



### ■ Description

The GN5-A9 is a low cost ambient light sensor , with a current output which is directly proportional to the light level. It is sensitive to visible and near infrared radiation.

The output current can be converted to a voltage by connecting it in series with a resistor. The dynamic range is determined by the external resistor and power supply (10K and 5V gives a range of 0 to over 100 Lux, but it can be over 900 Lux with a 1K resistor). The internal dark current cancellation enables high accuracy over the full temperature range, even at low light levels.

### ■ Features

- RoHS compliant and complete CdS replaceable
- Current output highly linear V.S. light level
- Dark-current cancellation
- Temperature stable
- Built in CMOS amplifier



### ■ Applications

- Dawn/dusk sensing
- Surveillance Camera
- Display backlighting in LCD monitors
- Instrument

### ■ Product Summary

| Usable Light Range | Typ I <sub>PSS</sub> (uA)  | Φ(deg) | λ0.5(nm)    |
|--------------------|----------------------------|--------|-------------|
| 0 ~ 900 Lux        | 250 (R <sub>ss</sub> =10K) | 120    | 400 to 1100 |

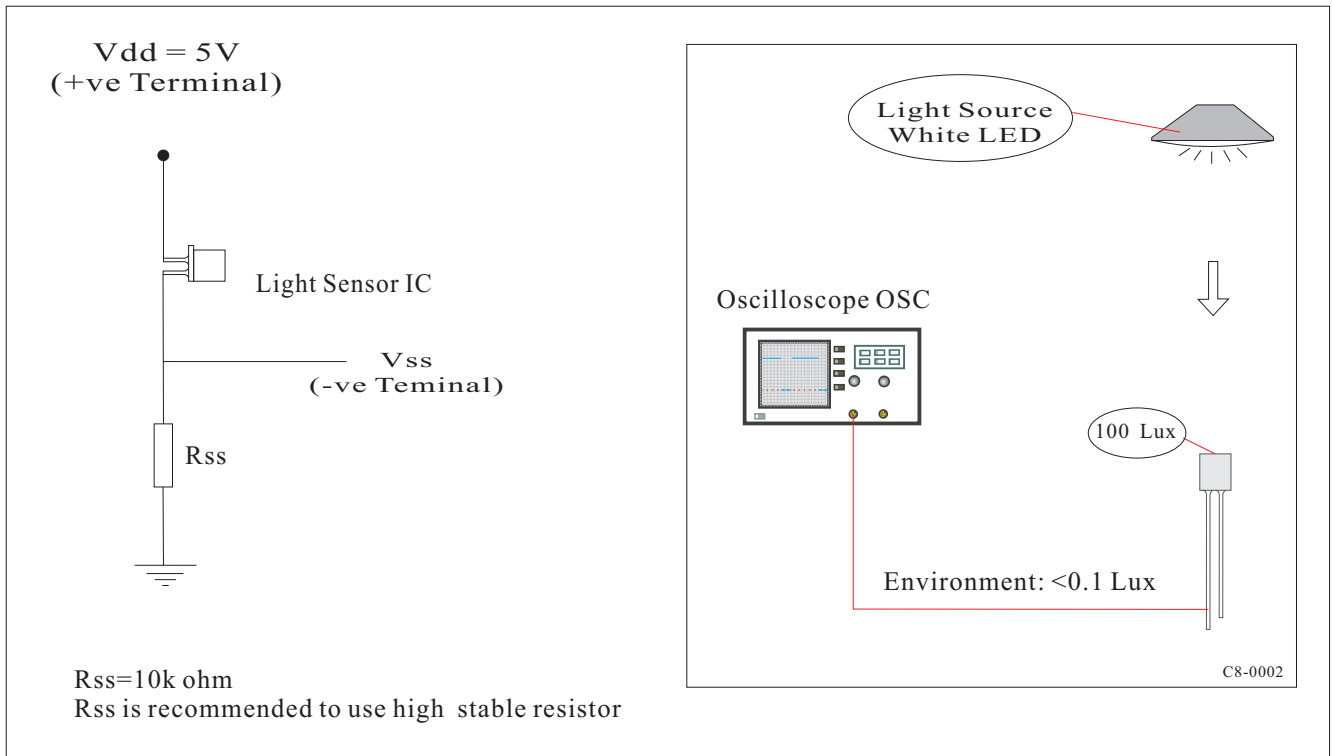
### ■ Ordering Information

| Packaging | Each Bulk | MOQ      | Package Form             |
|-----------|-----------|----------|--------------------------|
| Bulk      | 1000 PCS  | 1000 PCS | 5mm ( T1 $\frac{1}{4}$ ) |

