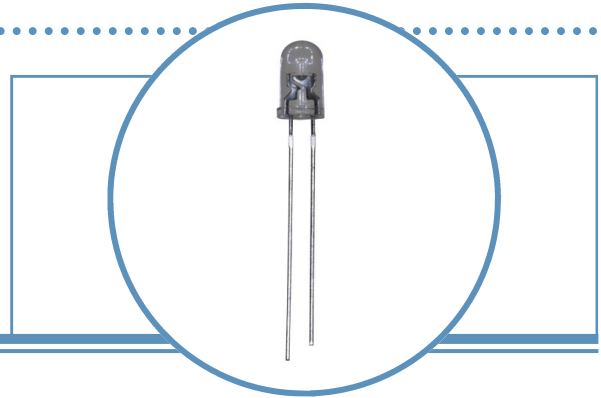


# Round Through-Hole LED Lamp (5 mm)

## OVLFX3C7 Series

- High brightness with well-defined spatial radiation patterns
- UV-resistant epoxy lens
- Blue, green, red, yellow

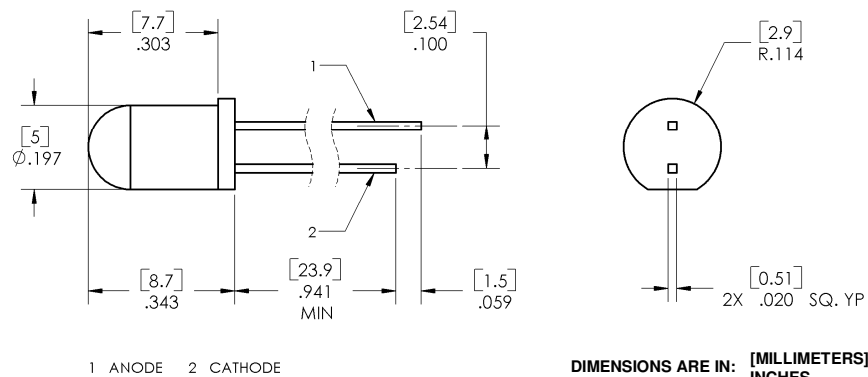


Each device in the **OVLFX3C7** series is a high-intensity LED mounted in a clear plastic T-1 $\frac{3}{4}$  package. The LED provides a well-defined and even emission pattern. Its UV-resistant epoxy lens makes this device an optimal solution for outdoor applications.

## Applications

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

Part Number	Material	Emitted Color	Intensity Typ. mcd	Lens Color
OVLFB3C7	InGaN	Blue	2000	Water Clear
OVLFG3C7	InGaN	Green	7000	Water Clear
OVLFR3C7	AllnGaP	Red	5000	Water Clear
OVLFY3C7	AllnGaP	Yellow	4000	Water Clear



Leadframe material is iron alloy with tin-plated leads



RoHS



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

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

# Round Through-Hole LED Lamp

## OVLFX3C7 Series



### Absolute Maximum Ratings

T<sub>A</sub> = 25° C unless otherwise noted

Storage Temperature Range		-40 ~ +100 °C
Operating Temperature Range		-40 ~ +85 °C
Reverse Voltage		5 V
Continuous Forward Current	Blue, Green	20 mA
	Red, Yellow	30 mA
Peak Forward Current (10% Duty Cycle, 1 kHz)	Blue, Green	50 mA
	Red, Yellow	100 mA
Power Dissipation	Blue, Green	80 mW
	Red, Yellow	72 mW
Current Linearity vs Ambient Temperature	Blue, Green	-0.2 mA/°C
	Red, Yellow	-0.5 mA/°C
LED Junction Temperature		125° C
Lead Soldering Temperature (4 mm from the base of the epoxy bulb)		260° C / 5 seconds

### Electrical Characteristics

T<sub>A</sub> = 25° C unless otherwise noted

SYMBOL	PARAMETER	COLOR	MIN	TYP	MAX	UNITS	CONDITIONS
I <sub>V</sub>	Luminous Intensity	Blue	1135	2000	----	mcd	I <sub>F</sub> = 20 mA
		Green	4360	7000	----		
		Red	2820	5000	----		
		Yellow	2225	4000	----		
V <sub>F</sub>	Forward Voltage	Blue	----	3.4	4.0	V	I <sub>F</sub> = 20 mA
		Green	2.6	3.4	4.0		
		Red	----	2.0	2.4		
		Yellow	----	2.0	2.4		
I <sub>R</sub>	Reverse Current	Blue	----	----	50	μA	V <sub>R</sub> = 5 V
		Green	----	----	50		
		Red	----	----	10		
		Yellow	----	----	10		
λ <sub>D</sub>	Dominant Wavelength	Blue	460	465	475	nm	I <sub>F</sub> = 20 mA
		Green	519	525	531		
		Red	620	625	630		
		Yellow	585	589	595		
Δλ	Spectra Half Width	Blue	----	25	----	nm	I <sub>F</sub> = 20 mA
		Green	----	25	----		
		Red	----	25	----		
		Yellow	----	25	----		
2Θ <sub>1/2</sub> H-H	50% Power Angle		----	30	----	deg	I <sub>F</sub> = 20 mA

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# Round Through-Hole LED Lamp

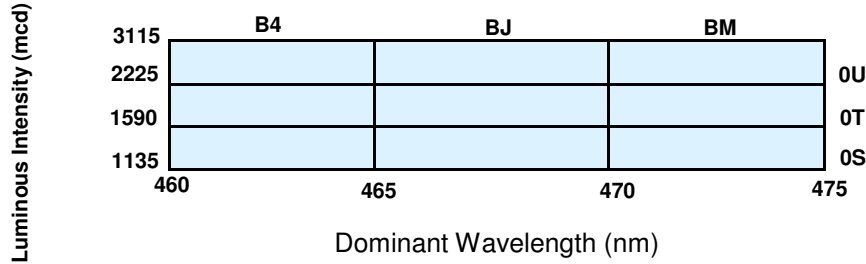
## OVLFX3C7 Series



### Standard Bins ( $I_F = 20 \text{ mA}$ )

Lamps are sorted to luminous intensity ( $I_V$ ) and dominant wavelength ( $\lambda_D$ ) bins shown. Orders may be filled with any or all bins contained as below.

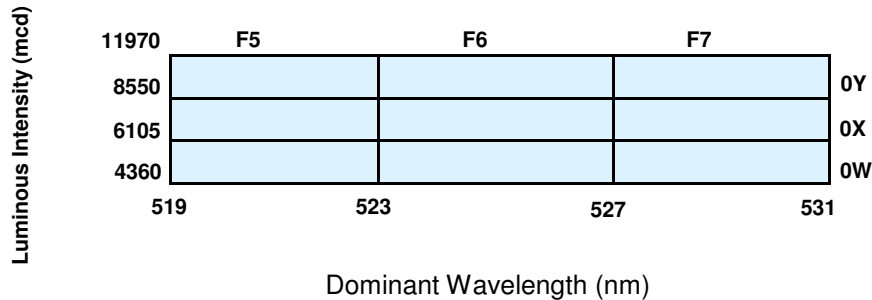
#### OVLFB3C7 (BLUE)



#### Forward Voltage ( $V_F$ )

Rank	H	J	K	L
Voltage	2.6–3.0	3.0–3.3	3.3–3.6	3.6–4.0

#### OVLFG3C7 (GREEN)



#### Forward Voltage ( $V_F$ )

Rank	H	J	K	L
Voltage	2.6–3.0	3.0–3.3	3.3–3.6	3.6–4.0

#### Notes:

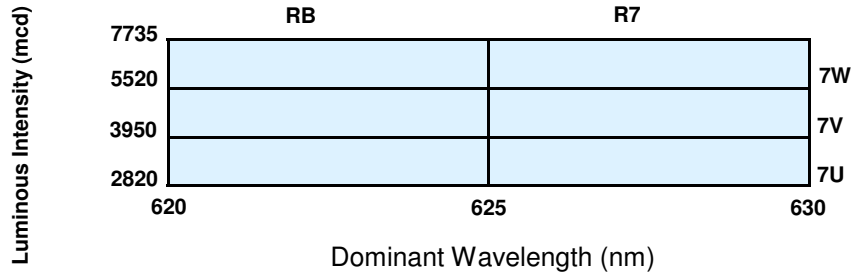
1. All ranks will be included per delivery, rank ratio will be based on the chip distribution.
2. To designate luminous intensity ranks, please contact OPTEK.
3. Pb content <1000 PPM.

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# Round Through-Hole LED Lamp

## OVLFX3C7 Series

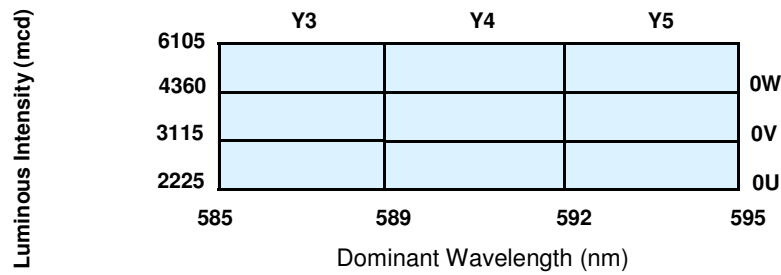
### OVLFR3C7 (RED)



Forward Voltage ( $V_F$ )

Rank	G	H	J
Voltage	1.8-2.0	2.0-2.2	2.2-2.4

### OVLFY3C7 (YELLOW)



Forward Voltage ( $V_F$ )

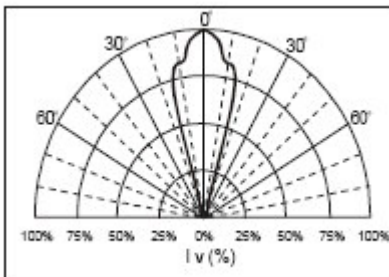
Rank	G	H	J
Voltage	1.8-2.0	2.0-2.2	2.2-2.4

#### Important Notes:

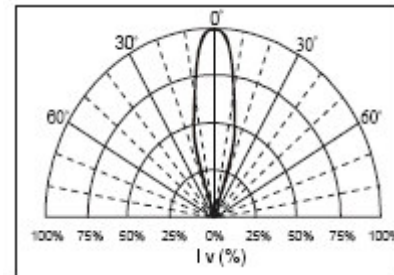
1. All ranks will be included per delivery, rank ratio will be based on the chip distribution.
2. To designate luminous intensity ranks, please contact OPTEK.
3. Pb content <1000 PPM.

#### Beam Pattern

(RED) and (YELLOW)

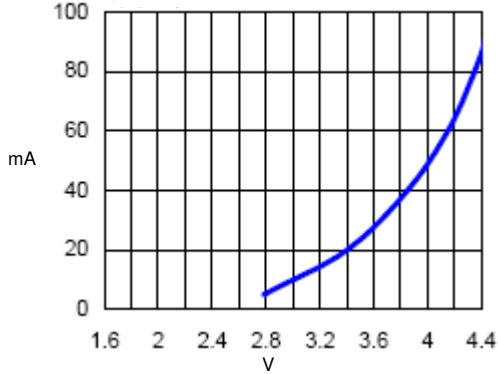


(BLUE) and (GREEN)

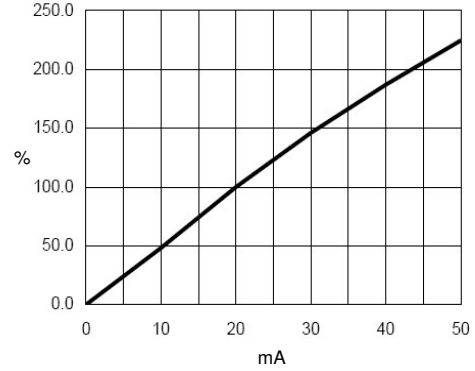


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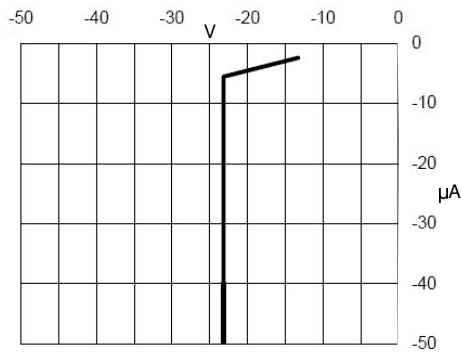
Typical Electro-Optical Characteristics Curves (BLUE)



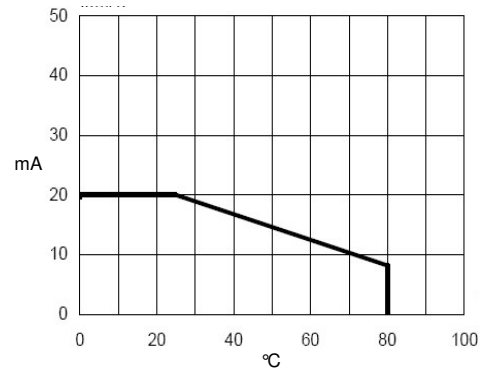
Forward Current vs Forward Voltage



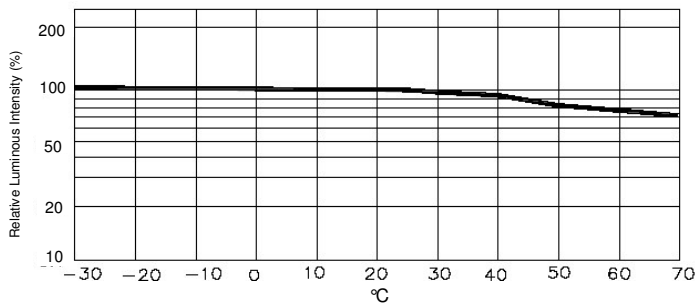
Relative Luminous Intensity vs Forward Current



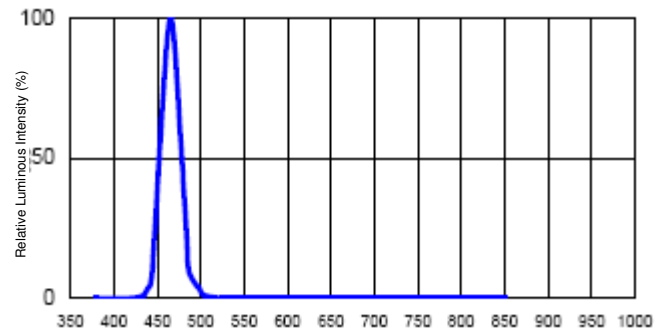
Reverse Current vs Reverse Voltage



Forward Current vs Ambient Temperature



Relative Luminous Intensity vs Ambient Temperature



Relative Luminous Intensity vs. Wavelength

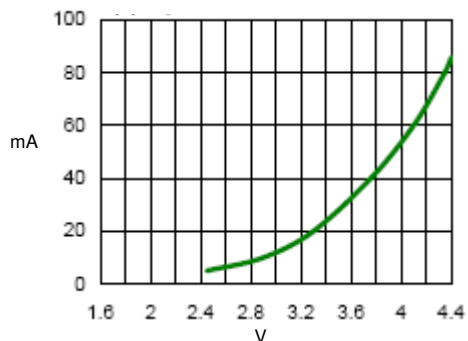
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# Round Through-Hole LED Lamp

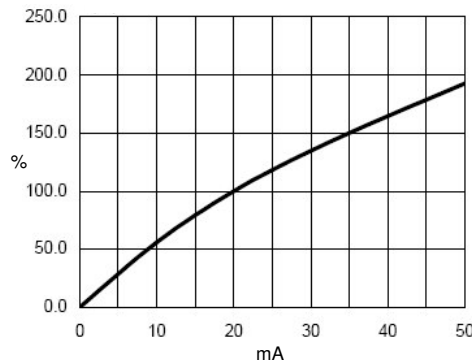
## OVLFX3C7 Series



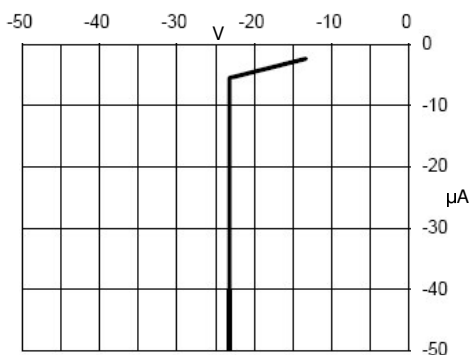
### Typical Electro-Optical Characteristics Curves (GREEN)



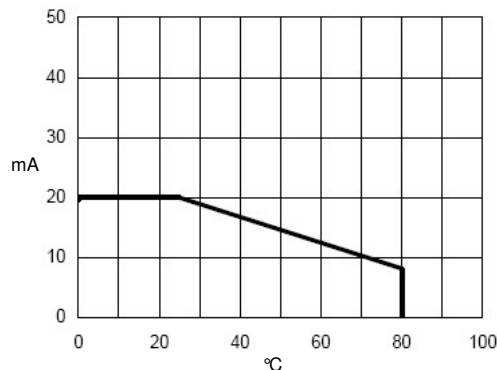
Forward Current vs Forward Voltage



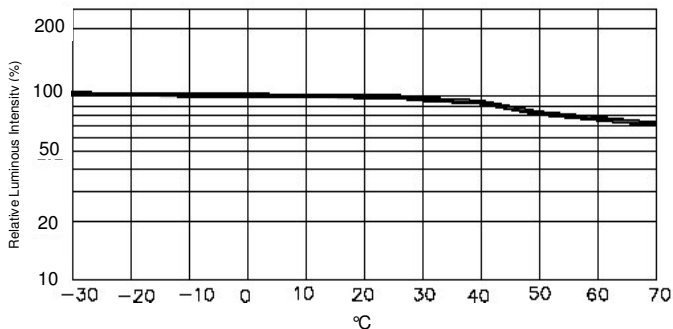
Relative Luminous Intensity vs Forward Current



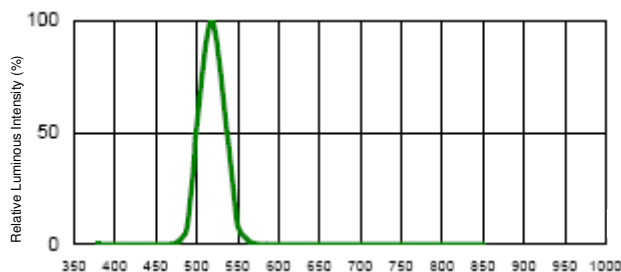
Reverse Current vs Reverse Voltage



Forward Current vs Ambient Temperature



Relative Luminous Intensity vs Ambient Temperature



Relative Luminous Intensity vs. Wavelength

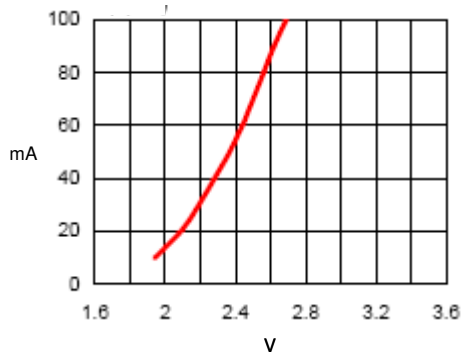
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# Round Through-Hole LED Lamp

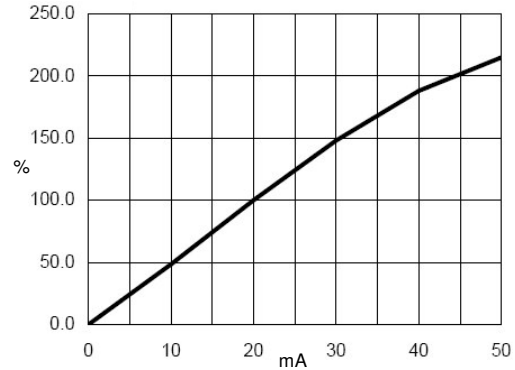
## OVLFX3C7 Series



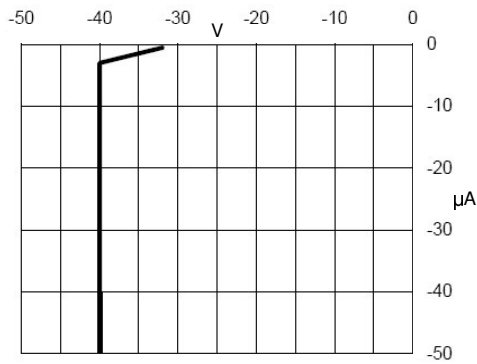
### Typical Electro-Optical Characteristics Curves (RED)



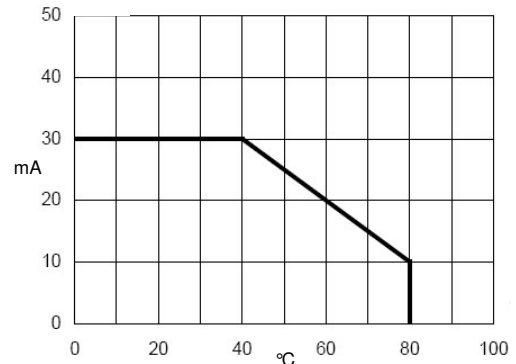
Forward Current vs Forward Voltage



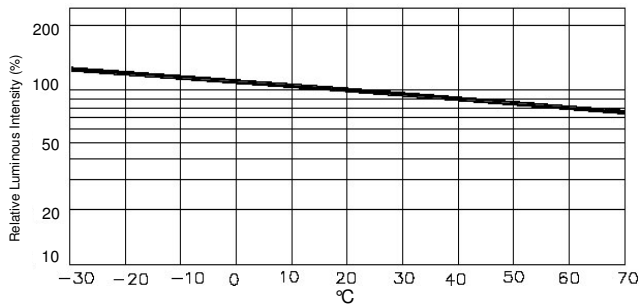
Relative Luminous Intensity vs Forward Current



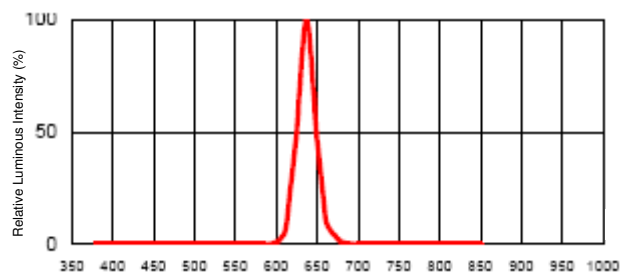
Reverse Current vs Reverse Voltage



Forward Current vs Ambient Temperature



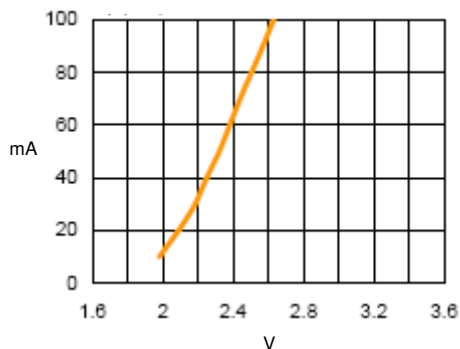
Relative Luminous Intensity vs Ambient Temperature



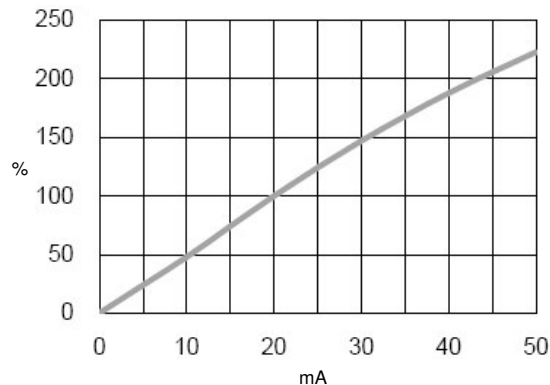
Relative Luminous Intensity vs. Wavelength

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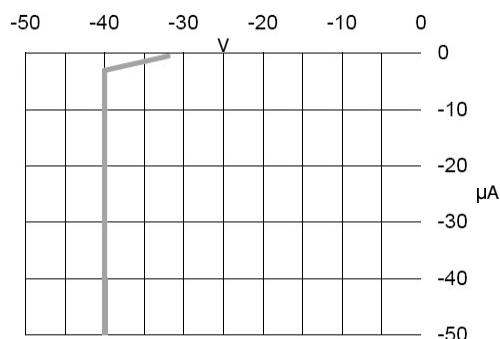
### Typical Electro-Optical Characteristics Curves (YELLOW)



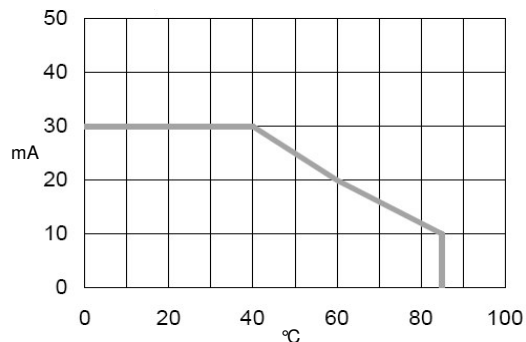
Forward Current vs Forward Voltage



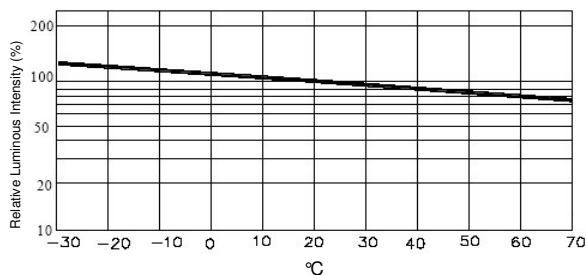
Relative Luminous Intensity vs Forward Current



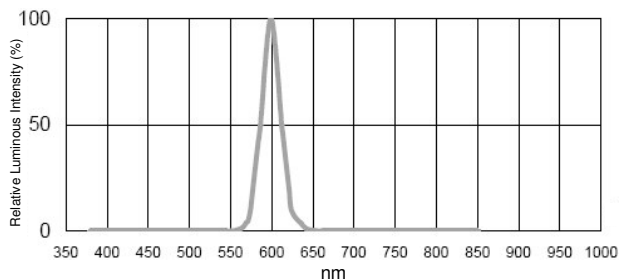
Reverse Current vs Reverse Voltage



Forward Current vs Ambient Temperature



Relative Luminous Intensity vs Ambient Temperature



Relative Luminous Intensity vs Wavelength

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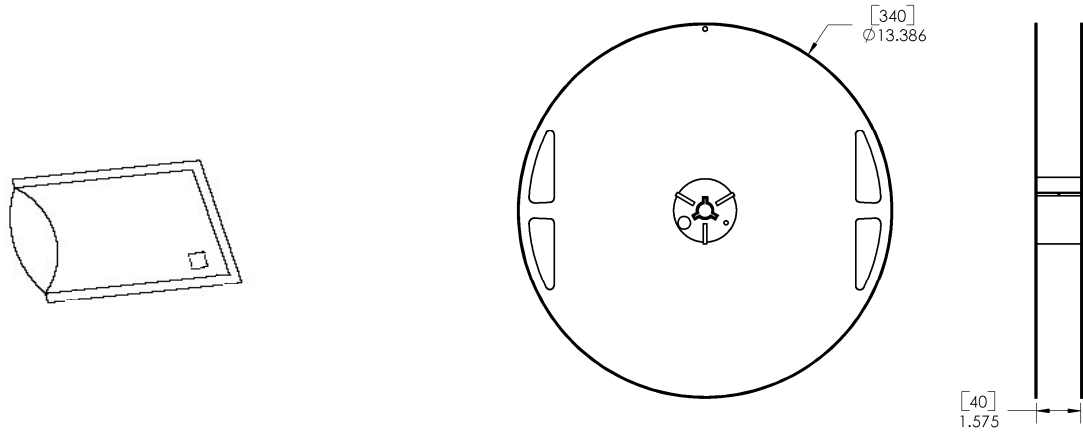


