



## Lonely Binary BL412 Mini PIR Motion Sensor Owner's Manual

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# Lonely Binary



[lonelybinary.com](http://lonelybinary.com)  
SENSOR MANUAL

**Pyroelectric Infrared Radial Sensor**

TYPE: BS412

NANYANG SENBA OPTICAL AND ELECTRONIC CO. LTD.

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## Digital Smart Pyroelectric Detector BS412

BS412 is a newest smart digital motion detector with a small window size. It offers a complete motion detector solution, with all electronic circuitry built into the detector housing. Only a power supply and power-switching components need to be added to make the entire motion switch.

BS412 includes the time setting only.

### Features and Benefits

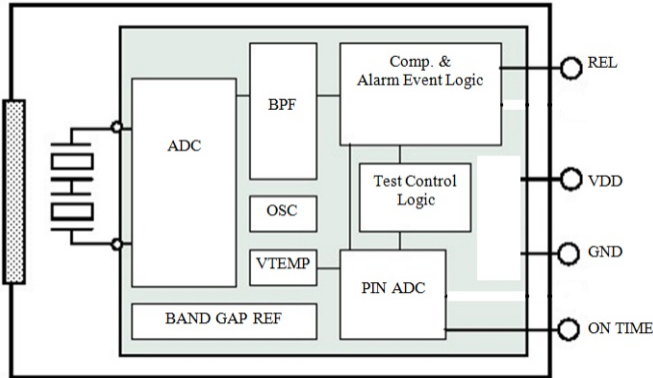
- Digital signal processing DSP
- Power adjustable, save more energy
- Two-way differential high impedance sensor input and temperature compensation
- Built-in filter, screen the interference by other frequency
- Excellent power supply rejection, Insensitive to RF interference
- Schmidt REL output

### Application

- Intelligent appliance
- Alarms
- Motion detector
- Sensor lamp, Sensor switch
- Security system
- Automatic control etc.

### Dimension



| Characteristics                    | Symb<br>ol                                                                           | Mn. | Type | Max. | Unit | Remarks       |
|------------------------------------|--------------------------------------------------------------------------------------|-----|------|------|------|---------------|
| Supply Voltage                     | VDD                                                                                  | 2.0 | 3    | 3.3  | V    | IR=0.5mA      |
| Working Current                    | I DD                                                                                 | 9   | 9.5  | 11   | pA   |               |
| Sensitivity                        | VSENS                                                                                |     | 90   |      | pA   |               |
| Output REL                         |                                                                                      |     |      |      |      |               |
| Output Low Current                 | Ia                                                                                   | 10  |      |      | mA   | Va<1 V        |
| Output High Current                | 10H                                                                                  |     |      | -10  | mA   | VoL>(VDDI V)  |
| Lock time                          | TOL                                                                                  |     | 2.   |      | s    |               |
| On-time                            | TOH                                                                                  | 2   |      | 3600 | s    |               |
| ONTIME                             |                                                                                      |     |      |      |      |               |
| Input voltage                      |                                                                                      | 0   |      | Vos  | V    | OV to 1/4 Vos |
| Input Bias Current                 |                                                                                      | -1  |      | 1    | pA   |               |
| Oscillator & Filter                |                                                                                      |     |      |      |      |               |
| Low pass filter cut-off frequency  |                                                                                      |     |      | 7    | Hz   |               |
| High pass filter cut-off frequency |                                                                                      |     |      | 0.44 | Hz   |               |
| Oscillator frequency o<br>n Chip   | FOLK                                                                                 |     |      | 64   | kHz  |               |
| Interior Block Diagram             |  |     |      |      |      |               |

