



Technical Data Sheet

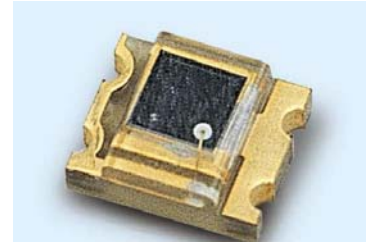
RGB Color Sensor SMD Device

Preliminary

CLS15-22C/L213(R、G、B)/TR8

Features

- Package in 8mm tape on 7" diameter reel.
- Surface-mount plastic package.
- Good stable output with temperature shift.
- External dimensions 3.2(L)*2.7(W)*1.1(H)mm³.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Built in 1-Channel/1Chip (R, G, B) Si photodiode.
- Active area: 1.8 mm²
- Pb free
- The product itself will remain within RoHS compliant version.



Descriptions

CLS15-22C/L213(R、G、B)/TR8 Color Sensor Device, consisting of 1-Channel/1Chip (R, G, B) Si photodiode, is a good effective solution to color balance of display backlighting appliances, such as the LCD TV and projector. The color sensor sensitive are Red ($\lambda_p=620\text{nm}$), Green ($\lambda_p=550\text{nm}$) and Blue ($\lambda_p=470\text{nm}$) regions of the spectrum.