### ■ Absolute Maximum Ratings(T<sub>a</sub>=25°C)

| Parameter                     | Symbol           | Rating             | Unit |
|-------------------------------|------------------|--------------------|------|
| Permissible Power Dissipation | P                | Internally Limited | mW   |
| Operating Temperature         | T <sub>o</sub>   | -20 to +65         | °C   |
| Storage Temperature           | T <sub>stg</sub> | -40 to +100        | °C   |

### ■ Test Circuit

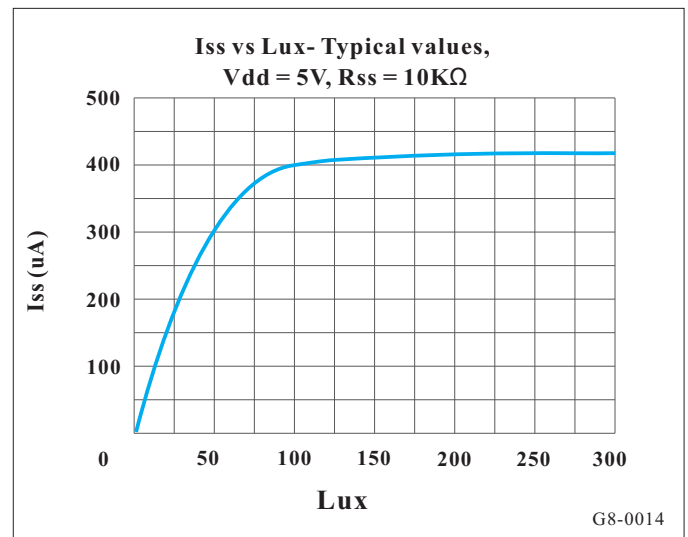
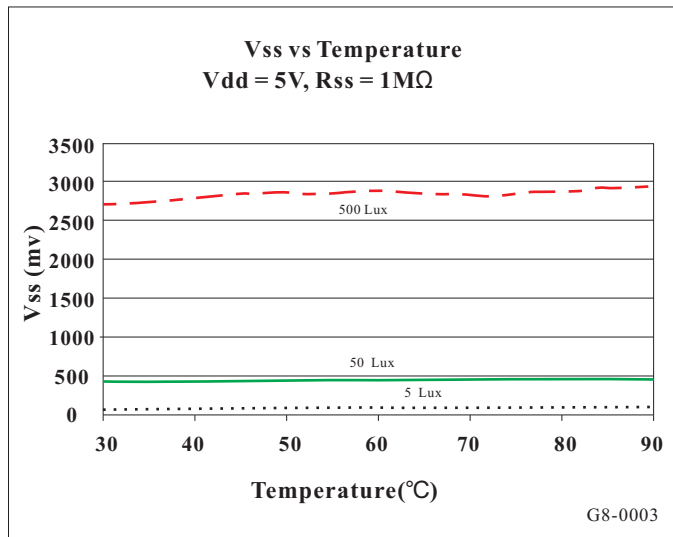
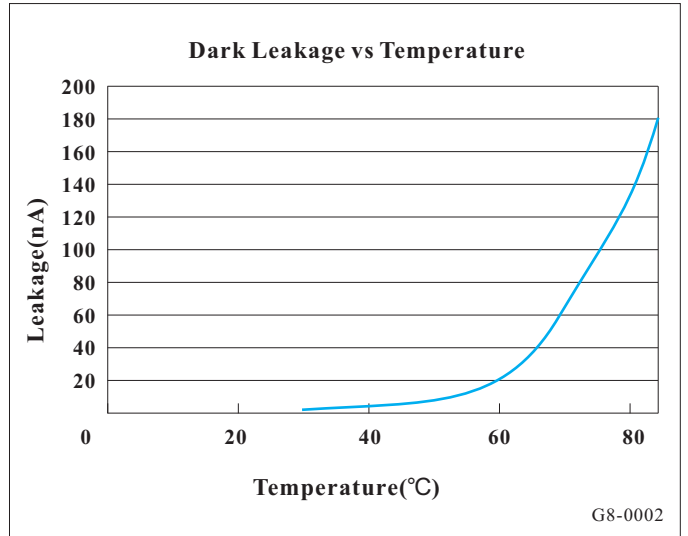
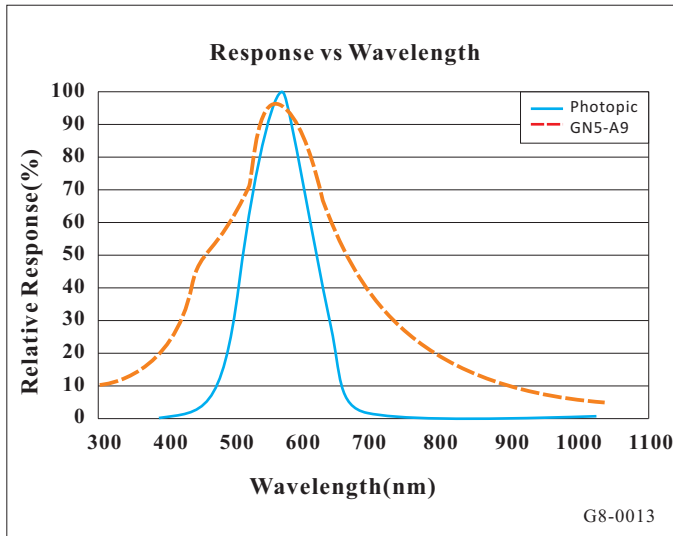