# Round Through-Hole LED Lamp

## OVLFX3C7 Series



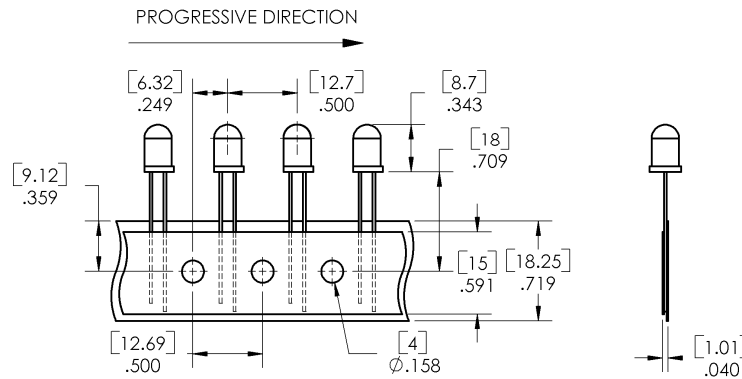
Packing Information: Available in bulk or tape/reel



Bulk: 500 pcs/bag

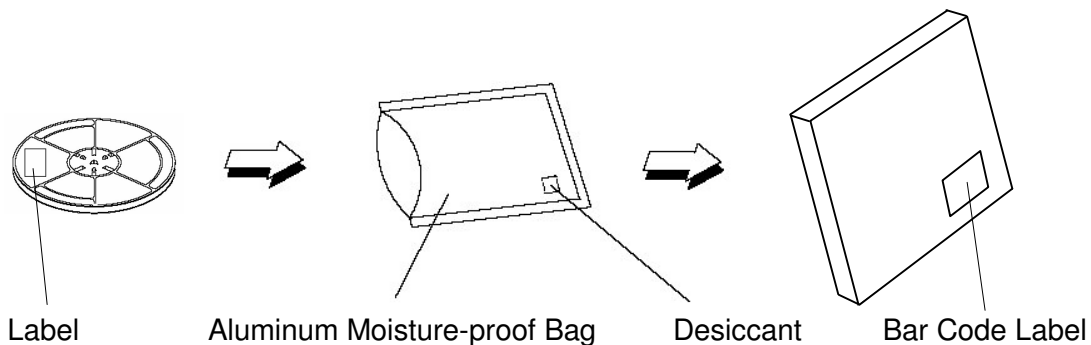
13-inch reel: 2000 pcs/reel

Carrier Tape Dimensions: Loaded quantity 2000 pieces per reel



DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

## Moisture Resistant Packaging



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# Round Through-Hole LED Lamp

## OVLFX3C7 Series



### Reliability Test

LED lamps are checked by reliability tests based on MIL standards.

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	$T_A=85^{\circ}\text{C}$ , $R_h=85\%$ $I_F=20\text{mA}$ **	500 Hrs	100	0 / 1	Pass
	Thermal Shock Test (TST)	MIL-STD-750D Method 1056.1	$0^{\circ}\text{C}$ ~ $100^{\circ}\text{C}$ 2min            2min	100 cycles	100	0 / 1	Pass
	Temperature Cycling Test (TCT)	MIL-STD-750D Method 1051.5	$-40^{\circ}\text{C}$ ~ $25^{\circ}\text{C}$ ~ $100^{\circ}\text{C}$ ~ $25^{\circ}\text{C}$ 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	$I_V$	$I_F=20\text{mA}$	LSL $\times 0.7$ **	
Voltage (Forward)	$V_F$	$I_F=20\text{mA}$		USL $\times 1.1$ *

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

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