



Data Sheet

Customer: _____

Part No: _____

CL-SPD150IR-940-02(SDIE)

Sample No: _____

Description: _____

3216 SMD 940nm IR Sensor

Item No: _____

| Customer | | | |
|----------|------------|----------|------|
| Check | Inspection | Approval | Date |
| | | | |

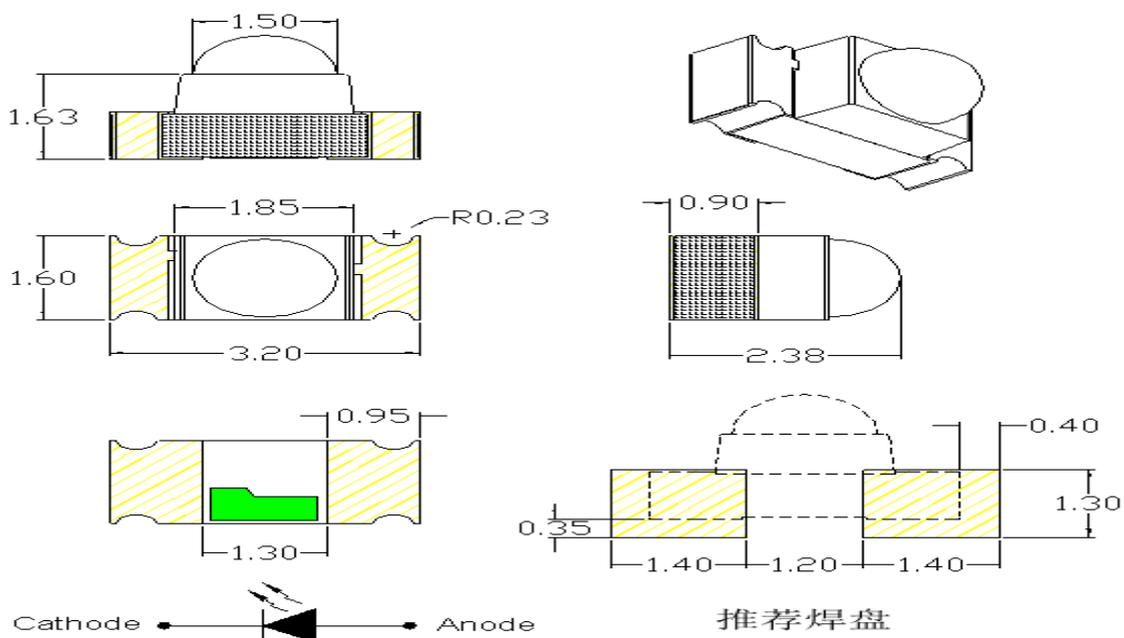
Features

1. Outline Package: 3.2x1.6x2.38mm
2. Emitted Color: non-luminance
3. Lens Appearance: Water Clear
3. Comply with RoHS
4. PACKAGE: 2000PCS / REEL.

Applications

1. Applicable to all kinds of mechanical keyboard launch requirements
2. Suitable for all kinds of infrared transmitting and receiving equipment
3. Infrared remote control transmitter is suitable for all kinds of electronic products
4. Applicable to all kinds of small household electrical appliance products for reflection application

Package Outline Dimensions



NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerances are $\pm 0.2\text{mm}$ (0.008inch)

Absolute maximum ratings at Ta=25°C

| Parameter | | Symbol | Value | Unit |
|-----------------------------|--|--------|--------------------------|------|
| Power dissipation | | Pd | 100 | mW |
| Forward current | | If | 35 | mA |
| Reverse voltage | | Vr | 5 | V |
| Operating temperature range | | Top | -30 ~+85 | °C |
| Storage temperature range | | Tstg | -40~+100 | °C |
| Soldering Temperature | | Tsol | Max.260°C for 3 sec Max. | |
| Peak pulsing current | | Ifp | 100 | mA |
| Electrostatic Discharge | | ESD | 2000(HBM) | V |

NOTE: IFP Conditions: Pulse Width \leq 10msec. and Duty cycle \leq 1%.