### ■ Electrical Specification

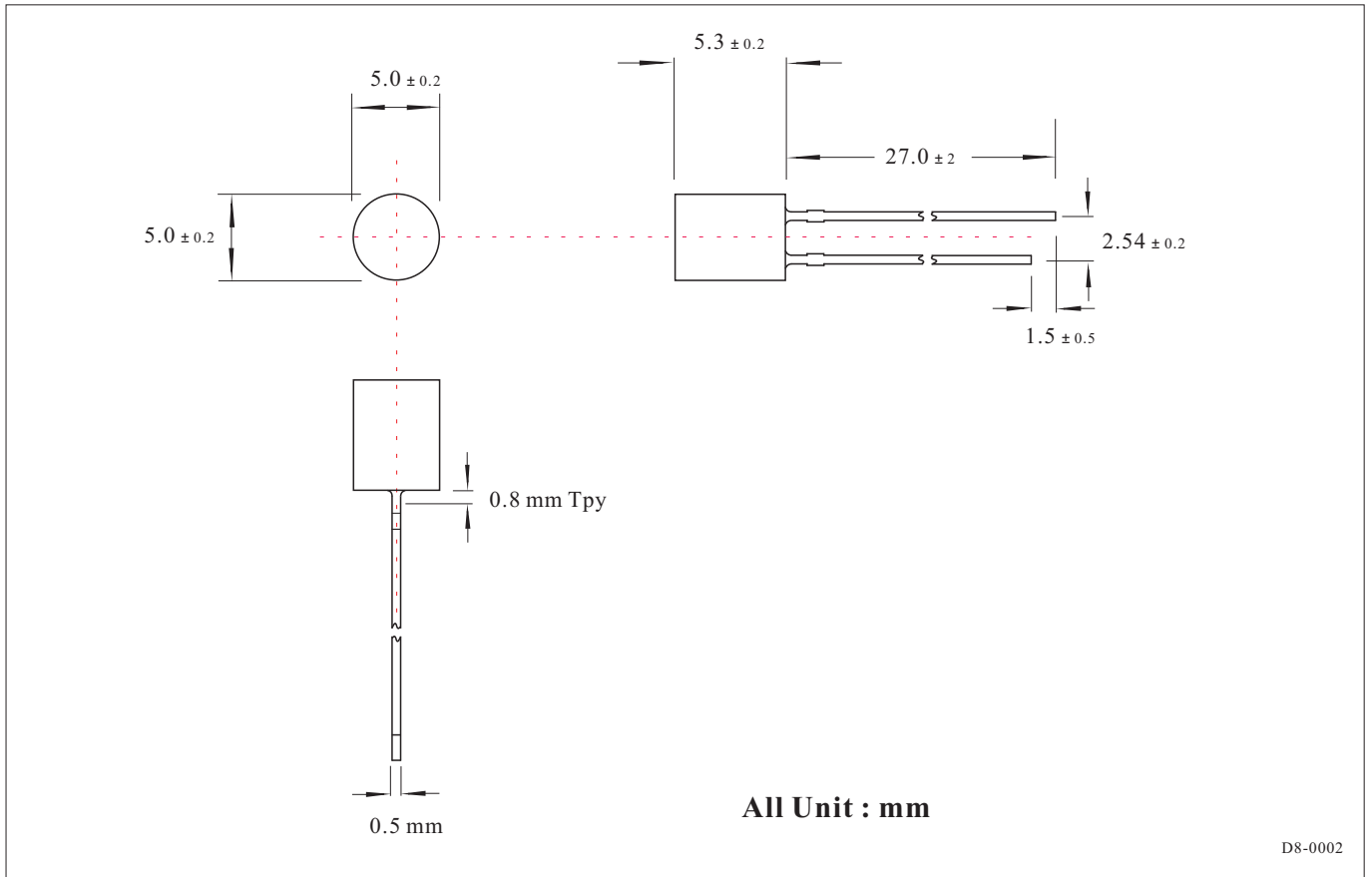
The following parameters apply over the operating temperature -40°C to +85°C, and with Rss=10K Ohms, Vdd=5V, as per C8-0003