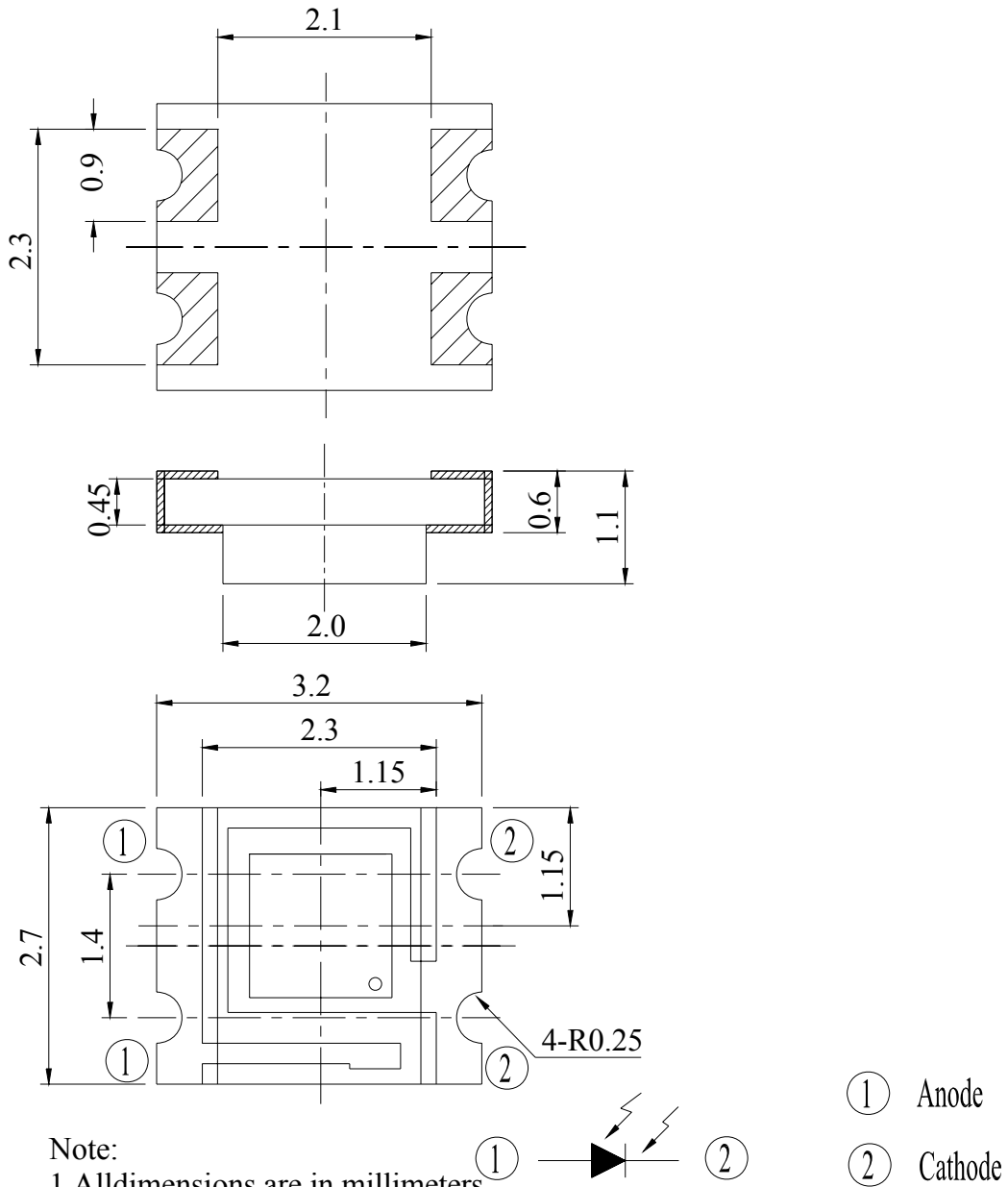
Applications

- Color adjustment for LED back light system for LCD.
- Color adjustment for LCD projector
- Color tester and Color temperature detection.
- White balance : Camera

Device Selection Guide

| PART | MATERIAL | COLOR |
|---------|----------|-------------|
| Chip | Silicon | --- |
| Package | Epoxy | Water Clear |

Package Dimensions



Note:
 1. All dimensions are in millimeters.
 2. Tolerances unless dimension ± 0.1 mm

Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Condition | Rating | Units |
|---------------------------|------------------|-------------------------|-----------|-------|
| Reverse Breakdown Voltage | V _{BR} | I _R = 100 μA | 35 | V |
| Forward Voltage | V _F | I _F = 10mA | 0.5~1.3 | V |
| Operating Temperature | T _{opr} | --- | -25 ~ +85 | °C |
| Storage Temperature | T _{stg} | --- | -40 ~ +85 | °C |
| Soldering Temperature | T _{sol} | --- | 260 | °C |

Notes: *1:Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Red Light Sensor Device : CLS15-22C/L213R/TR8

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|-----------------------------|-----------------|---|-----|-------|-----|------|
| Peak Sensitivity Wavelength | λ _p | --- | --- | 620 | --- | nm |
| Short-Circuit Current | I _{SC} | Ee=100Lux ^[1] V _R =0V | --- | 0.086 | --- | μA |
| Reverse Light Current(1) | I _{L1} | Ee=100Lux ^[1] V _R =5V | --- | 0.091 | --- | μA |
| Reverse Light Current(2) | I _{L2} | Ee=1000Lux ^[1] V _R =5V | --- | 0.83 | --- | μA |
| Reverse Dark Current | I _D | Ee=0 V _R = 10 V | --- | 2 | 10 | nA |

Note:

[1]: White Fluorescent light (Color Temperature = 6500K) is used as light source.

CLS15-22C/L213(R、G、B)/TR8

Green Light Sensor Device : CLS15-22C/L213G/TR8

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|-----------------------------|-------------|---|-----|-------|-----|---------|
| Peak Sensitivity Wavelength | λ_p | --- | --- | 550 | --- | nm |
| Short-Circuit Current | I_{SC} | Ee=100Lux ^[1] V _R =0V | --- | 0.075 | --- | μA |
| Reverse Light Current(1) | I_{L1} | Ee=100Lux ^[1] V _R =5V | --- | 0.082 | --- | μA |
| Reverse Light Current(2) | I_{L2} | Ee=1000Lux ^[1] V _R =5V | --- | 0.72 | --- | μA |
| Reverse Dark Current | I_D | Ee=0 Lux V _R = 10 V | --- | 2 | 10 | nA |

Blue Light Sensor Device : CLS15-22C/L213B/TR8

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|-----------------------------|-------------|--|-----|-------|-----|---------|
| Peak Sensitivity Wavelength | λ_p | --- | --- | 470 | --- | nm |
| Short-Circuit Current | I_{SC} | 100Lux ^[1] V _R =0V | --- | 0.042 | --- | μA |
| Reverse Light Current(1) | I_{L1} | 100Lux ^[1] V _R =5V | --- | 0.046 | --- | μA |
| Reverse Light Current(2) | I_{L2} | 1000Lux ^[1] V _R =5V | --- | 0.39 | --- | μA |
| Reverse Dark Current | I_D | V _R = 10 V | --- | 2 | 10 | nA |

