

Round Through-Hole LED Lamp (5 mm)



OVLFX3C7

Features:

- High brightness with well-defined spatial radiation patterns
- UV-resistant epoxy lens
- 30° Beam Angle



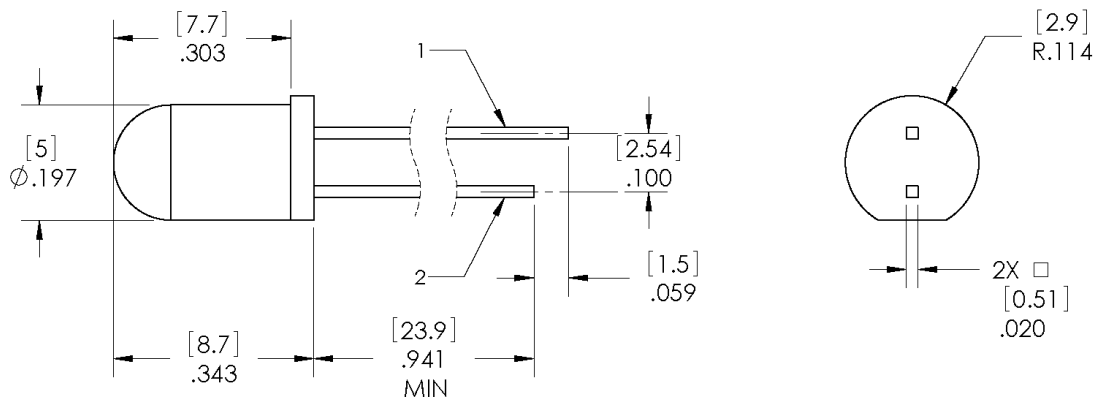
Description:

Each device in the OVLFX3C7 series is a high-intensity LED mounted in a clear plastic T-1 $\frac{1}{4}$ package. The LED provides a well-defined and even emission pattern. The UV-resistant epoxy lens makes this device an optimal solution for outdoor applications.

Applications:

- Traffic and pedestrian signals
- Signage and architectural lighting
- Backlighting
- Automotive

| Part Number | Material | Emitted Color | Intensity Typ. mcd | Lens Color |
|-------------|----------|---------------|--------------------|------------|
| OVLFB3C7 | InGaN | Blue | 5,200 | Clear |
| OVLFG3C7 | InGaN | Green | 16,000 | Clear |
| OVLFR3C7 | AllnGaP | Red | 7,400 | Clear |
| OVLFY3C7 | AllnGaP | Yellow | 7,400 | Clear |



RoHS



1 ANODE 2 CATHODE DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

Leadframe material is iron alloy with tin-plated leads

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

General Note

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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| | | |
|---|-------------|--------------------|
| Storage Temperature Range | | -40 ~ +100 °C |
| Operating Temperature Range | | -40 ~ +100 °C |
| Reverse Voltage | | 5 V |
| Continuous Forward Current | Blue, Green | 25 mA |
| Continuous Forward Current | Red, Yellow | 50 mA |
| Peak Forward Current (10% Duty Cycle, 1 kHz) | Blue, Green | 100 mA |
| Peak Forward Current (10% Duty Cycle, 1 kHz) | Red, Yellow | 100 mA |
| Power Dissipation | Blue, Green | 100 mW |
| Power Dissipation | Red, Yellow | 120 mW |
| Current Linearity vs Ambient Temperature | Blue, Green | -0.29 mA/°C |
| Current Linearity vs Ambient Temperature | Red, Yellow | -0.72 mA/°C |
| Electrostatic Discharge Classification (JEDEC-JESD22-A114F) | | Class 1C |
| LED Junction Temperature | | 125 °C |
| Lead Soldering Temperature (4 mm from the base of the epoxy bulb) | | 260 °C / 5 seconds |

