

## Round Type LED lamp

BL-L513

### Features:

- Ø 5mm Round Type LED lamp
- Ø Ultra brightness.
- Ø Choice of various viewing angles.
- Ø Diffused, Transparent and Water clear lens are available.
- Ø IC compatible /Low current capability.
- Ø RoHs Compliance



### Electrical-optical characteristics: (Ta=25°C) (Test Condition: IF=20mA)

| Part Number | Chip               |            |                     | Lens Type   | Forward Voltage(VF)<br>Unit:V |      | Luminous Intensity (lv)<br>Unit:mcd |       | Viewing Angle 2θ/2 (deg) |
|-------------|--------------------|------------|---------------------|-------------|-------------------------------|------|-------------------------------------|-------|--------------------------|
|             | Emitted Color      | Material   | λ <sub>p</sub> (nm) |             | Typ                           | Max  | Min.                                | Typ.  |                          |
|             |                    |            |                     |             |                               |      |                                     |       |                          |
| BL-L513SRC  | Hi Red             | AlGaAs,SH  | 660                 | Water Clear | 1.85                          | 2.20 | 50                                  | 250   | 20                       |
| BL-L513LRC  | Super Red          | AlGaAs,DH  | 660                 |             | 1.85                          | 2.20 | 250                                 | 600   |                          |
| BL-L513URC  | Ultra Red          | AlGaAs,DDH | 660                 |             | 1.95                          | 2.20 | 600                                 | 1000  |                          |
| BL-L513UEC  | Ultra Orange       | AlGaInP    | 630                 |             | 2.10                          | 2.50 | 800                                 | 2000  |                          |
| BL-L513UYC  | Ultra Yellow       | AlGaInP    | 590                 |             | 2.10                          | 2.50 | 1000                                | 2200  |                          |
| BL-L513UGC  | Ultra Green        | AlGaInP    | 574                 |             | 2.20                          | 2.50 | 300                                 | 700   |                          |
| BL-L513PGC  | Ultra Pure Green   | InGaN      | 525                 |             | 3.80                          | 4.50 | 2000                                | 5000  |                          |
| BL-L513BGC  | Ultra Bluish Green | InGaN      | 505                 |             | 3.80                          | 4.50 | 1800                                | 4000  |                          |
| BL-L513UBC  | Ultra Blue         | InGaN      | 470                 |             | 2.70                          | 4.20 | 2000                                | 5000  |                          |
| BL-L513UVC  | UV                 | InGaN      | 405                 |             | 3.80                          | 4.50 | 80                                  | 150   |                          |
| BL-L513UWC  | Ultra White        | InGaN      | /                   |             | 2.70                          | 4.20 | 3000                                | 10000 |                          |
| BL-L513SRD  | Hi Red             | AlGaAs,SH  | 660                 |             | Diffused                      | 1.85 | 2.20                                | 20    |                          |
| BL-L513LRD  | Super Red          | AlGaAs,DH  | 660                 | 1.85        |                               | 2.20 | 50                                  | 120   |                          |
| BL-L513URD  | Ultra Red          | AlGaAs,DDH | 660                 | 1.95        |                               | 2.20 | 100                                 | 220   |                          |
| BL-L513UED  | Ultra Orange       | AlGaInP    | 630                 | 2.10        |                               | 2.50 | 120                                 | 300   |                          |
| BL-L513UYD  | Ultra Yellow       | AlGaInP    | 590                 | 2.10        |                               | 2.50 | 120                                 | 320   |                          |
| BL-L513UYOD | Ultra Yellow       | AlGaInP    | 619                 | 2.10        |                               | 2.50 | 120                                 | 320   |                          |
| BL-L513UGD  | Ultra Green        | AlGaInP    | 574                 | 2.20        |                               | 2.50 | 45                                  | 100   |                          |
| BL-L513PGD  | Ultra Pure Green   | InGaN      | 525                 | 3.80        |                               | 4.50 | 400                                 | 900   |                          |
| BL-L513BGD  | Ultra Bluish Green | InGaN      | 505                 | 3.80        |                               | 4.50 | 300                                 | 800   |                          |
| BL-L513UBD  | Ultra Blue         | InGaN      | 470                 | 2.70        |                               | 4.20 | 400                                 | 900   |                          |
| BL-L513UWW  | Ultra White        | InGaN      | /                   | 2.70        |                               | 4.20 | 1000                                | 2000  |                          |

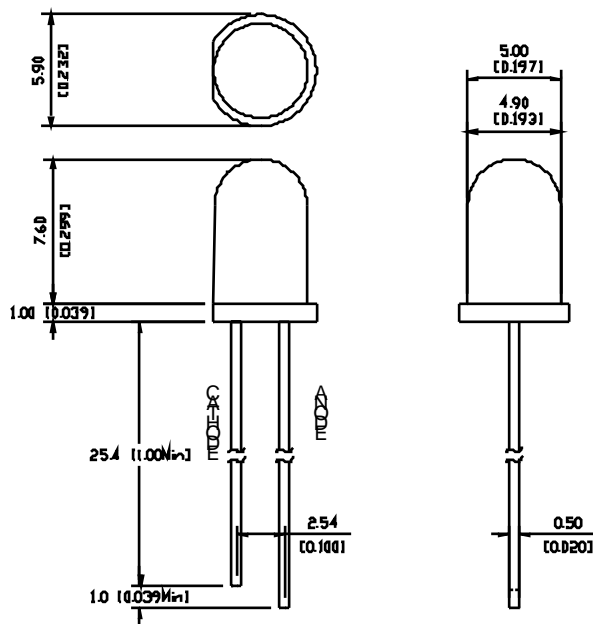
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### Absolute maximum ratings (Ta=25°C)

| Parameter  | SR  | LR  | UR  | UE  | UY  | UG  | PG  | BG  | B   | UB  | UV  | W   | Unit |
|--|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current $I_F$                              | 25  | 25  | 25  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | mA   |
| Power Dissipation $P_d$                            | 60  | 60  | 60  | 65  | 65  | 75  | 110 | 110 | 120 | 120 | 120 | 120 | mW   |
| Reverse Voltage $V_R$                              | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | V    |
| Peak Forward Current $I_{PF}$<br>(Duty 1/10 @1KHZ) | 150   | 150 | 150 | 150 | 150 | 150 | 150 | 100 | 100 | 100 | 100 | 100 | mA   |
| Operation Temperature $T_{OPR}$                    | -40 to +80  |     |     |     |     |     |     |     |     |     |     |     | °C   |
| Storage Temperature $T_{STG}$                      | -40 to +85  |     |     |     |     |     |     |     |     |     |     |     | °C   |
| Lead Soldering Temperature<br>TSOL                 | Max.260±5°C for 3 sec Max.<br>(1.6mm from the base of the epoxy bulb) |     |     |     |     |     |     |     |     |     |     |     | °C   |

### Package configuration & Internal circuit diagram



#### Notes:

1. All dimensions are in millimeters (inches)
2. Tolerance is  $\pm 0.25$  (0.01") unless otherwise noted.
3. Specifications are subject to change without notice.

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## Typical electrical-optical characteristics curves:



- (1) - GaAsP/GaAs 655nm/Red
- (2) - GaP 570nm/Yellow Green
- (3) - GaAsP/GaP 585nm/Yellow
- (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) - GaP 700nm/Bright Red
- (6) - GaAlAs/GaAs 660nm/Super Red
- (8) - GaAsP/GaP 610nm/Super Red
- (9) - GaAlAs 880nm
- (10) - GaAs/GaAs & GaAlAs/GaAs 940nm
- (A) - GaN/SiC 430nm/Blue
- (B) - InGaN/SiC 470nm/Blue
- (C) - InGaN/SiC 505nm/Ultra Green
- (D) - InGaAlSiC 525nm/Ultra Green



FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



AMBIENT TEMPERATURE Ta ( )  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta ( )



tp-PULSE DURATION µs  
(1,2,3,4,6,8,B,D,J,K)



(5)

NOTE:25 free air temperature unless otherwise specified

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Packing and weighting