Typical Electro-Optical Characteristics Curves
CLS15-22C/L213R/TR8

Fig.1 Dark Current vs. Ambient Temperature

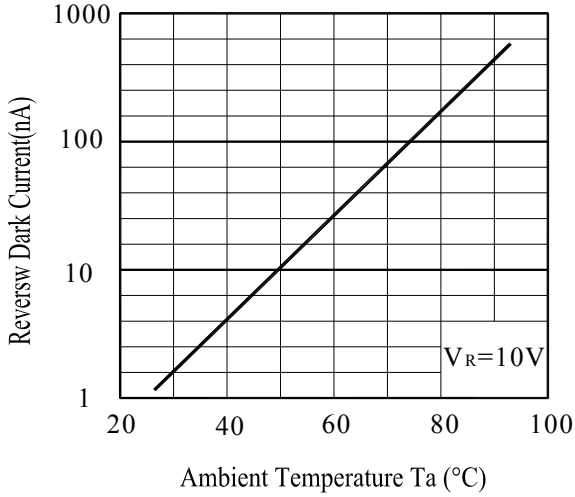


Fig.2 Illuminance vs. Output Photocurrent

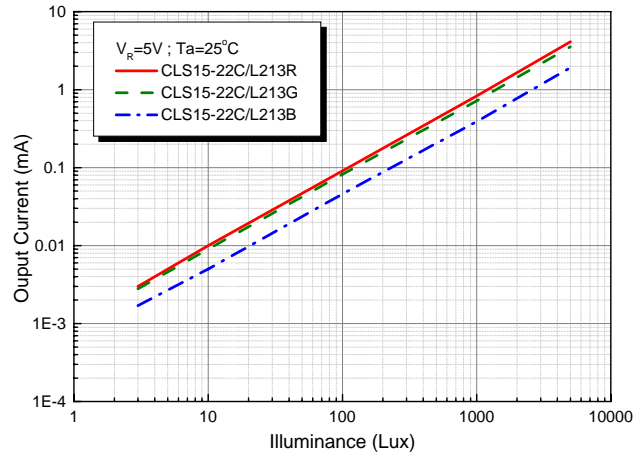


Fig.-3 R,G, B LED Test vs. Output Photocurrent

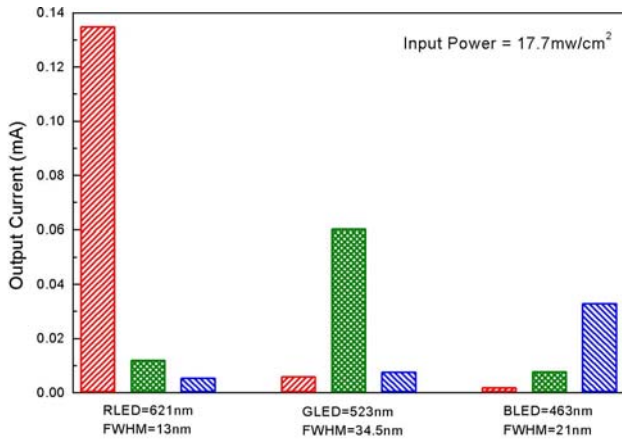


