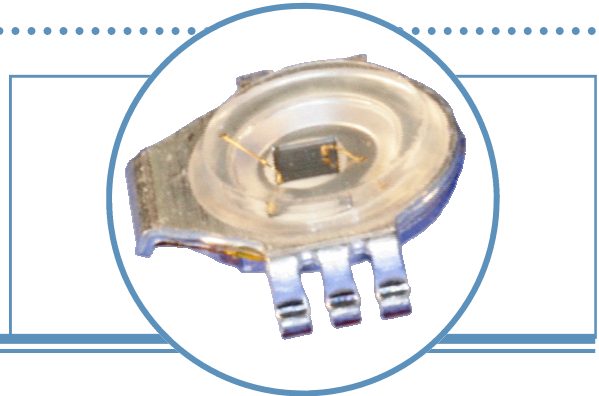


# 1-Watt Cup Series

## Flush Mount and Surface Mount Packages

### OVTL01LGA Series

- Robust energy-efficient design with long operating life
- Low thermal resistance (2° C/W)
- Exceptional spatial uniformity
- Optional optics to suit application
- Available in amber, blue, green, red, cool white, daylight white, and warm white



The **OVTL01LGAx Series** offers an energy-efficient packaged LED source providing high luminance, low thermal resistance, a water-clear lens, and a long operating lifespan. Devices have a 135° typical viewing angle with optional optics available and two mounting options:

1. Flush Mount—The shallow-gullwing package is designed to be countersunk into a hole or cavity in the PC board for a low profile of only 1.12mm.
2. Surface Mount—The deep-gullwing package is easily mounted on the solid surface of the PC board (Part numbers end in “S”)

### Applications

- Automotive exterior and interior lighting
- Architectural lighting
- Electronic signs and signals

Part Number	Viewing Angle	Emitted Color	Typical Luminous Flux (lm)	Typical On-Axis Intensity (cd)	Package
OVTL01LGAA	135°	Amber	38	12.5	Flush Mount
OVTL01LGAB		Blue	15	5	Flush Mount
OVTL01LGAG		Green	52	16	Flush Mount
OVTL01LGAR		Red	53	8.5	Flush Mount
OVTL01LGAW		Cool White	50	14	Flush Mount
OVTL01LGAWD		Daylight White	45	12.5	Flush Mount
OVTL01LGAWW		Warm White*	30	11	Flush Mount
OVTL01LGAAS		Amber	38	12.5	Surface Mount
OVTL01LGABS		Blue	15	5	Surface Mount
OVTL01LGAGS		Green	52	16	Surface Mount
OVTL01LGARS		Red	53	8.5	Surface Mount
OVTL01LGAWS		Cool White	50	14	Surface Mount
OVTL01LGAWDS		Daylight White	45	12.5	Surface Mount
OVTL01LGAWWS		Warm White*	30	11	Surface Mount



\*Preliminary data only



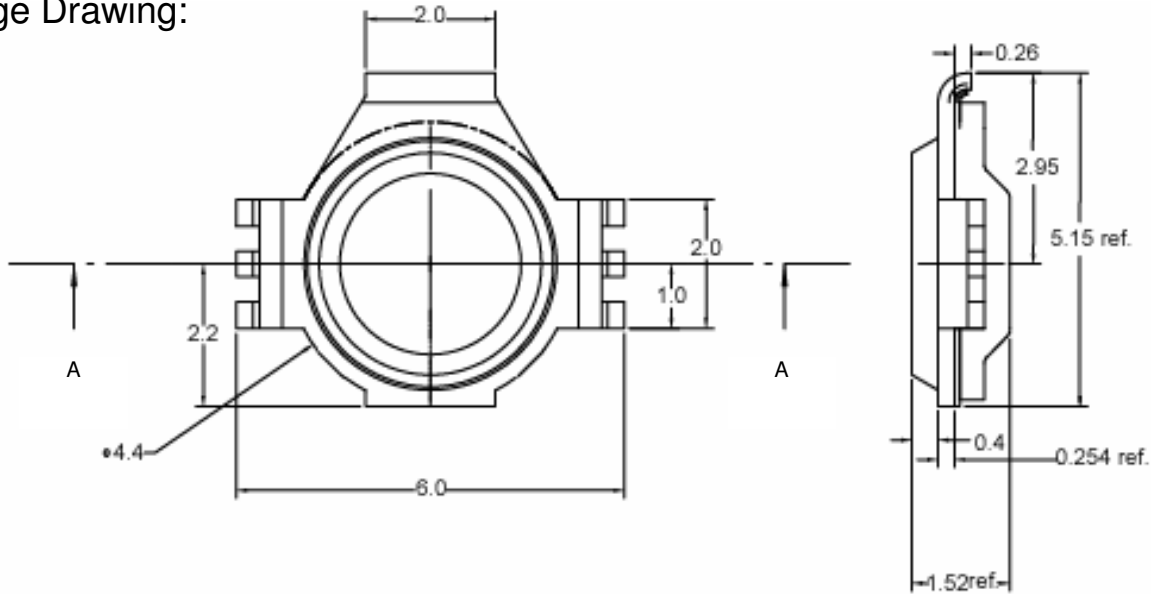
**DO NOT LOOK DIRECTLY AT LED WITH UNSHIELDED EYES OR DAMAGE TO RETINA MAY OCCUR.**