Electrical Characteristics

| SYMBOL | PARAMETER | COLOR | MIN | TYP | MAX | UNITS | CONDITIONS |
|-----------------|---------------------|--------|-------|--------|------|---------------|----------------------|
| I_V | Luminous Intensity | Blue | 3,115 | 5,200 | ---- | mcd | $I_F = 20\text{ mA}$ |
| | | Green | 8,550 | 16,000 | ---- | | |
| | | Red | 4,360 | 7,400 | ---- | | |
| | | Yellow | 4,360 | 7,400 | ---- | | |
| V_F | Forward Voltage | Blue | 2.6 | 3.4 | 4.0 | V | $I_F = 20\text{ mA}$ |
| | | Green | | | | | |
| | | Red | 1.8 | 2.0 | 2.4 | | |
| | | Yellow | | | | | |
| I_R | Reverse Current | Blue | ---- | ---- | 10 | μA | $V_R = 5\text{ V}$ |
| | | Green | | | | | |
| | | Red | | | | | |
| | | Yellow | | | | | |
| λ_D | Dominant Wavelength | Blue | 460 | 470 | 475 | nm | $I_F = 20\text{ mA}$ |
| | | Green | 519 | 525 | 531 | | |
| | | Red | 620 | 623 | 630 | | |
| | | Yellow | 585 | 589 | 595 | | |
| $\Delta\lambda$ | Spectra Half Width | Blue | ---- | 25 | ---- | nm | $I_F = 20\text{ mA}$ |
| | | Green | | | | | |
| | | Red | | | | | |
| | | Yellow | | | | | |
| 20½H-H | 50% Power Angle | | ---- | 30 | ---- | deg | $I_F = 20\text{ mA}$ |

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Typical Electro-Optical Characteristics Curves (BLUE)

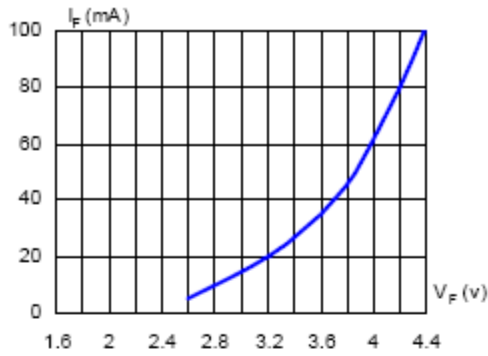


Fig. 1 Forward Current vs. Forward Voltage

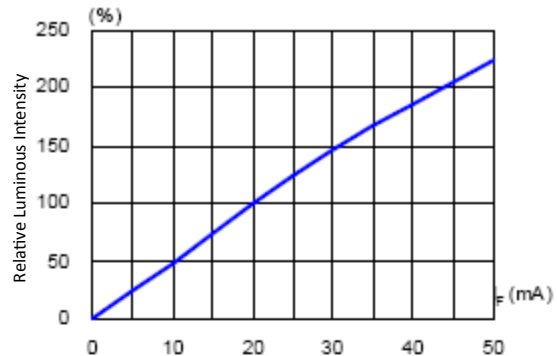


Fig. 2 Luminous Intensity vs. Forward Current

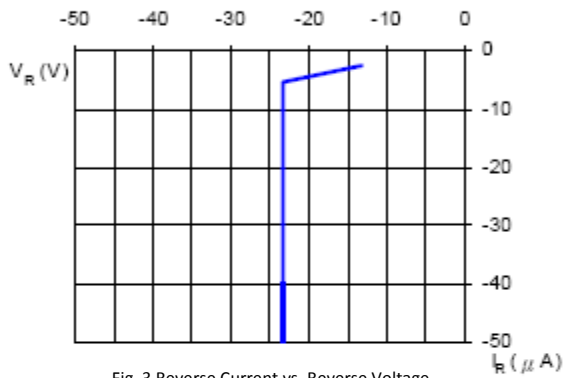


Fig. 3 Reverse Current vs. Reverse Voltage

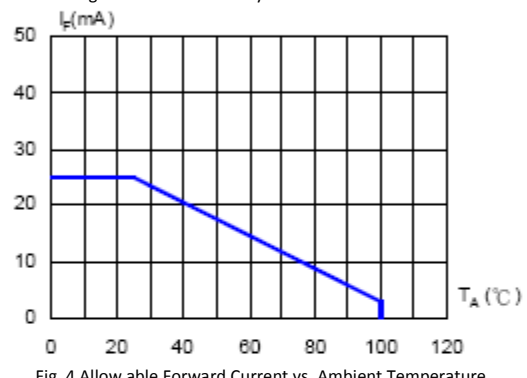


Fig. 4 Allowable Forward Current vs. Ambient Temperature

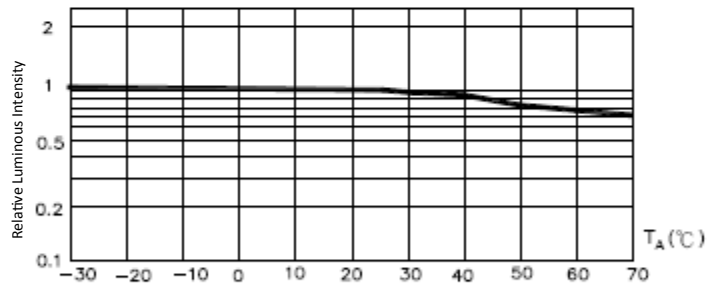


Fig. 5 Luminous Intensity at $I_F = 20mA$ vs. Ambient Temperature

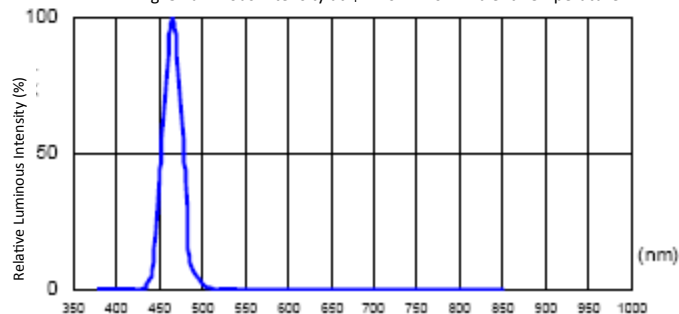


Fig. 6 Relative Luminous Intensity vs. Wavelength

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Round Through-Hole LED Lamp (5 mm)



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Typical Electro-Optical Characteristics Curves (GREEN)