| Parameter              | Symbol                  | Test Conditions                                                         | Type   | Unit |
|------------------------|-------------------------|-------------------------------------------------------------------------|--------|------|
| Supply Input Voltage   | Vdd                     |                                                                         | 2.4~12 | V    |
| Peak Spectral Response | $\lambda_{PR}$          | Vdd=5V, Ev=5Lux                                                         | 520    | nm   |
| Light Current (+/-50%) | I <sub>ss</sub>         | Vdd=5V, Ev=100Lux                                                       | 400    | uA   |
| Dark Current           | I <sub>ceo</sub> (dark) | 0Lux, Ta=65°C                                                           | 1.5    | uA   |
| Switching Time         | Rise Time               | V <sub>ce</sub> =2 V<br>I <sub>c</sub> =2 mA<br>R <sub>ss</sub> =100 kΩ | 2      | us   |
|                        | Fall Time               |                                                                         | 2      |      |

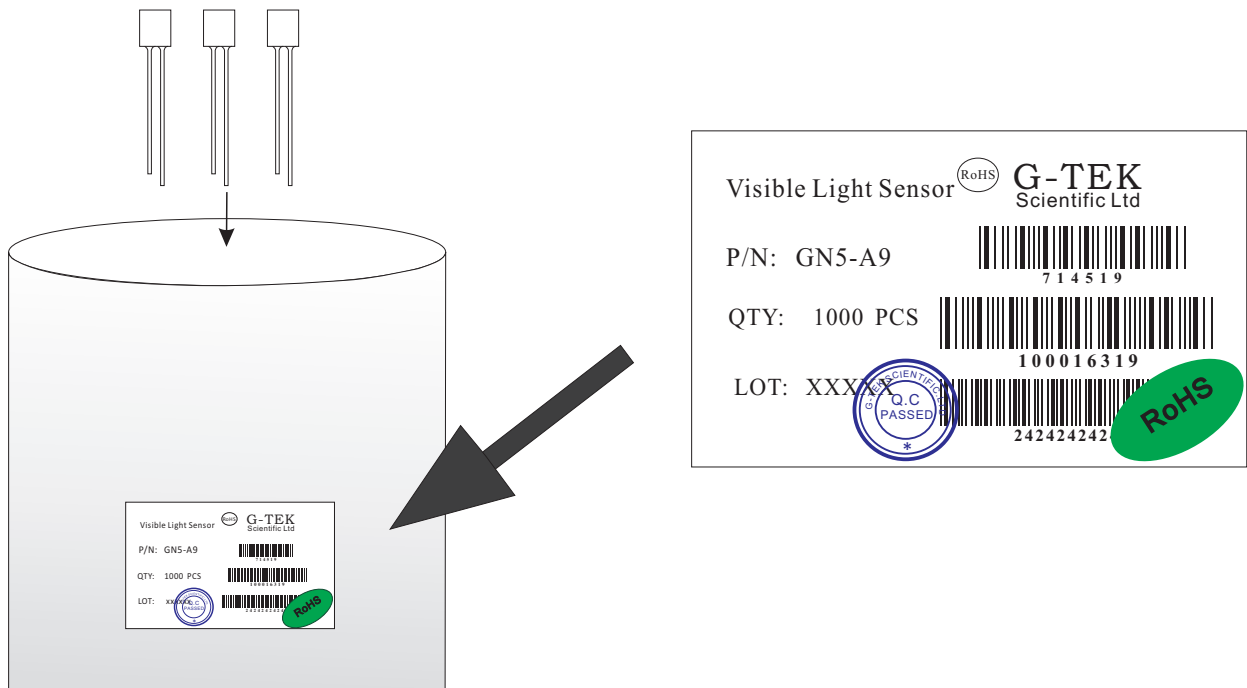
▪ **Charts**



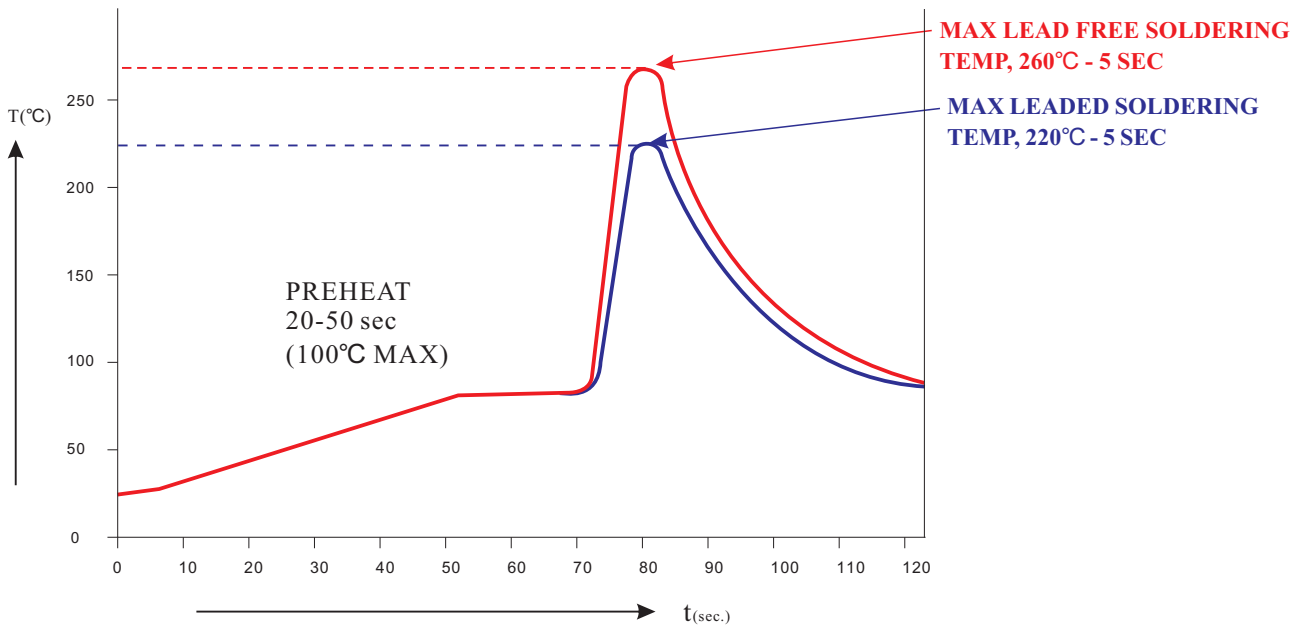
### ■ Dimensions



### ■ Packaging and Labeling Plan



### Wave Solder Profile



G8-0007

| Recommended Lead Free Wave Soldering Profile                                                       |                                         |
|----------------------------------------------------------------------------------------------------|-----------------------------------------|
| Preheat Temperature: 100°C Max                                                                     | Peak Temperature: 260°C Max.            |
| Preheat Time: 20~50 Seconds                                                                        | Solder Time Above 217°C: 5 Seconds Max. |
| Note: Turn Off top heater at preheat to prevent the lamp body directly exposed to the heat source. |                                         |

### Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

### Material Category Policy

We declare that this part is ROHS 2002/95/EC compliant, based on our understanding of the directive.

This part is manufactured where the banned substances would not be used during processing.

G-Tek Scientific Ltd will perform periodic screening based on the determined risks, and are developing procedures as part of our management system to ensure compliance.