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

# 1-Watt Cup Series

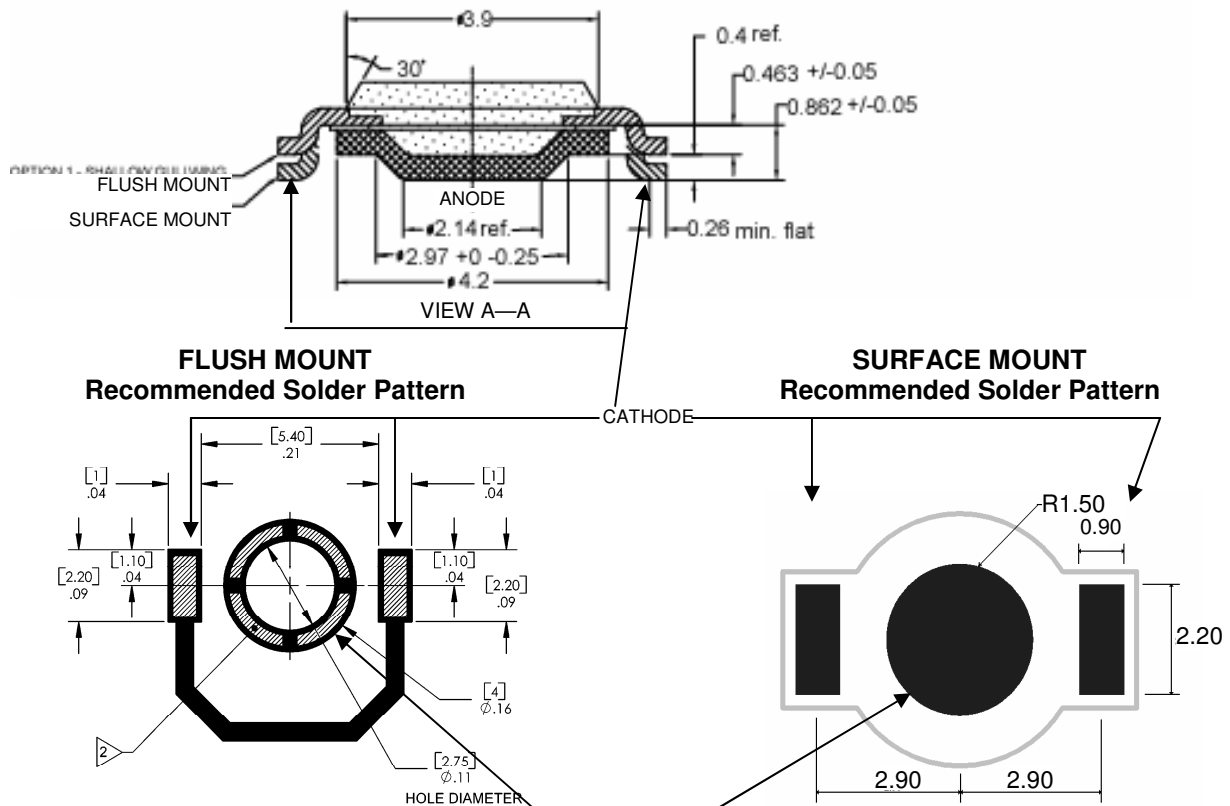
## OVTL01LGA Series

### Package Drawing:



Dimensions are in millimeters.

SIDE VIEW—FLUSH MOUNT ONLY



1. Recommend .006 [.015] thick stencil.
2. Cross-hatching represents solder paste positioning
3. Dimensions are in inches [mm]

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# 1-Watt Cup Series

## OVTL01LGA Series



### Absolute Maximum Ratings

DC Forward Current	0.35 A
Peak Pulsed Forward Current <sup>1</sup>	1 A
Reverse Voltage	5 V
Maximum Allowable Junction Temperature <sup>2</sup>	130 °C
Storage and Operating Temperature	-50 ° ~ +85 ° C

Notes:

1. Pulse width 1 ms maximum. Duty cycle 1/16.
2. Thermal Resistance junction to Board ( $T_{j\theta}$ ) is 2 °C/W

### Electrical Characteristics ( $I_F = 350$ mA, $T_J = 25$ °C)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
$V_F$	Forward Voltage ( <b>Amber</b> )	1.9	2.3	2.6	V
	Forward Voltage ( <b>Blue</b> )	2.9	3.4	3.7	V
	Forward Voltage ( <b>Green</b> )	3.2	3.6	4.0	V
	Forward Voltage ( <b>Red</b> )	1.9	2.3	2.6	V
	Forward Voltage ( <b>White</b> )	2.9	3.4	3.7	V
	$V_F$ -Temperature Co-efficient ( <b>Amber &amp; Red</b> )	----	-6.0	----	mV/°C
	$V_F$ -Temperature Co-efficient ( <b>White &amp; Blue</b> )	----	-4.8	----	mV/°C
	$V_F$ -Temperature Co-efficient ( <b>Green</b> )	----	-5.0	----	mV/°C

### Optical Characteristics ( $I_F = 350$ mA, $T_J = 25$ °C)

COLOR	DOMINANT WAVELENGTH			SPECTRAL FULL-WIDTH HALF-MAXIMUM	DOMINANT WAVELENGTH TEMPERATURE DEPENDENCE
	MIN	TYP	MAX		
Amber	590	595	600	16 nm	0.08 nm/°C
Blue	455	460	465	24 nm	0.05 nm/°C
Green	510	515	520	40 nm	0.04 nm/°C
Red	620	625	630	18 nm	0.05 nm/°C
White	N/A	N/A	N/A	N/A	N/A

OPTEK PART NUMBER	COLOR	TYPICAL LUMINOUS FLUX (lm)			TYPICAL ON-AXIS INTENSITY (cd)		
		@ $T_J = 25$ °C	@ $T_J = 50$ °C	@ $T_J = 75$ °C	@ $T_J = 25$ °C	@ $T_J = 50$ °C	@ $T_J = 75$ °C
OVTL01LGAA(S)	Amber	38	32	26	12.5	10	9
OVTL01LGAB(S)	Blue	15	14	13	5	4.7	4.2
OVTL01LGAG(S)	Green	52	49	44	16	15	12
OVTL01LGAR(S)	Red	53	48	40	8.5	7.6	6.4
OVTL01LGAW(S)	White	50	46	41	14	13	11
OVTL01LGAWD(S)	Daylight White	45	42	37	12.5	11	10
OVTL09LGAWW(S)	Warm White	30	28	24	11	10	9

**OPTEK's Lednium Series Solid State Lighting products package the highest quality LED chips. Typically, the lumen output of these can be as high as 70% after 50,000 hours of operation. This prediction is based on specific test results and on tests on similar materials, and relies on strict observation of the design limits and ratings included in this data sheet.**

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# 1-Watt Cup Series

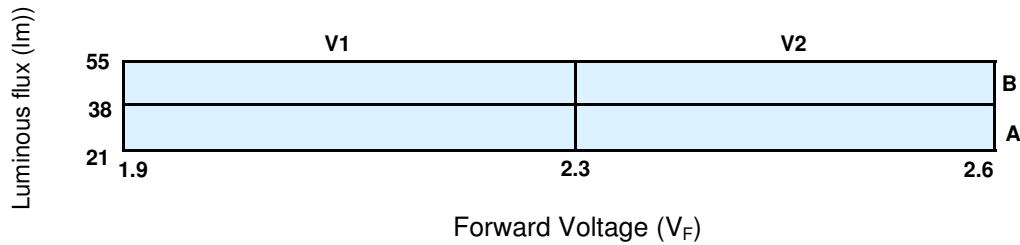
## OVTL01LGA Series



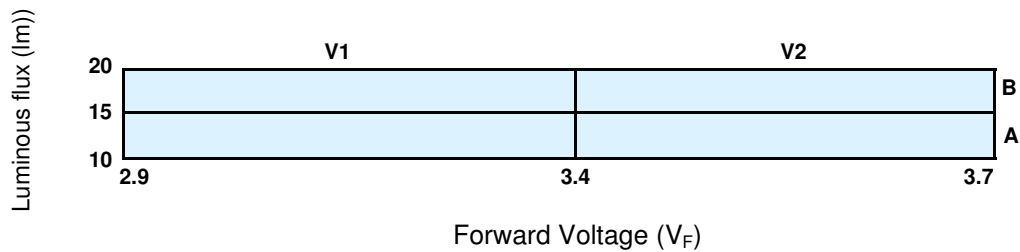
### Standard Bins

Lamps are sorted to luminous flux ( $\Phi$ ) and forward voltage ( $V_F$ ) bins shown. Orders may be filled with any or all bins contained as below.

