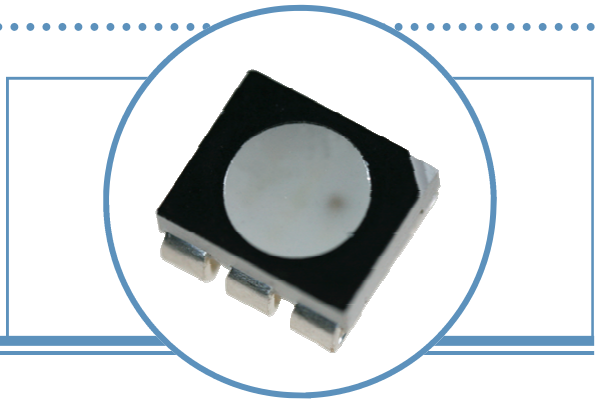
# Full Color PLCC6 LED

TT electronics
OPTEK Technology

## OVSTRGBB1CR8

- Full-color red/green/blue
- PLCC package with 6 pins
- Wide viewing angle
- High performance
- Tuneable color mix

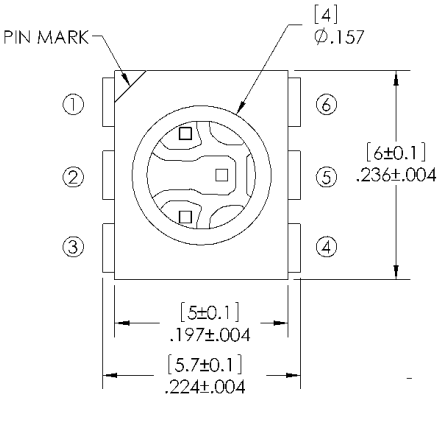


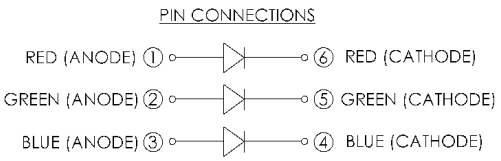
The **OVSTRGBB1CR8** package design provides wide viewing angle, low power consumption, and high luminous intensity. Color on demand is made possible by isolated chip circuits, allowing each LED to be driven individually or in tunable color combinations.

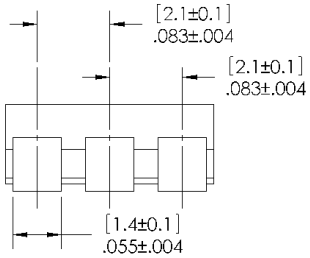
### Applications

- Amusement equipment
- Information boards
- Automotive interior lighting
- Portable appliances
- Indoor and outdoor displays
- Backlighting
- RGB full-color displays

| Part Number | Chip | | | | Lens Color |
|---|---|---|---|---|---|
| | Type | Material | Emitted Color | Intensity Typ. mcd | |
| OVSTRGBB1CR8 | R | AlInGaP | Red | 700 | Diffused |
| | G | InGaN | Green | 1800 | |
| | B | InGaN | Blue | 400 | |




DIMENSIONS ARE IN INCHES [MM].

RoHS

5a
Moisture

ATTENTION
OBSERVE PRECAUTIONS
ELECTROSTATIC
SENSITIVE DEVICES

**DO NOT LOOK DIRECTLY AT LED WITH UNSHIELDED EYES OR DAMAGE TO RETINA MAY OCCUR.**



**OPTEK Technology Inc. —** 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 visibleLED@optekinc.com www.optekinc.com

## Absolute Maximum Ratings

$T_A$ = 25° C unless otherwise noted

| PARAMETER | RATING | | | UNIT |
|---|---|---|---|---|
| | R | G | B | |
| Storage Temperature | -40 ~ +100 | | | ℃ |
| Operating Temperature | -40 ~ +100 | | | ℃ |
| Reverse Voltage | 5 | | | V |
| Continuous Forward Current (1 chip on) | 50 | 50 | 50 | mA |
| Peak Forward Current (10% Duty Cycle, PW ≤ 100 µsec, 1 chip on) | 200 | 100 | 100 | mA |
| Power Dissipation | 130 | 200 | 200 | mW |
| Junction Temperature | 110 | 110 | 110 | ℃ |
| Junction/ambient (1 chip on) | 450 | 400 | 450 | ℃/W |
| Junction/ambient (3 chips on) | 650 | 580 | 680 | ℃/W |
| Junction/solder point (1 chip on) | 300 | 280 | 300 | ℃/W |
| Junction/solder point (3 chips on) | 450 | 430 | 480 | ℃/W |
| Electrostatic Discharge Classification (JEDEC-JESD22-A114F) | | | | Class 1C |
| Moisture Sensitivity Level (IPC/JEDEC J-STD-020C) | | | | 5a / 24 Hrs |

## Electrical Characteristics

$T_A$ = 25° C unless otherwise noted

| SYMBOL | PARAMETER | VALUES | | | | UNIT | CONDITIONS |
|---|---|---|---|---|---|---|---|
| | | | R | G | B | | |
| $I_V$ | Luminous Intensity | Min | 560 | 1120 | 280 | mcd | $I_F$ = 50 mA |
| | | Avg | 700 | 1600 | 400 | | |
| $V_F$ | Forward Voltage | Avg | 2.0 | 3.2 | 3.2 | V | $I_F$ = 50 mA |
| | | Max | 2.6 | 4.0 | 4.0 | | |
| $I_R$ | Reverse Current (max) | | 10 | 10 | 10 | µA | $V_R$ = 5 V |
| $\lambda_D$ | Dominant Wavelength | | 619-624 | 520-540 | 460-480 | nm | $I_F$ = 50 mA |
| $\lambda_P$ | Wavelength at Peak Emission | | 630 | 527 | 470 | nm | $I_F$ = 50 mA |
| 2 Θ½ | Beam Angle | | 120 | 120 | 120 | deg | $I_F$ = 50 mA |
| Δλ | Spectral Radiation Bandwidth | | 24 | 38 | 28 | nm | $I_F$ = 50 mA |




**OPTEK Technology Inc. —** 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 visibleLED@optekinc.com www.optekinc.com

## Standard Bins

LEDs are sorted to luminous intensity ($I_V$) and dominant wavelength (nm) bins shown. Each reel consists of a single intensity bin and a single color bin. Orders are filled using all intensity and color bins listed in the following tables. Optek will not accept orders for single intensity bins or single color bins.

### Luminous Intensity ($I_V$ ) @ 50mA

| RED | | |
|---|---|---|
| Code | Min (mcd) | Max (mcd) |
| K | 560 | 710 |
| M | 710 | 900 |
| N | 900 | 1120 |

| GREEN | | |
|---|---|---|
| Code | Min (mcd) | Max (mcd) |
| P | 1120 | 1400 |
| Q | 1400 | 1800 |
| R | 1800 | 2240 |

| BLUE | | |
|---|---|---|
| Code | Min (mcd) | Max (mcd) |
| G | 280 | 355 |
| H | 355 | 450 |
| J | 450 | 560 |

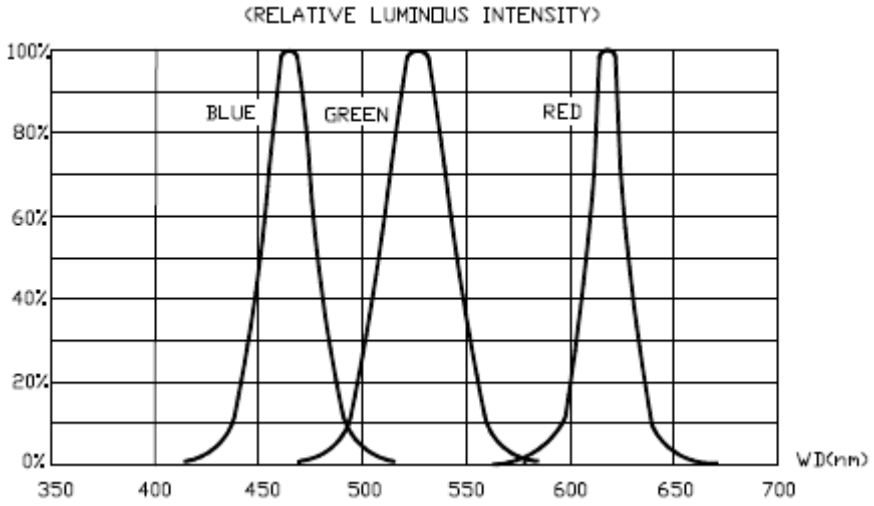
### Dominant Wavelength (nm)

| RED | | |
|---|---|---|
| Code | Min (nm) | Max (nm) |
| RB | 619 | 624 |

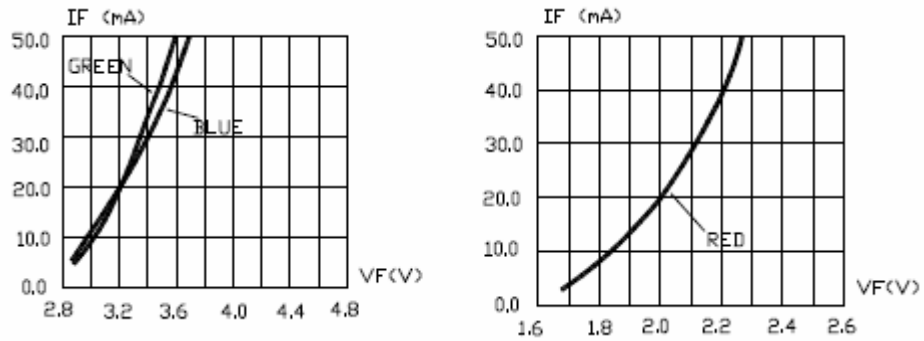
| GREEN | | |
|---|---|---|
| Code | Min (nm) | Max (nm) |
| G7 | 520 | 525 |
| G8 | 525 | 530 |
| G9 | 530 | 535 |
| Ga | 535 | 540 |