Fig.-3 R,G, B LED Test vs. Output Photocurrent

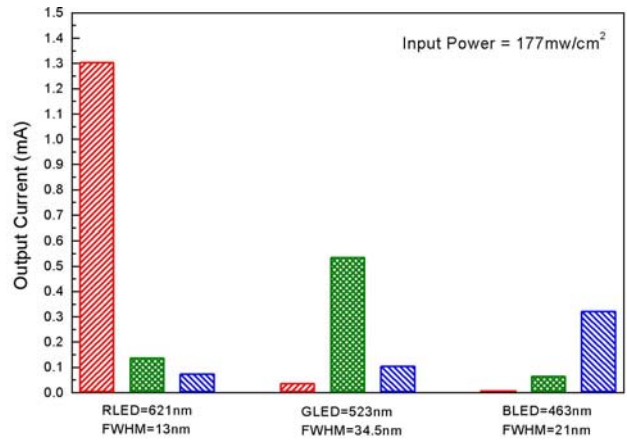
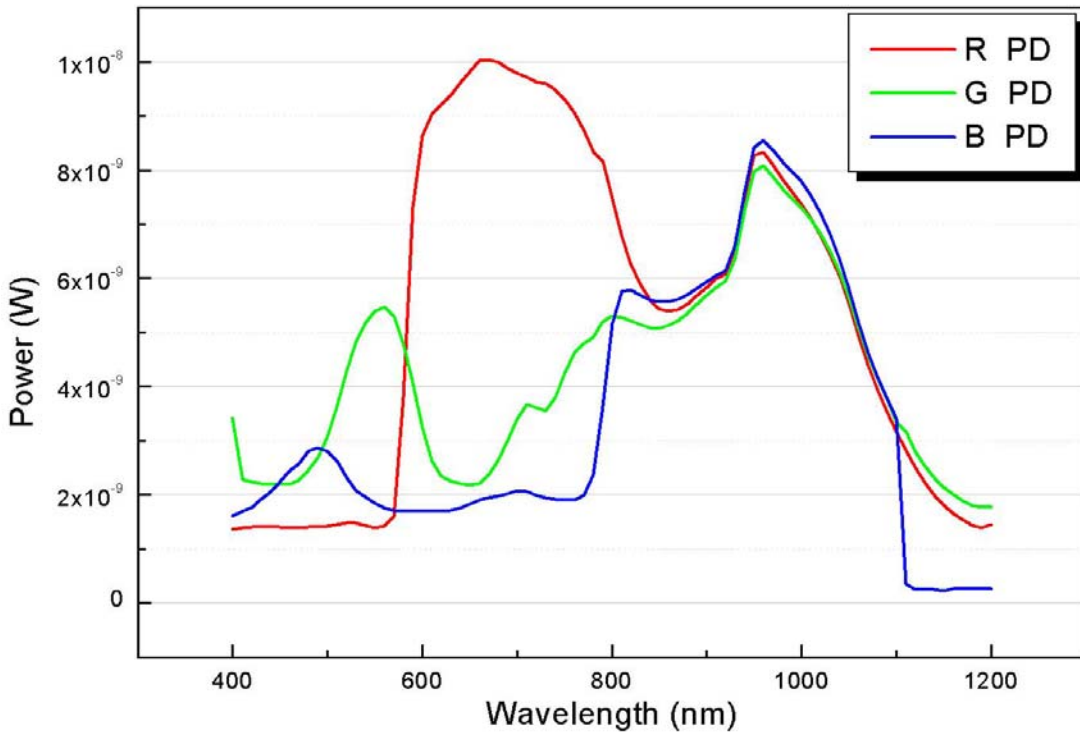


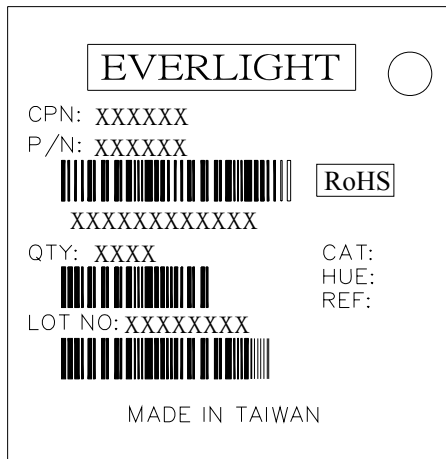
Fig.3 Relative Sensitivity vs. Wave Length(nm)



Packing Quantity Specification

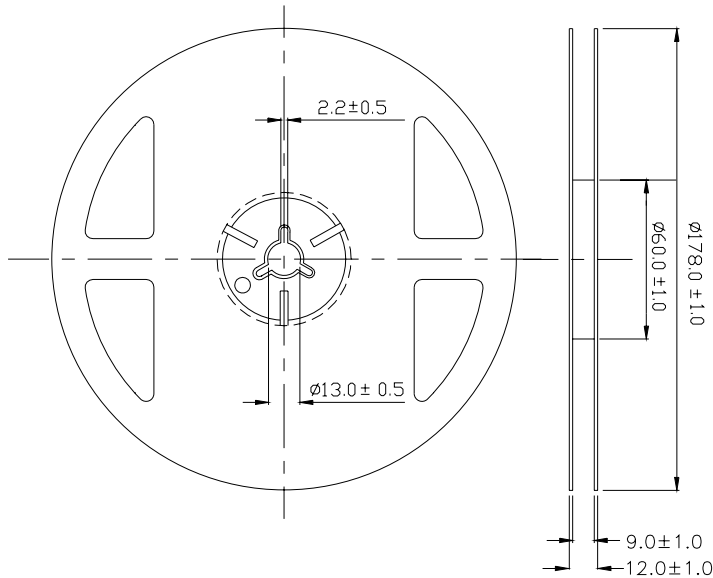
- 1. 2000 PCS/1 Reel
- 2. 5 Reel /1Carton