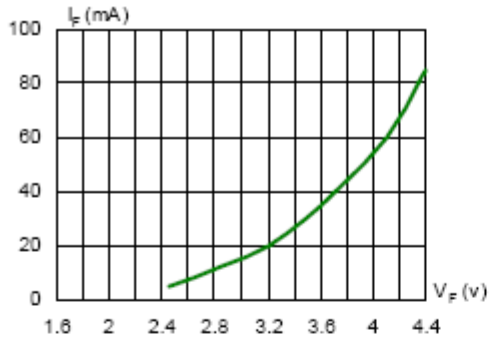


Fig.1 Forward Current vs Forward Voltage

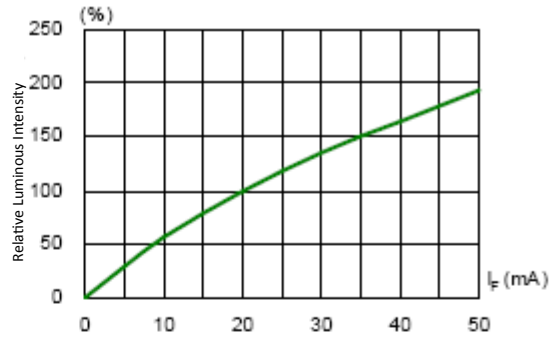


Fig. 2 Luminous Intensity vs. Forward Current

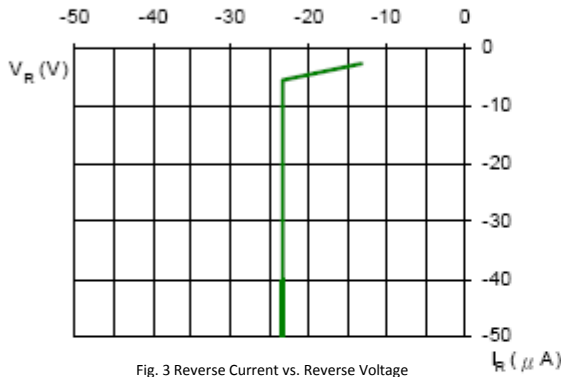


Fig. 3 Reverse Current vs. Reverse Voltage

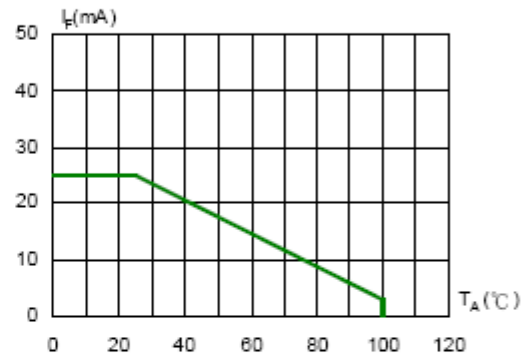


Fig. 4 Allowable Forward Current vs. Ambient Temperature

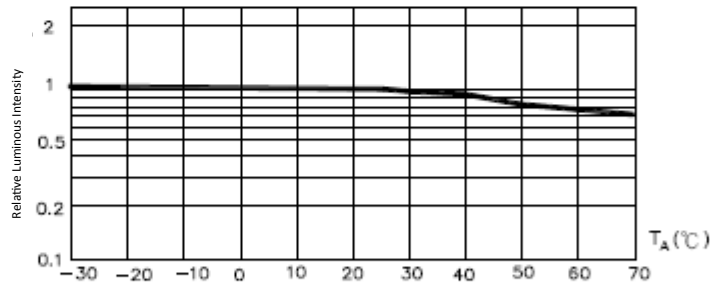


Fig. 5 Luminous Intensity at $I_F = 20mA$ vs. Ambient Temperature

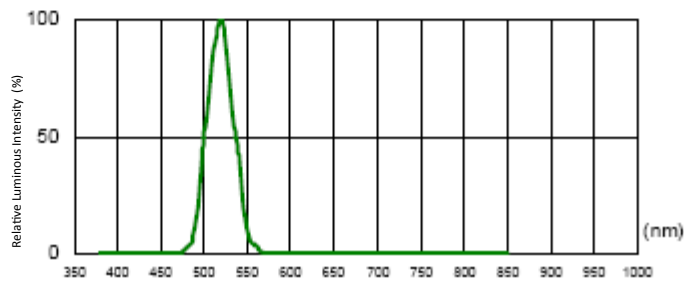


Fig. 6 Relative Luminous Intensity vs. Wavelength

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Round Through-Hole LED Lamp (5 mm)



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Typical Electro-Optical Characteristics Curves (RED)

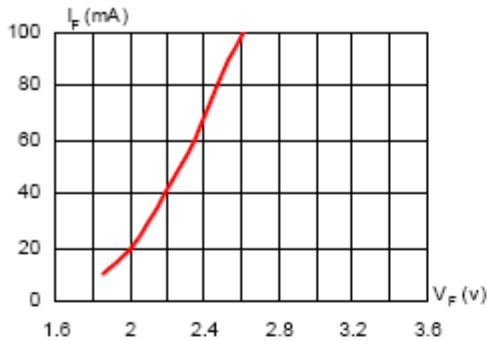


Fig. 1 Forward Current vs. Forward Voltage

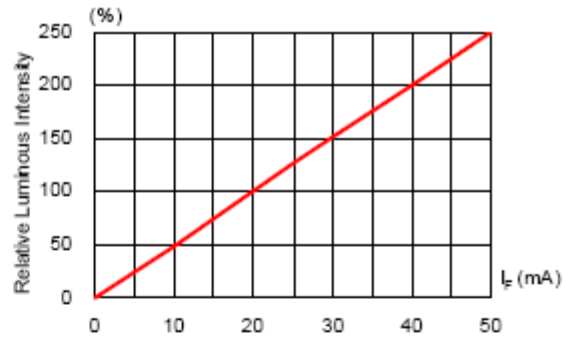


Fig. 2 Luminous Intensity vs. Forward Current

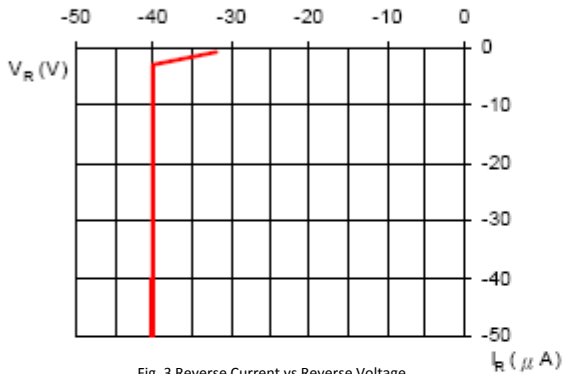


Fig. 3 Reverse Current vs. Reverse Voltage

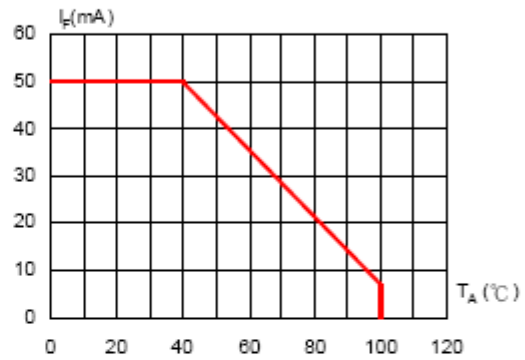


Fig. 4 Allowable Forward Current vs. Ambient Temperature

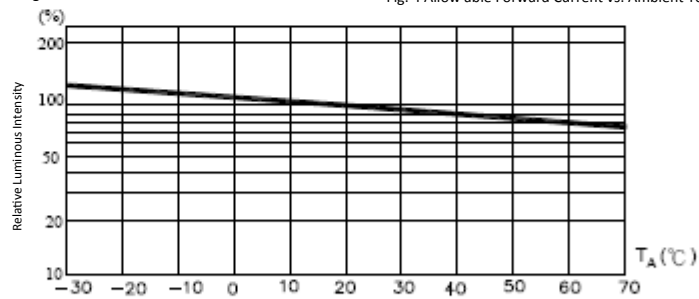


Fig. 5 Luminous Intensity at $I_F + 20mA$ vs. Ambient Temperature

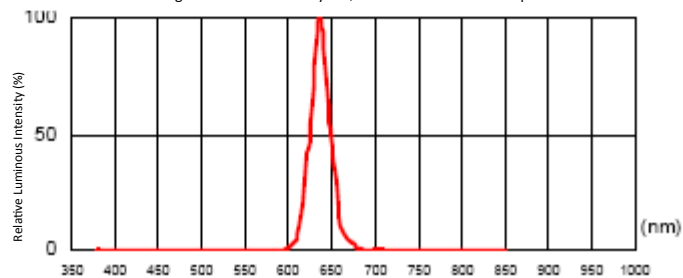


Fig. 6 Relative Luminous Intensity vs. Wavelength

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Round Through-Hole LED Lamp (5 mm)



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Typical Electro-Optical Characteristics Curves (YELLOW)

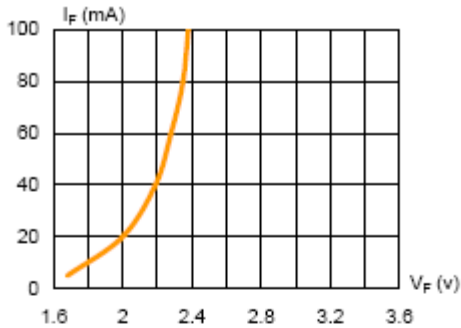


Fig.1 Forward Current vs. Forward Voltage

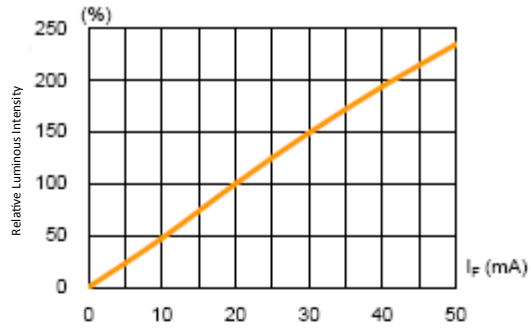


Fig. 2 Luminous Intensity vs. Forward Current

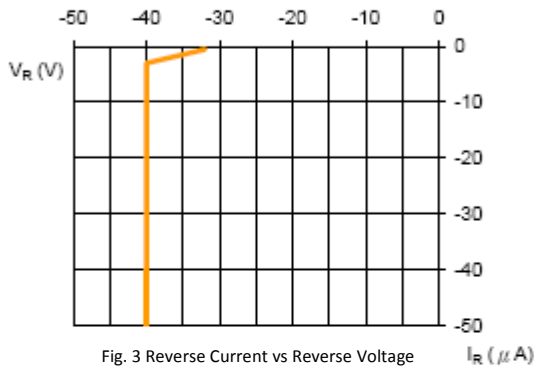


Fig. 3 Reverse Current vs. Reverse Voltage

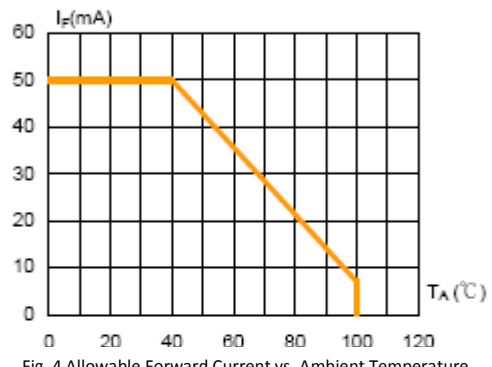


Fig. 4 Allowable Forward Current vs. Ambient Temperature

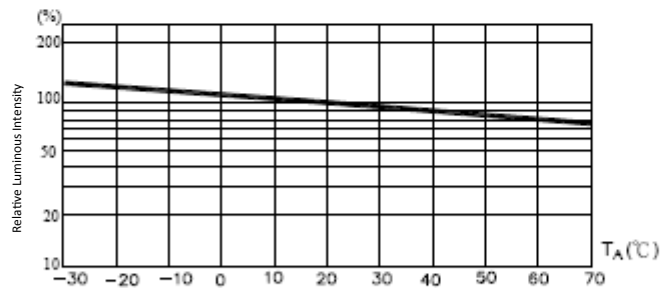


Fig. 5 Luminous Intensity at $I_F = 20mA$ vs. Ambient Temperature

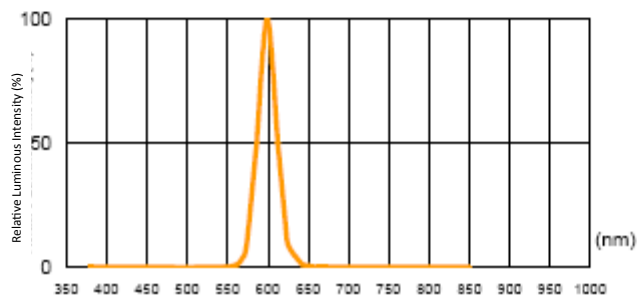


Fig. 6 Relative Luminous Intensity vs. Wavelength

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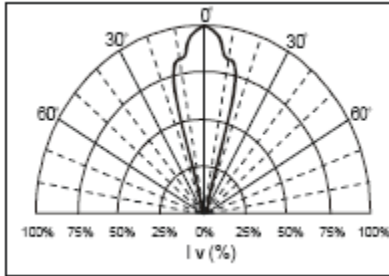
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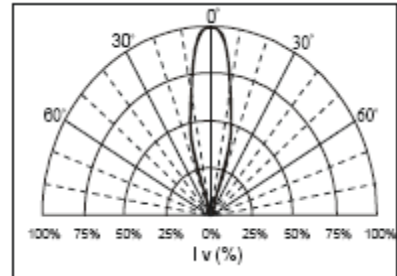
OVLFX3C7