| BLUE | | |
|---|---|---|
| Code | Min (nm) | Max (nm) |
| B3 | 460 | 465 |
| B4 | 465 | 470 |
| B5 | 470 | 475 |
| B6 | 475 | 480 |

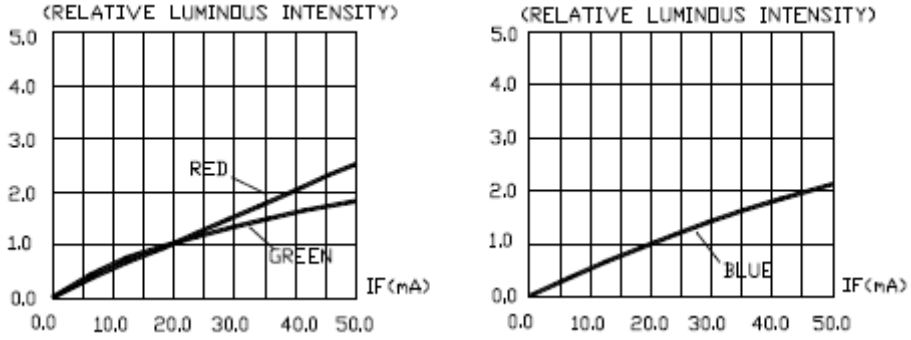
## Typical Electro-Optical Characteristics Curves




Relative Intensity vs Dominant Wavelength




Forward Current vs Forward Voltage

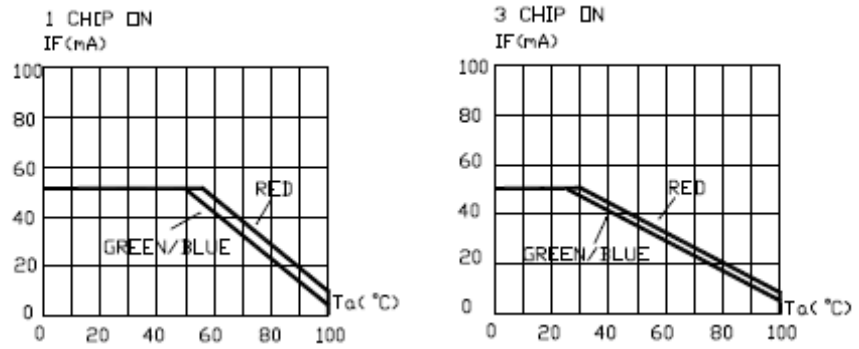



Relative Luminous Intensity vs Forward Current

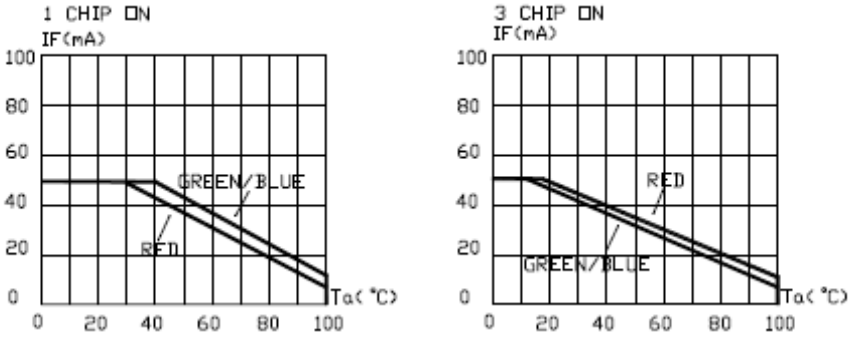



**OPTEK Technology Inc. —** 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 visibleLED@optekinc.com www.optekinc.com