Label explanation



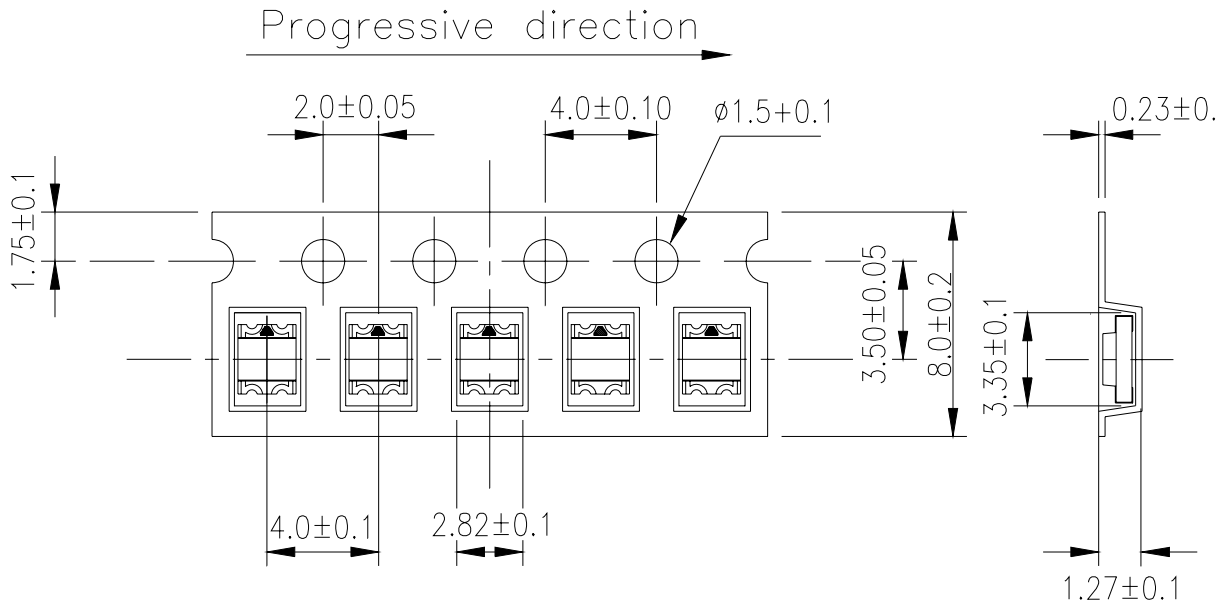
CPN: Customer's Production Number
 P/N : Production Number
 QTY: Packing Quantity
 CAT: Ranks
 HUE: None
 REF: Reference
 LOT No: Lot Number
 MADE IN TAIWAN: Production Place

Reel Dimensions



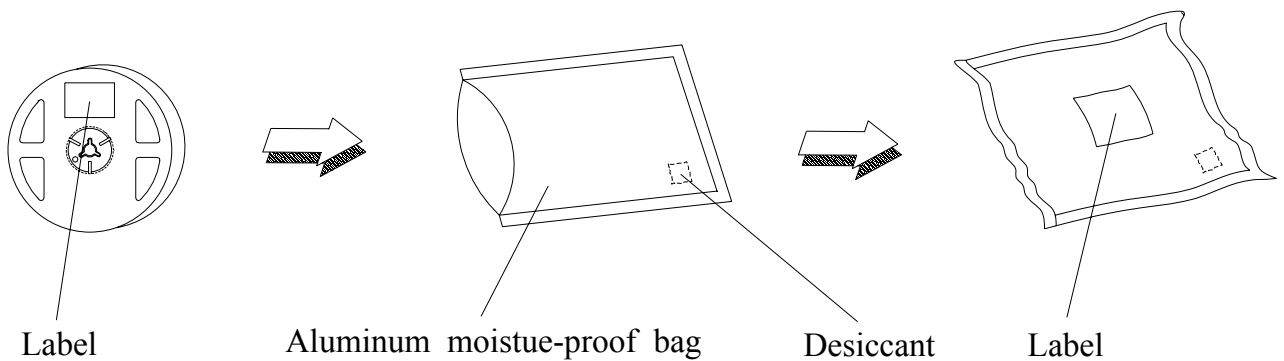
Note: The tolerances unless mentioned are ±0.1, Unit = mm.

Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



Note: Tolerances Unless Dimension is $\pm 0.1\text{mm}$, Unit = mm

Moisture Resistant Packaging



Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
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