Beam Pattern

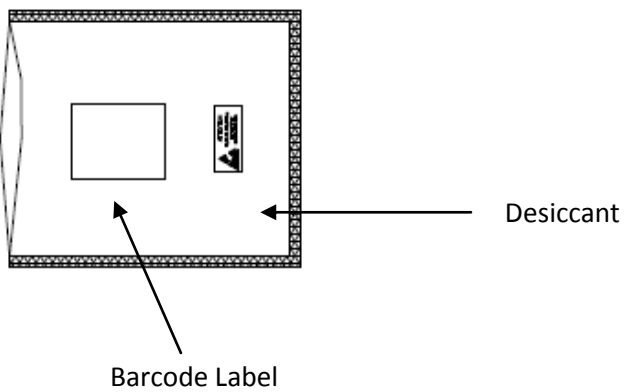
(RED) and (YELLOW)



(BLUE) and (GREEN)



Packaging: 500 pcs per bulk bag with desiccant



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Reliability Test

| Classification | Test Item | Standard Test Method | Test Conditions | Duration | Unit | Acc / Rej Criteria | Result |
|------------------|----------------------------------|----------------------------|---|------------|------|--------------------|--------|
| Life Test | Operation Life Test (OLT) | MIL-STD-750D Method 1026.3 | $T_A=25^{\circ}\text{C}$, $I_F=30\text{mA}$ * | 1000 Hrs | 100 | 0 / 1 | Pass |
| Environment Test | High Temperature Storage (HTS) | MIL-STD-750D Method 1032.1 | $T_A=100^{\circ}\text{C}$ | 1000 Hrs | 100 | 0 / 1 | Pass |
| | Low Temperature Storage (LTS) | MIL-STD-750D Method 1032.1 | $T_A=-40^{\circ}\text{C}$ | 1000 Hrs | 100 | 0 / 1 | Pass |
| | Temp. & Humidity with Bias (THB) | MIL-STD-750D Method 103B | $T_A=85^{\circ}\text{C}$, $\text{Rh}=85\%$, $I_F=20\text{mA}$ ** | 500 Hrs | 100 | 0 / 1 | Pass |
| | Thermal Shock Test (TST) | MIL-STD-750D Method 1056.1 | $0^{\circ}\text{C} \sim 100^{\circ}\text{C}$ 2min 2min | 100 cycles | 100 | 0 / 1 | Pass |
| | Temperature Cycling Test (TCT) | MIL-STD-750D Method 1051.5 | $-40^{\circ}\text{C} \sim 25^{\circ}\text{C} \sim 100^{\circ}\text{C} \sim 25^{\circ}\text{C}$ 30min 5min 30min 5min | 100 cycles | 100 | 0 / 1 | Pass |
| Mechanical Test | Solderability | MIL-STD-750D Method 2026.4 | $235\pm 5^{\circ}\text{C}$, 5 sec | 1 time | 20 | 0 / 1 | Pass |
| | Resistance to Soldering Heat | MIL-STD-750D Method 2031.1 | $260\pm 5^{\circ}\text{C}$, 10 sec | 1 time | 20 | 0 / 1 | Pass |
| | Lead Integrity | MIL-STD-750D Method 2036.3 | Load 2.5N (0.25kgf) $0^{\circ} \sim 90^{\circ} \sim 0^{\circ}$, bend | 3 times | 20 | 0 / 1 | Pass |

Remark : (*) $I_F=30\text{mA}$ for AlInGaP chip ; $I_F=20\text{mA}$ for InGaN chip

(**) $I_F=20\text{mA}$ for AlInGaP chip ; $I_F=10\text{mA}$ for InGaN chip

2. Failure Criteria ($T_A=25^{\circ}\text{C}$):

| Test Item | Symbol | Test Conditions | Criteria for Judgment | |
|--------------------|--------|-------------------|---------------------------|--------------------------|
| | | | Min. | Max. |
| Luminous Intensity | I_V | $I_F=20\text{mA}$ | $\text{LSL}\times 0.7$ ** | |
| Voltage (Forward) | V_F | $I_F=20\text{mA}$ | | $\text{USL}\times 1.1$ * |

(*) USL : Upper Standard Level , (**) LSL : Lower Standard Level

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