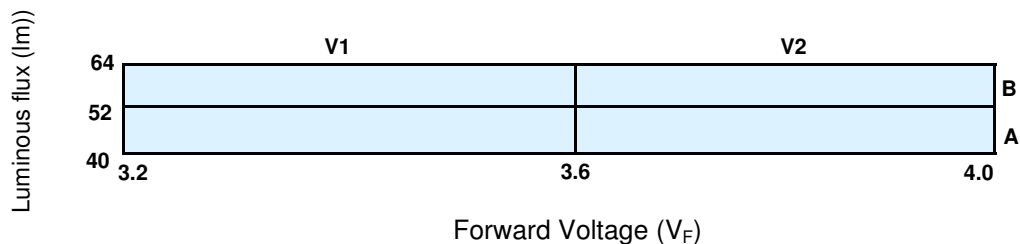
**OVTL01LGAA and OVTL01LGAAS (AMBER)** ( $I_F = 350$  mA)  
Dominant Wavelength 590-600nm



**OVTL01LGAB and OVTL01LGABS (BLUE)** ( $I_F = 350$  mA)  
Dominant Wavelength 455-465nm



**OVTL01LGAG and OVTL01LGAGS (GREEN)** ( $I_F = 350$  mA)  
Dominant Wavelength 510-520nm



### Important Notes:

1. All ranks will be included per delivery, rank ratio will be based on the chip distribution.
2. To designate forward voltage and luminous flux ranks, please contact OPTEK.

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# 1-Watt Cup Series

## OVTL01LGA Series

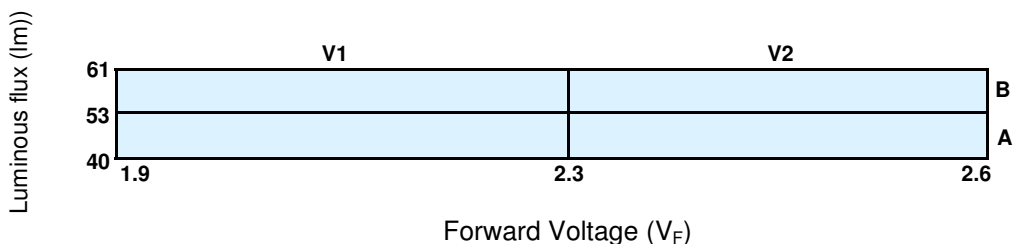


### Standard Bins

Lamps are sorted to luminous flux ( $\Phi$ ) and forward voltage ( $V_F$ ) bins shown. Orders may be filled with any or all bins contained as below.

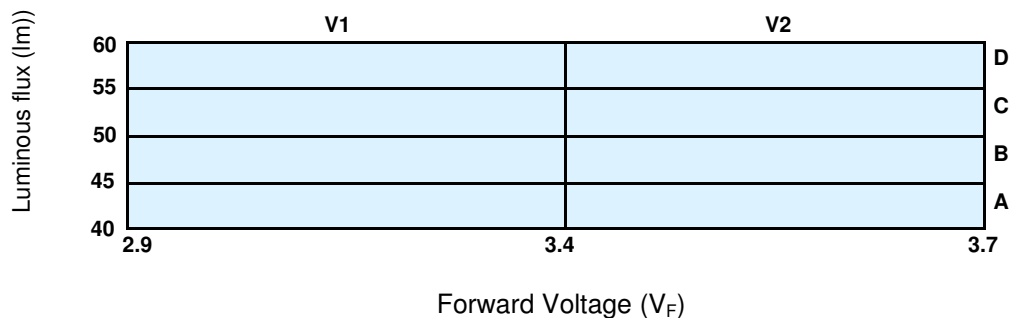
#### OVTL01LGAR and OVTL01LGARS (RED) ( $I_F = 350$ mA)

Dominant Wavelength 620-630nm



#### OVTL01LGAW and OVTL01LGAWS (COOL WHITE) ( $I_F = 350$ mA)

Typical CCT 7000 °K



#### OVTL01LGAWD and OVTL01LGAWDS (DAYLIGHT WHITE) ( $I_F = 350$ mA)

Typical CCT 5800 °K



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# 1-Watt Cup Series

## OVTL01LGA Series

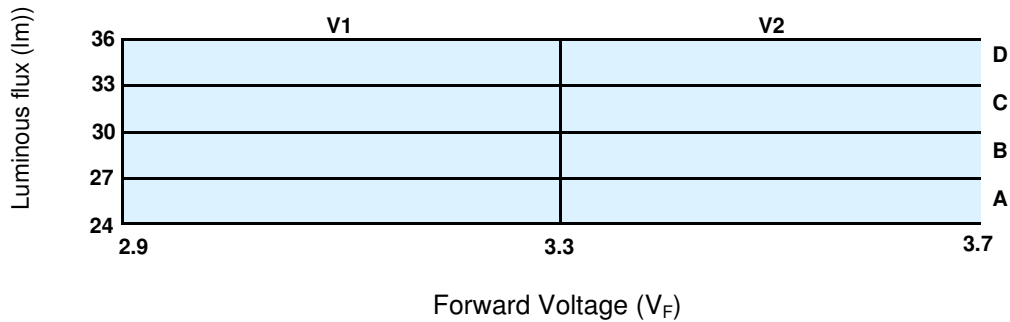


### Standard Bins

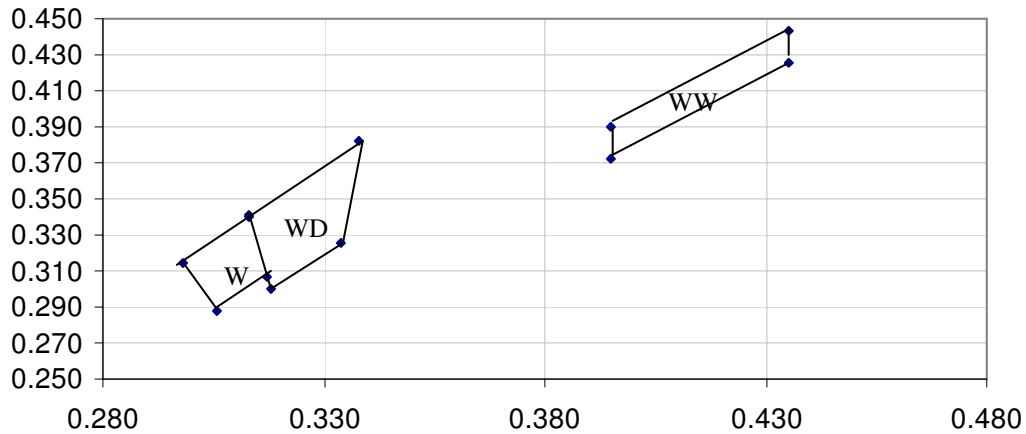
Lamps are sorted to luminous flux ( $\Phi$ ) and forward voltage ( $V_F$ ) bins shown. Orders may be filled with any or all bins contained as below.

#### OVTL01LGAWW and OVTL01LGAWWS (WARM WHITE) ( $I_F = 350$ mA)

Typical CCT 3500°K



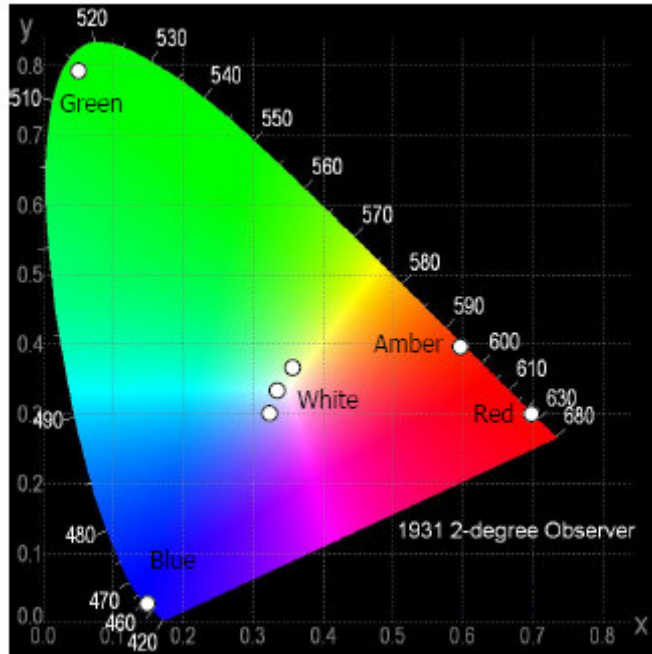
### White Bin Structure



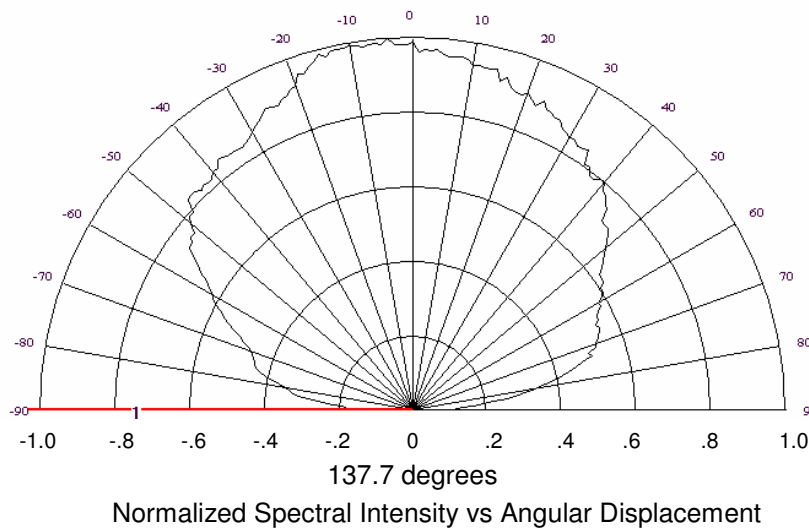
Color Bin	Color	Minimum CCT (°K)	Maximum CCT (°K)	Chromaticity Coordinates			
				$C_x$	$C_y$	$C_x$	$C_y$
W	Cool White	6400	7600	0.298	0.313	0.306	0.317
				0.314	0.288	0.34	0.307
WD	Daylight White	5200	6400	0.313	0.318	0.334	0.338
				0.341	0.300	0.326	0.382
WW	Warm White	3200	3800	0.395	0.395	0.435	0.435
				0.372	0.390	0.426	0.443

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### CIE Chromaticity Diagram



### Spatial Intensity Distribution



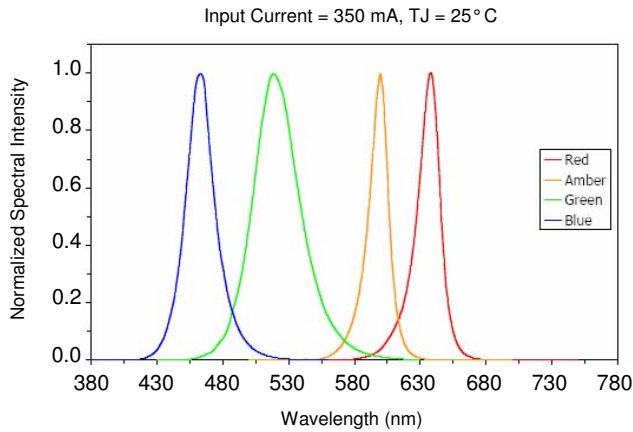
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# 1-Watt Cup Series

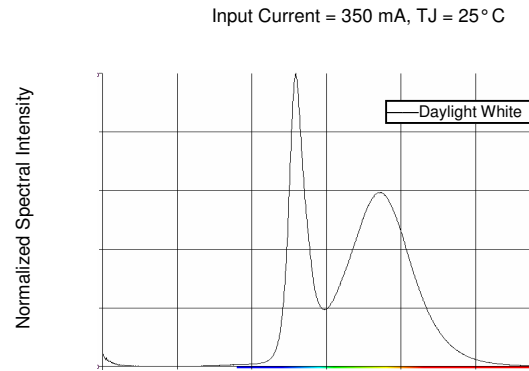
## OVTLO1LGA Series



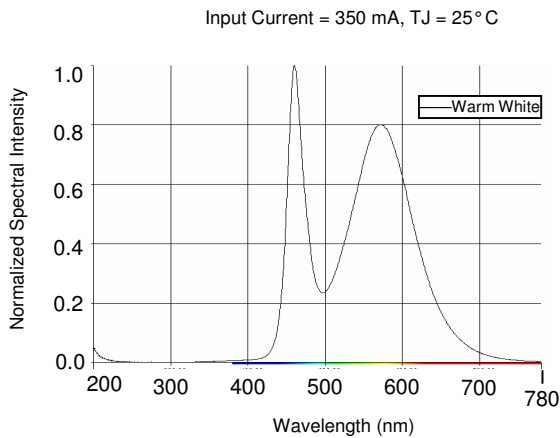
### Typical Electro-Optical Characteristics Curves