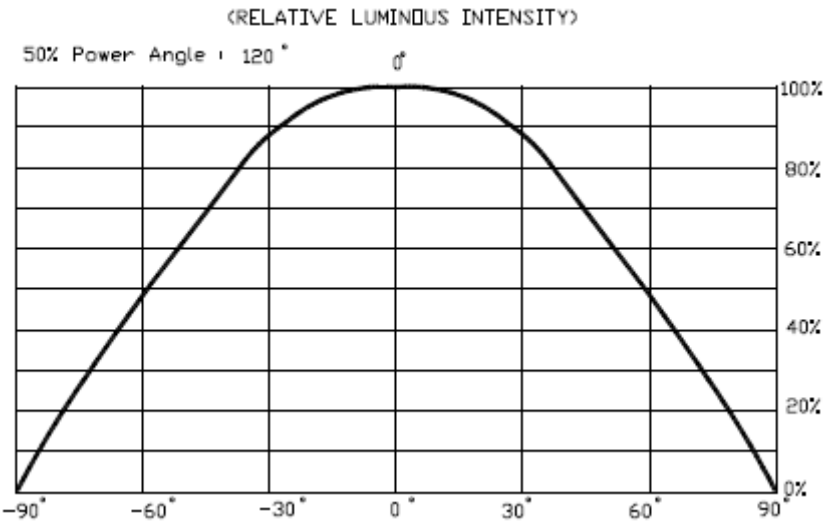
## Typical Electro-Optical Characteristics Curves




Maximum Forward DC Current vs Solder Point Temperature

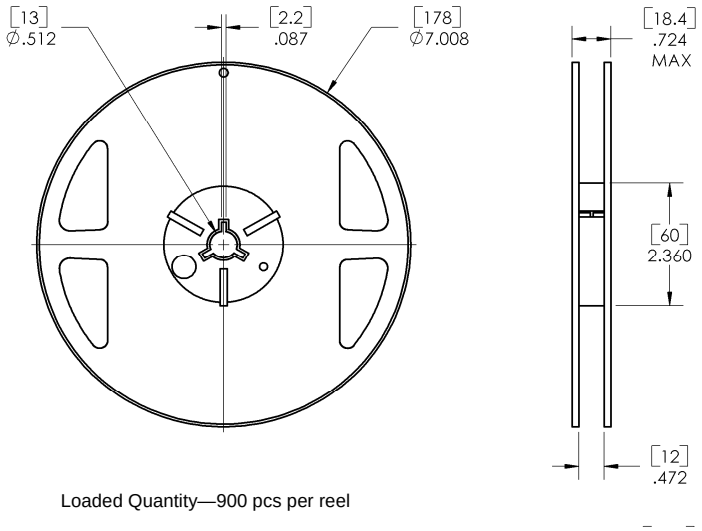



Maximum Forward DC Current vs Ambient Temperature



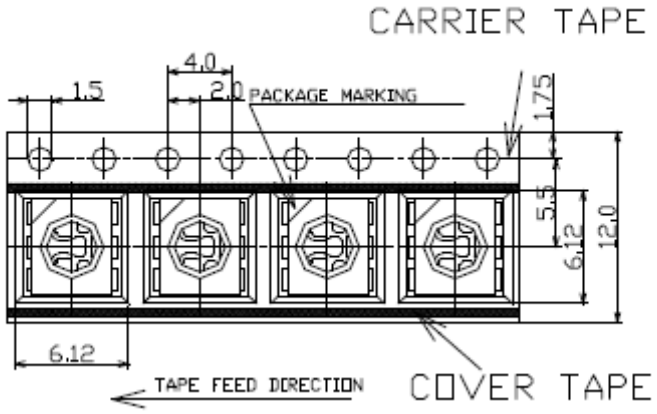

Far Field Pattern

## Reel Dimensions: 7-inch reel

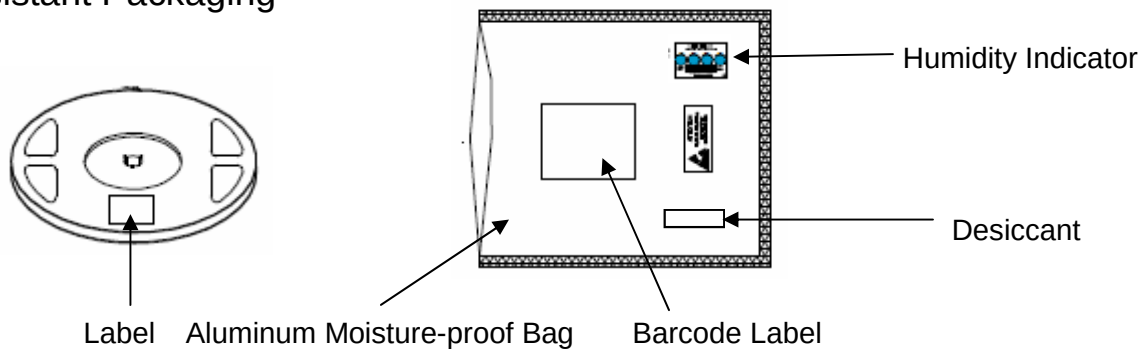



Loaded Quantity—900 pcs per reel

## Carrier Tape Dimensions: Loaded quantity 900 pieces per reel




## Moisture Resistant Packaging




OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.


**OPTEK Technology Inc. —** 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 visibleLED@optekinc.com www.optekinc.com