Electrical-optical characteristics at Ta=25°C

| Parameter | Test Condition | Symbol | Value | | | Unit |
|---------------------|----------------|----------------|-------|------|------|---------|
| | | | Min. | Typ. | Max. | |
| Forward voltage | If=20mA | VF | 1 | 1.2 | 1.5 | V |
| Emission intensity | If=20mA | Ee | 2 | 5 | 8 | mW/sr |
| Firing angle | If=20mA | 2 θ 1/2 | -- | 50 | -- | Deg |
| emission wavelength | If=20mA | λ D | -- | 940 | -- | nm |
| Transmit bandwidth | If=20mA | λ | -- | | -- | nm |
| Reverse current | Vr=5V | IR | -- | -- | 1 | μ A |

NOTE: 1. Emission intensity tolerance \pm 10%

2. Tolerance of forward voltage is \pm 0.05V

3. Emission wavelength tolerance

Typical optical characteristics curves

Fig.1 Forward Current vs Ambient Temperature

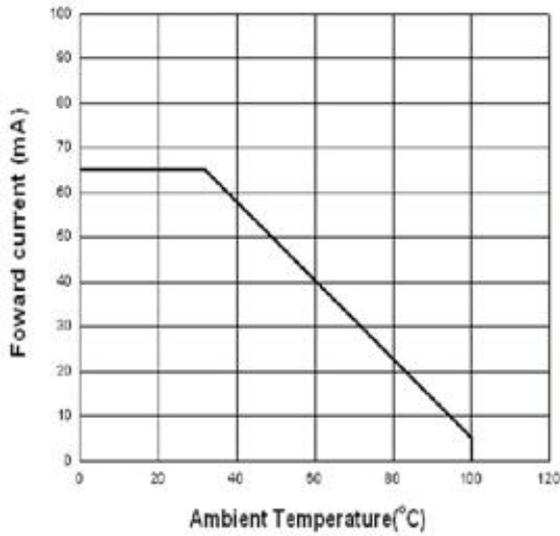


Fig.2 Spectral Sensitivity

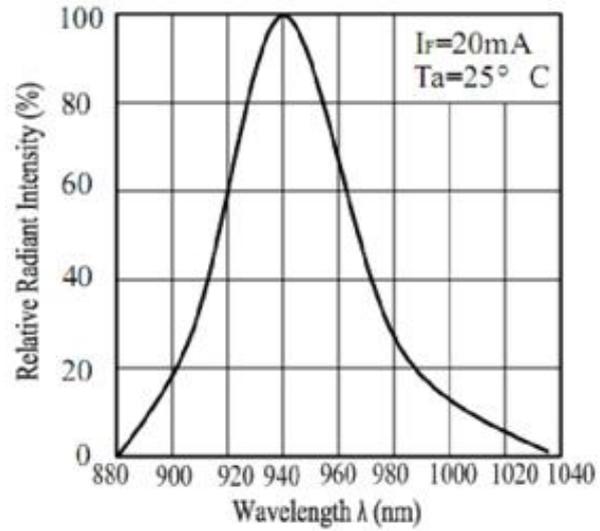


Fig.3 Relative Intensity vs. Forward Current

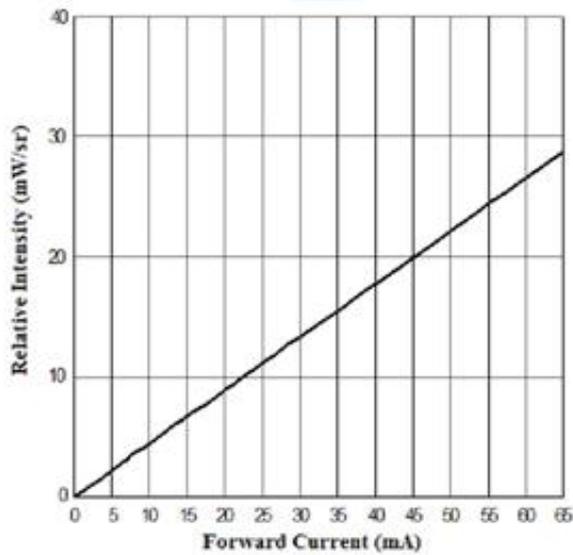


Fig.4 Forward Current vs. Forward Voltage

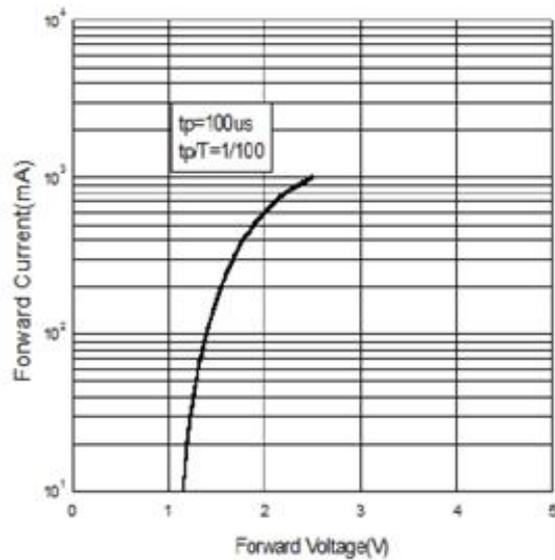
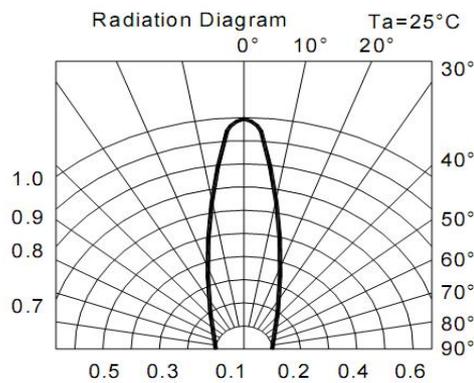


Fig.5 Relative Radiant Intensity vs. Angular Displacement



RELIABILITY

(1) Test Items and Results

| NO. | Test Item | Reference Standard | Test Conditions | (Hours/Cycles) | Sample | Number of Damaged |