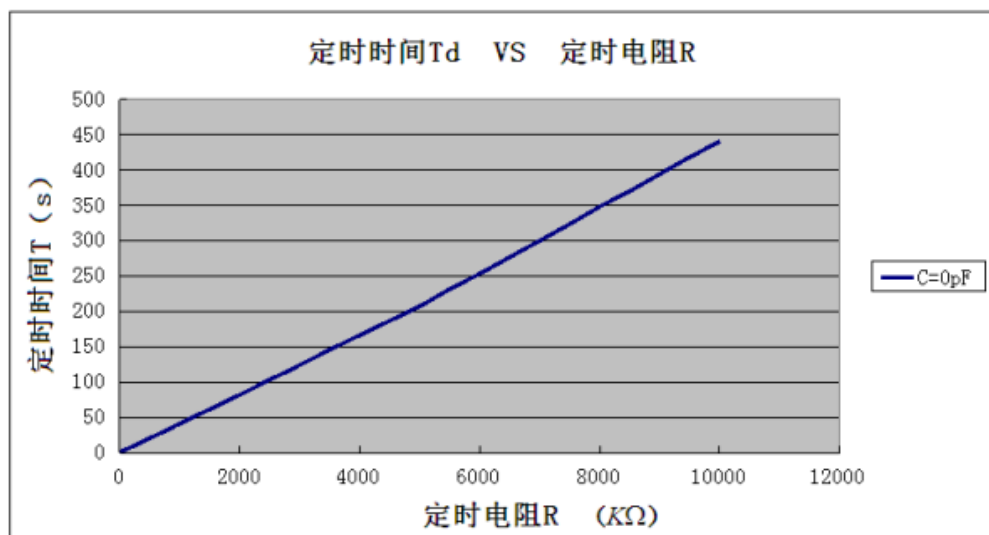
## Ontime Setting

### 1. Analog setting style for on-time

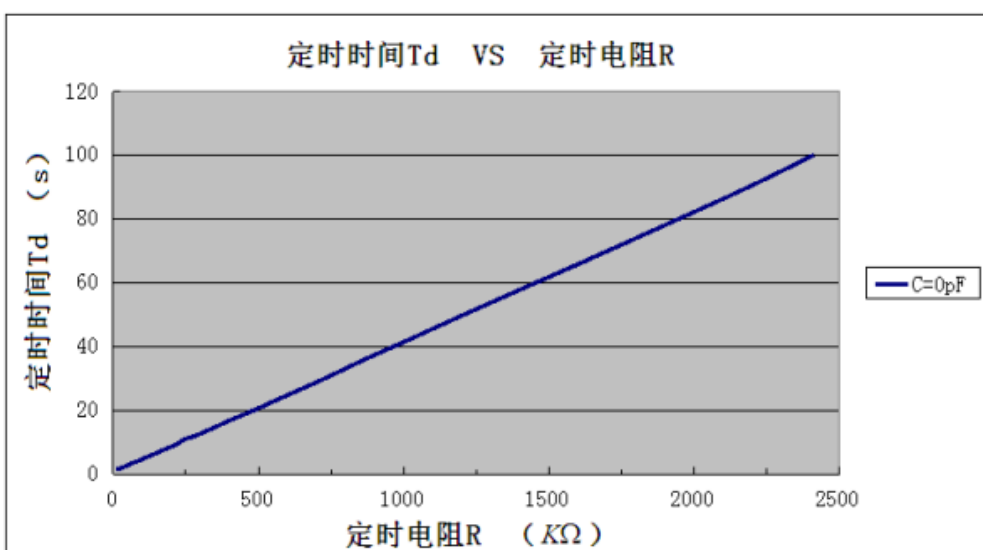
**Td:** On-time time

**R:** On-time Resistor

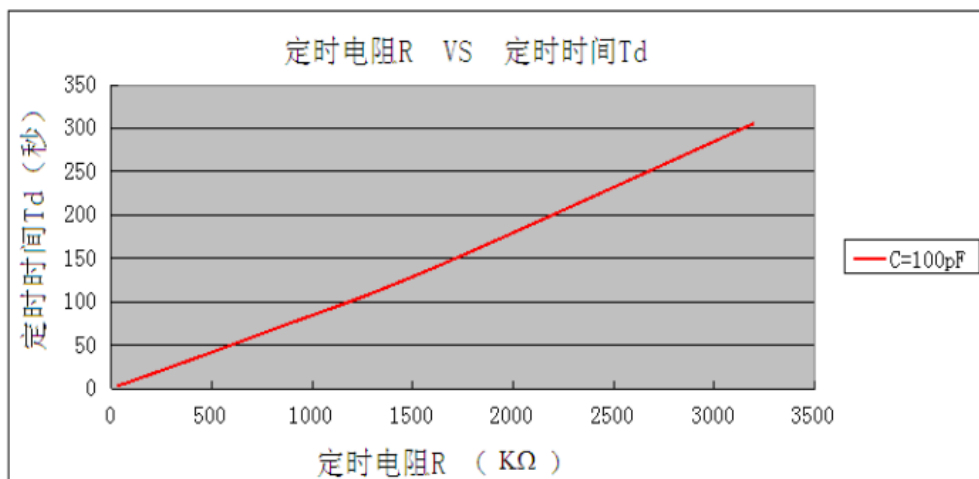
**C:** On-time Capacitor



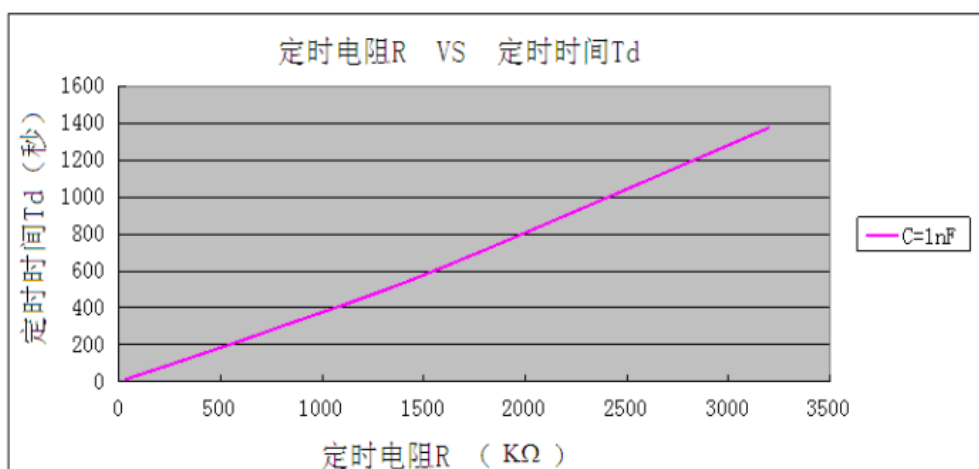
\* C=0pF



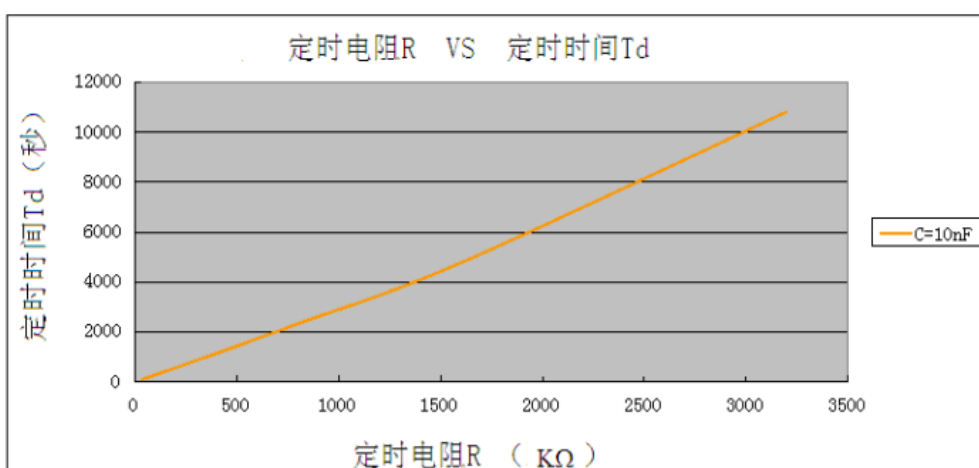
\* C=0pF



\* **C=100pF**



\* **C=1nF**



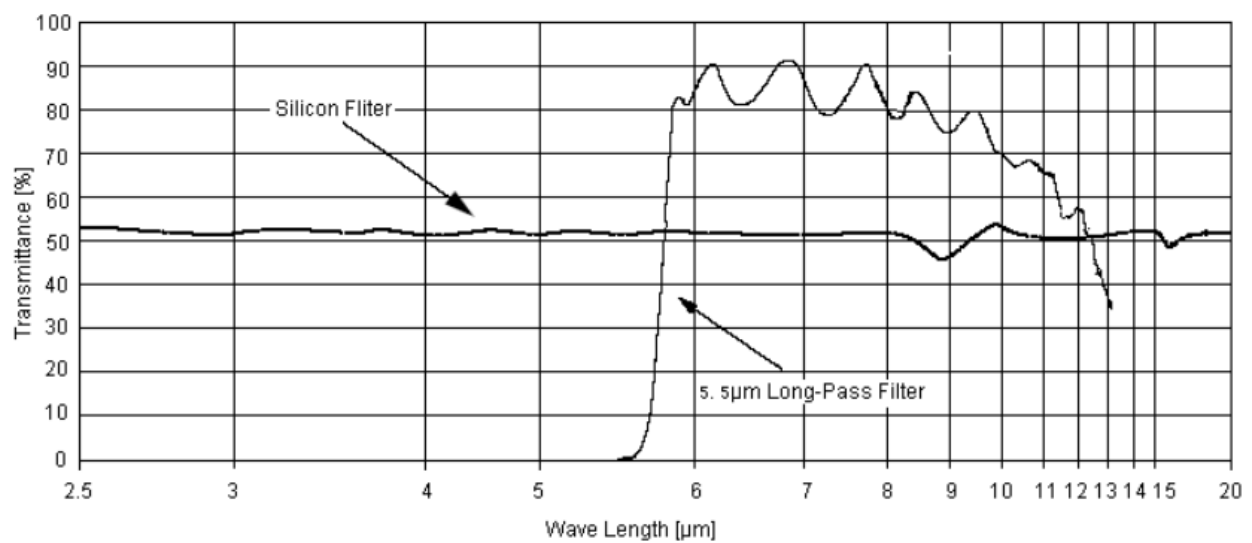
\* **C=10nF**

## 2. Digital setting style for on-time



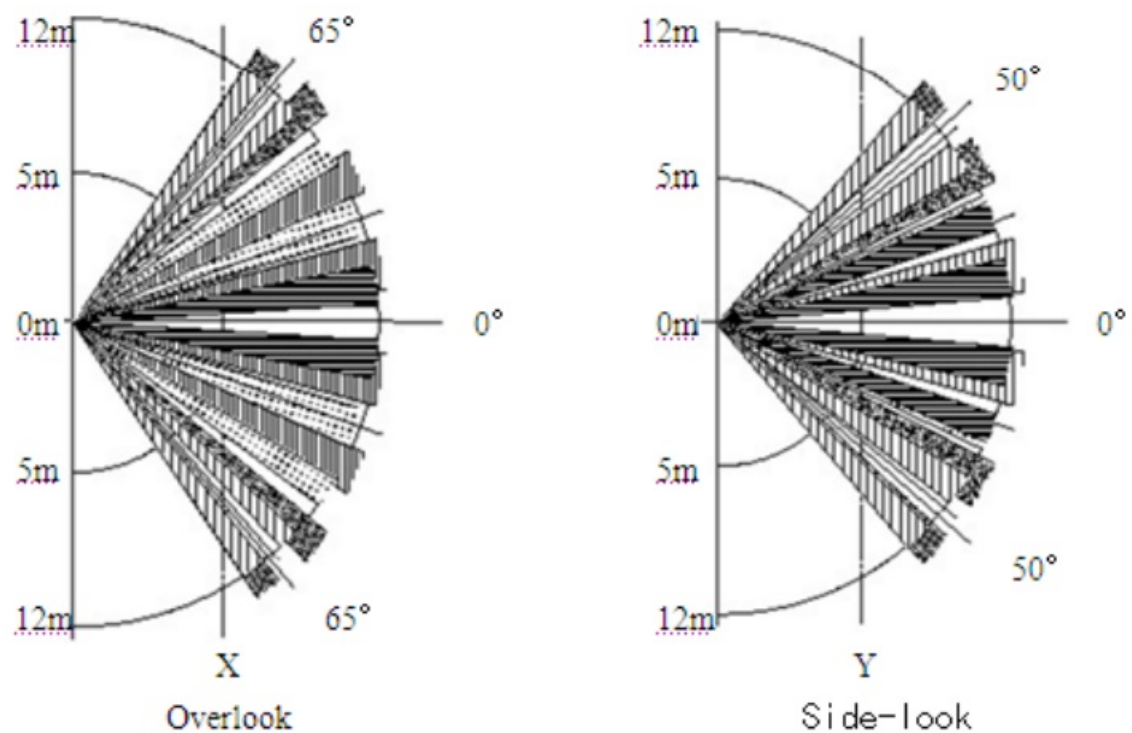
**Notes:** The circuit design for PIR Sensor BS412 .

## Spectral Response of Window Materials

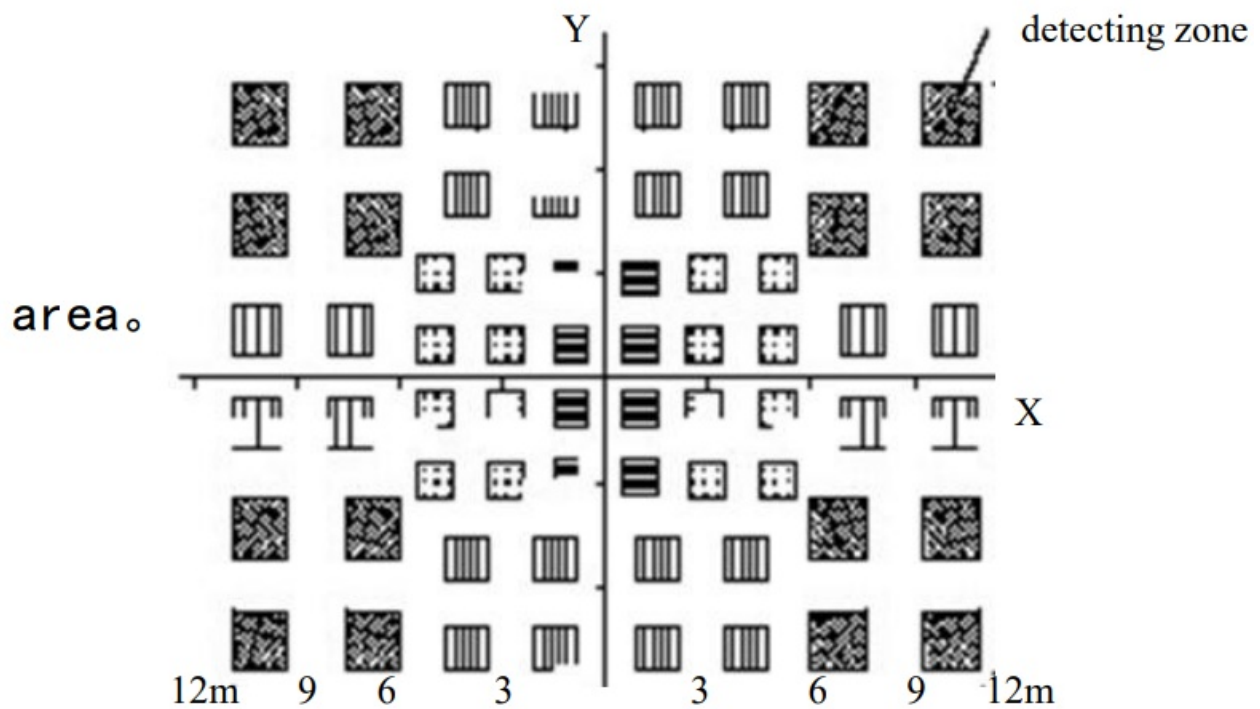


**Notes:** The average transitivity curve for silicon filter with 5.5μm pass IR filter

## Detection View



## X-Y sectional view



#### Notes

1. X-Y sectional view represent the detecting
2. Objects with temperature difference can be Detected in the vertical level.

# Lonely Binary



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#### Documents / Resources

|  |                                                                                                                                                                                          |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><a href="#">Lonely Binary BL412 Mini PIR Motion Sensor</a> [pdf] Owner's Manual<br/>BL412 Mini PIR Motion Sensor, BL412, Mini PIR Motion Sensor, PIR Motion Sensor, Motion Sensor</p> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### References

- [!\[\]\(a743bcd2fd08184fdf39c4feba1f7eb3\_img.jpg\) Lonely Binary](#)
- [!\[\]\(3139c2550c61e029781d1499c4d358b0\_img.jpg\) \( :300701\) -](#)
- [!\[\]\(e6eb7bb6899c5009bb45451a1e4739c6\_img.jpg\) \( :300701\) -](#)
- [User Manual](#)

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