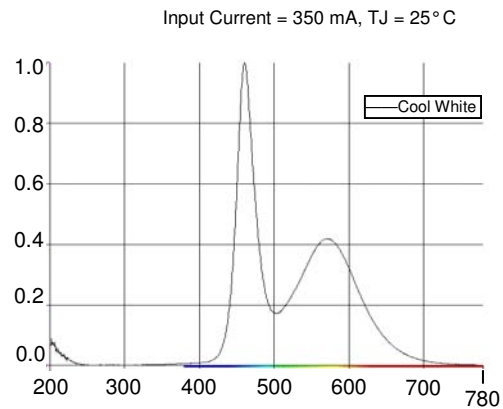
Wavelength Characteristics



Wavelength Characteristics



Wavelength Characteristics

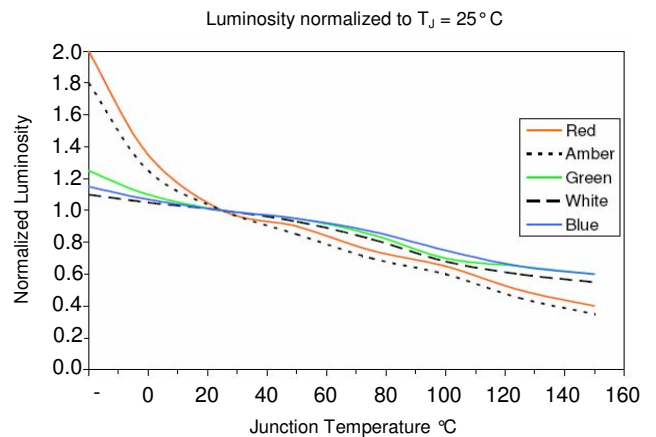


Wavelength Characteristics

Luminosity normalized to T<sub>J</sub> = 25 °C

OPTEK Part Number	% Normalized Luminosity at Junction Temperature (°C)					
	0	25	50	75	100	125
OVTLO1LGAA(S)	125	100	85	70	60	45
OVTLO1LGAB(S)	107	100	95	87	75	65
OVTLO1LGAG(S)	110	100	95	85	70	65
OVTLO1LGAR(S)	135	100	90	75	65	50
OVTLO1LGAW(S)	105	100	93	82	68	60
OVTLO1LGAWD(S)	105	100	93	82	68	60
OVTLO1LGAWW(S)	105	100	93	82	68	60

Junction Temperature Characteristics

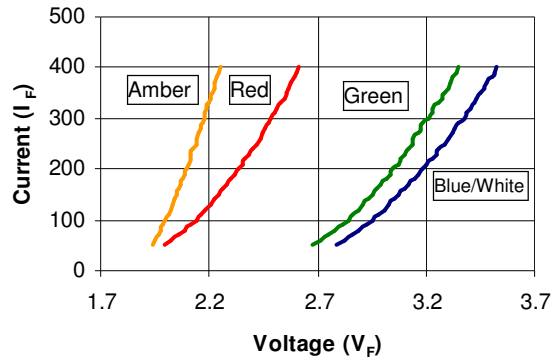


Junction Temperature Characteristics

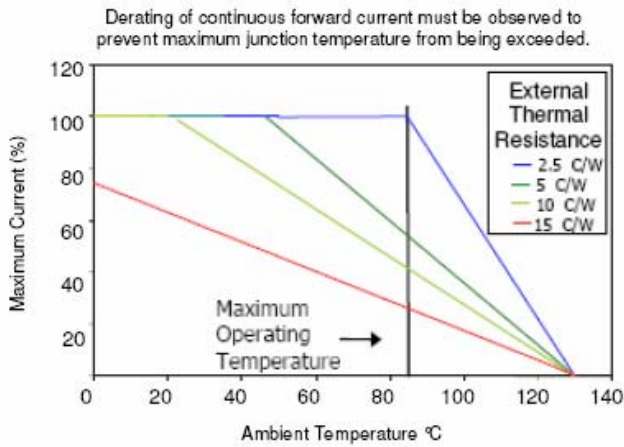
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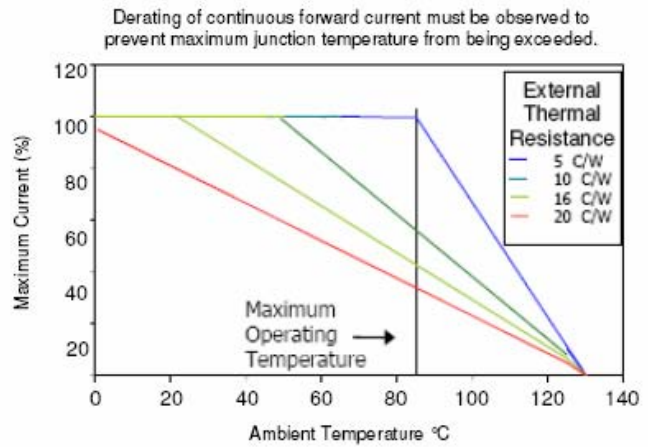
Typical Electro-Optical Characteristics Curves



Forward Current vs. Forward Voltage



Derating Curves - Blue, Green and White LEDs



Derating Curves - Amber and Red LEDs

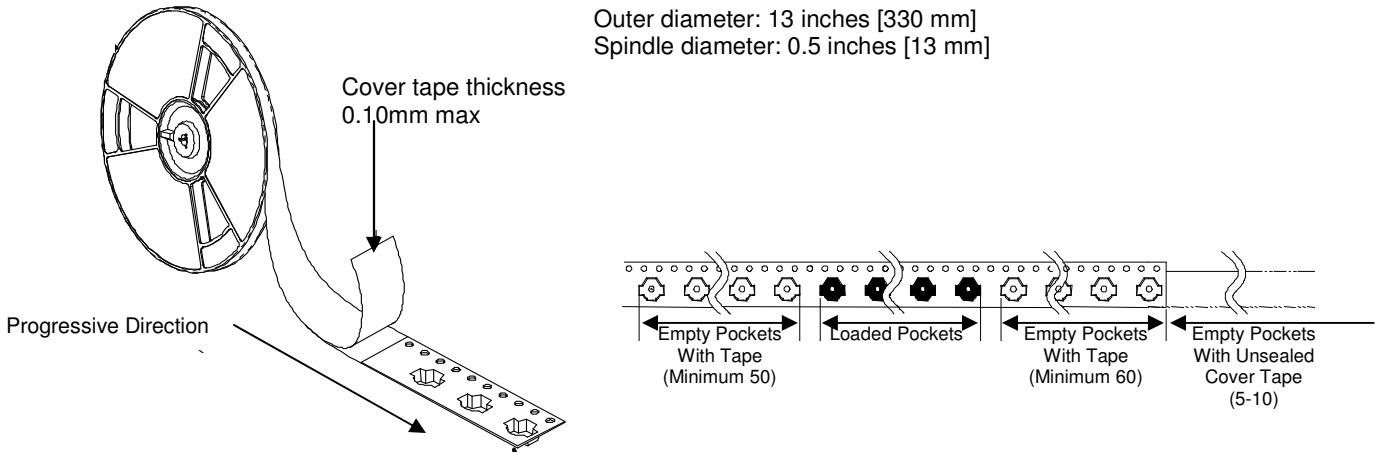
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# 1-Watt Cup Series