|-----|---|--------------------------|--|------------------|--------|-------------------|
| 1 | Temperature Cycle | JEITA ED-4701 | -40 °C - 25 °C - 100 °C - 25 °C 30min 5min 30min 5min | 100 Cycles | 20 | 0/50 |
| 2 | Thermal shock | MIL-STD-202G | -40°C ~ 100°C 15min 15min | 500 Cycles | 20 | 0/50 |
| 3 | High Temperature Storage | JEITA ED-4701 200 201 | Ta=100°C | 1000 Hours | 20 | 0/50 |
| 4 | Low Temperature Storage | JEITA ED-4701 200 201 | Ta=-40°C | 1000 Hours | 20 | 0/50 |
| 5 | Room Temperature Life Test | | Ta=25±5°C IF=20mA | 1000 Hours | 20 | 0/50 |
| 6 | High Temperature High Humidity Life Test | | Ta=60°C RH=85% IF=20mA | 1000 Hours | 20 | 0/50 |
| 7 | Solderability (Reflow Soldering) | JEITA ED-4701 300 303 | Tsol=235°C ± 5°C, 5sec (Using Flux, Lead Solder) | 1 time, 5sec | 10 | 0/10 |
| 8 | Resistance to Soldering Heat (Reflow Soldering) | JEITA ED-4701 300 301 | Tsol=250°C, 10 sec Pre Treatment: 35 °C 95% RH96 Hrs | 2 time, 10sec | 10 | 0/10 |

The above test items such as differences or special customer specific requirements according to the actual situation in accordance with the requirements of customers to try the requirements with the customer, the customer is not required by our test standard test. Different products using different current test

