sub> | 0.7             |      |      | V     |  |
| Output       | On-Resistance             | R <sub>on</sub>   |                 | 20   | 24   | Ω     | I <sub>F</sub> =5mA, I <sub>L</sub> =100mA,<br>Time to flow is within 1 sec. |
|              | Off-State Leakage Current | I <sub>Leak</sub> |                 |      | 1    | uA    | V <sub>L</sub> =Rating   |
|              | Output Capacitance        | C <sub>out</sub>  |                 | 45   |      | pF    | V <sub>L</sub> =0, f=1MHz  |
| Transmission | Turn-On Time              | T <sub>on</sub>   |                 | 0.23 | 0.5  | ms    | I <sub>F</sub> =5mA, I <sub>L</sub> =100mA,                                  |
|              | Turn-Off Time             | T <sub>off</sub>  |                 | 0.03 | 0.2  | ms    |  |
| Coupled      | I/O Isolation Resistance  | R <sub>I/O</sub>  | 10 <sup>9</sup> |      |      | Ω     | DC500V   |
|              | I/O Capacitance           | C <sub>I/O</sub>  |                 | 0.8  | 1.5  | pF    | f=1MHz   |



APSEMI

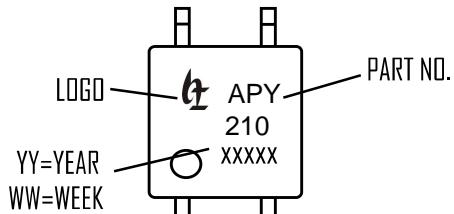
1 Form A APY210S  
SOP-4 Load Voltage:400V Load Current:100mA

## Engineering Data

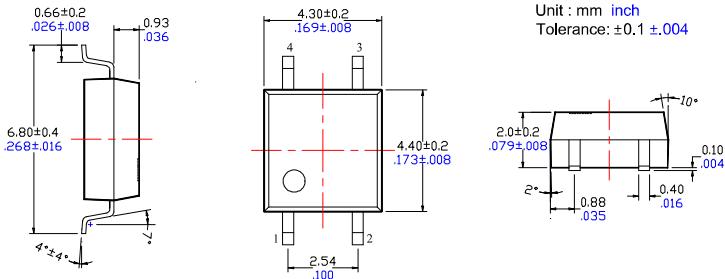


## Dimensions and Package

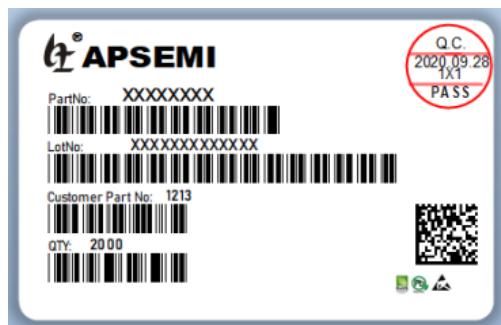
## Marking



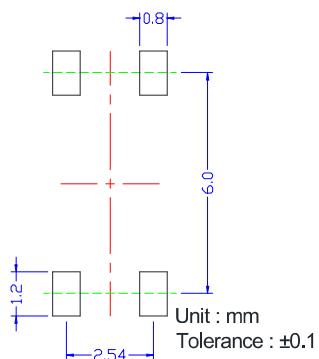
### Surface mount terminal type



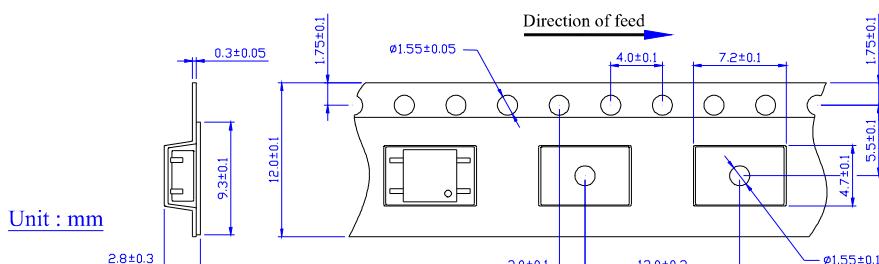
## Table



Recommended mounting pad (Top view)



## Tape dimensions



### Dimensions of tape reel