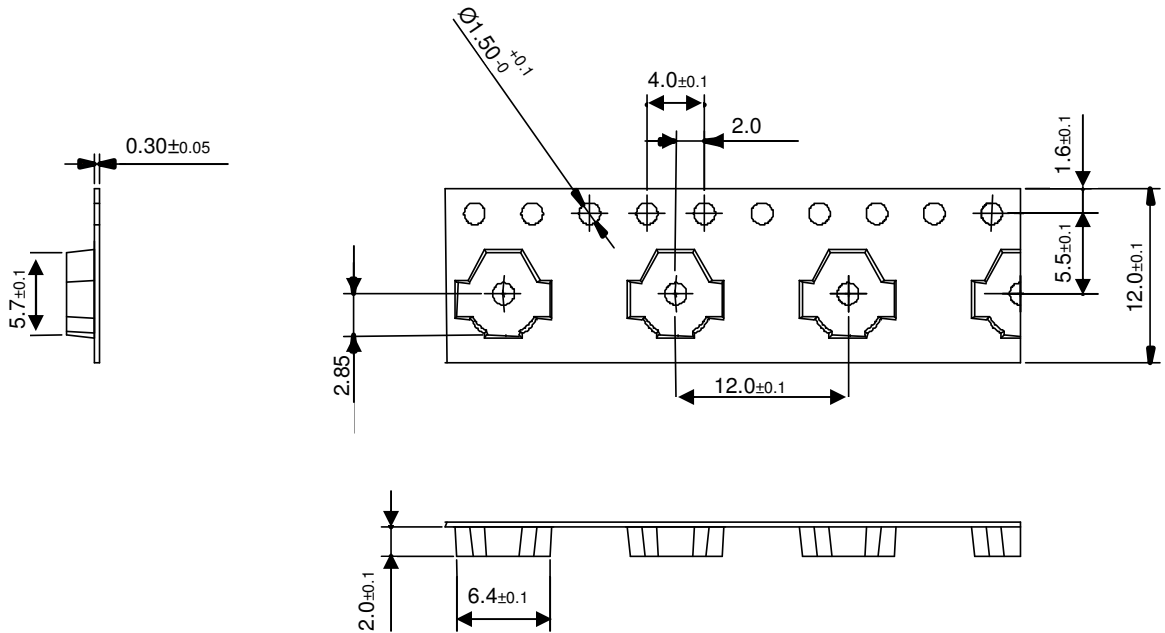
## OVTL01LGA Series



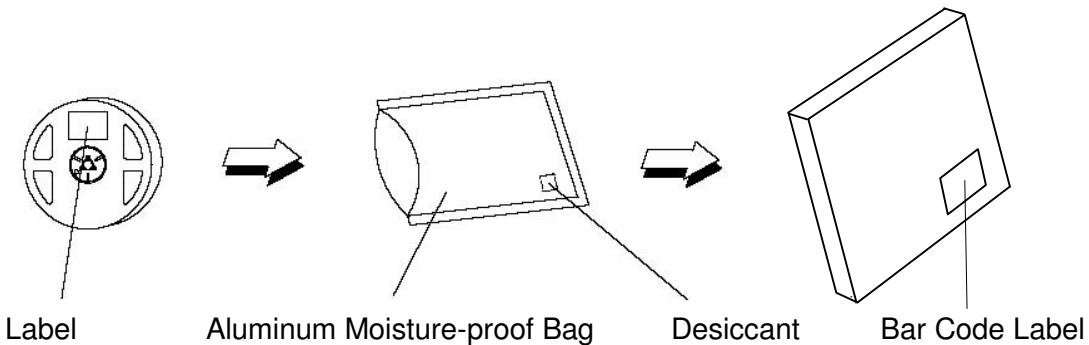
### Reel Dimensions:



### Carrier Tape Dimensions: Loaded quantity 1000 maximum 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.