Cautions

(1) Soldering Conditions

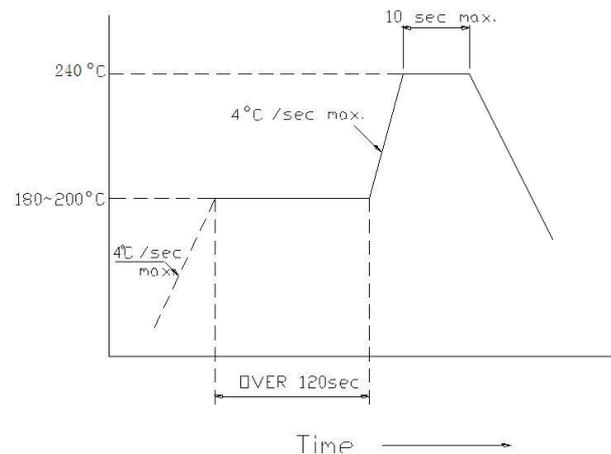
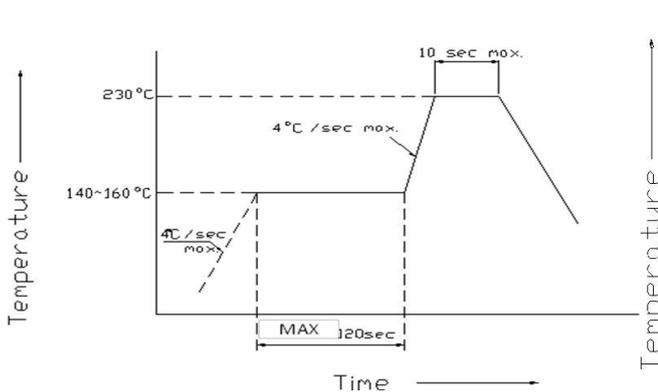
Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

(Recommended soldering conditions)

| Reflow Soldering | | | Manual Soldering | |
|--|------------------------------|-------------------------------|----------------------------|---|
| Condition | Lead Solder | Lead-free Solder | Temperature Soldering time | 350° C Max. 3 sec. Max. (one time only) |
| | Pre-heat Pre-heat time | 140 ~ 160° C 120 sec. Max. | | |
| Peak temperature Soldering time | 230° C Max. 10 sec. Max. | 260° C Max. 10 sec. Max. | | |

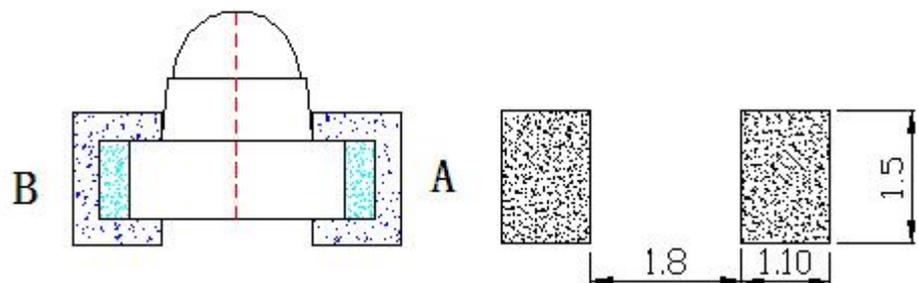
(Lead Solder)

(Lead-Free Solder)



Recommended Soldering Pattern

(Units : mm)



(2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ($V_F > 2.0V$ at $I_F=0.5mA$)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4)Cautions:

4.1. Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2 Products can be used within 15days after packaging, after that, they must be:

4.2.1 Soldered within 24 hrs

4.2.2Used in the condition: $30^{\circ}C$ within and 60%RH below

4.2.3 Stored in 30%RH for moisture below.

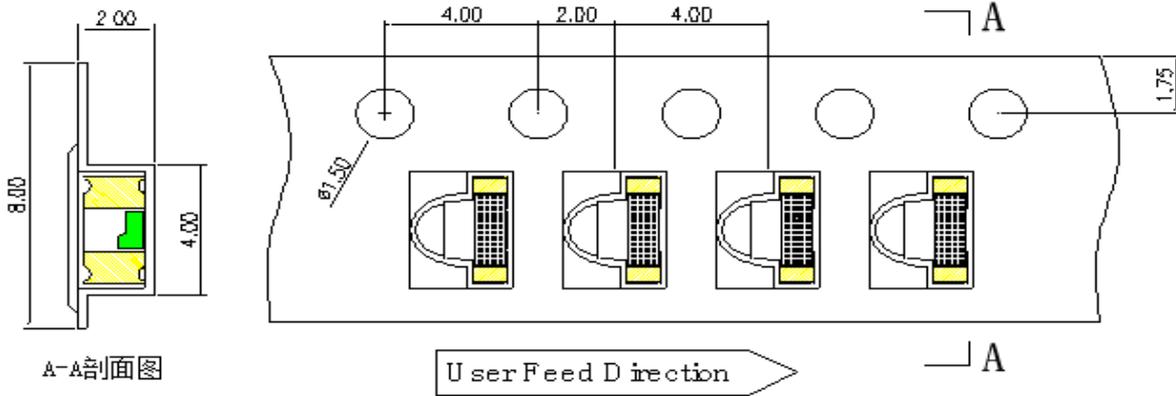
4.3.Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in $85^{\circ}C/6H$.

4.4.Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

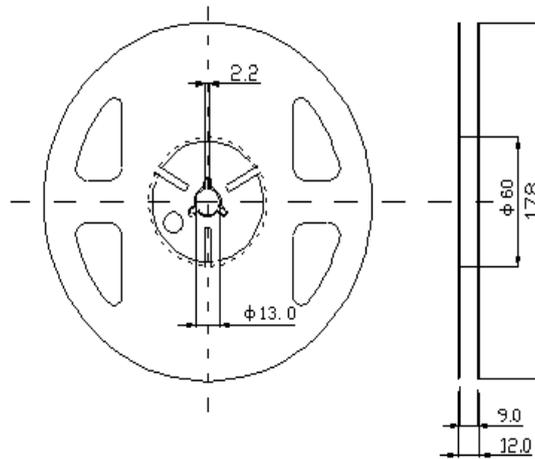
4.5.Products not be used after opening the package need to be dried out for $85^{\circ}C/6H$

PACKAGING

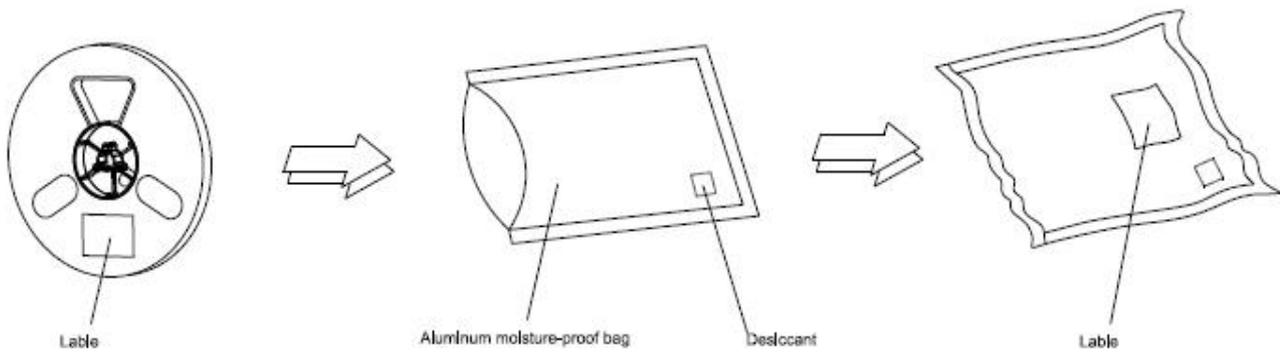
The LEDs are packed in cardboard boxes after taping.



Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm