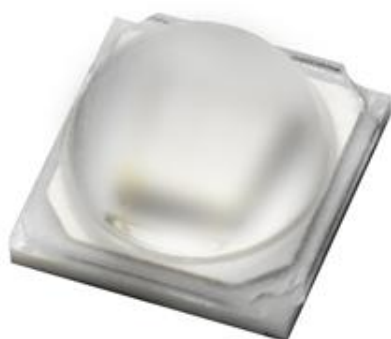


ELUMA

1.8W Series



Introduction

The UMA product series is a ceramic based LED with high quality and reliability that suitable for UV application.

Features

- ◆ High power UVA LED
- ◆ Dimension 3.5mm* 3.5mm* 2.35mm
- ◆ ESD protection up to 8KV
- ◆ RoHS compliant
- ◆ Pb free
- ◆ EU REACH compliant
- ◆ Halogen Free compliant
(Br<900ppm, Cl<900ppm, Br+Cl<1500ppm)

Applications

- ◆ UV Sterilization System
- ◆ UV Photo-catalyst
- ◆ UV Sensor Light

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Product Nomenclature

The product name is designated as below:

ELUMA– ABCDE – FGHIJ – V1234

Designation:

AB = min. luminous flux (lm) or radiation power (mW) performance

C = radiation pattern ^[1]

D = color ^[2]

E = power consumption ^[3]

F = reserved for future product offerings

G = Internal code

H = packaging type ^[4]

IJ = internal code

V = forward voltage bin

1234 = color bin or wavelength bin

Notes

1. Table of radiation patterns

Symbol	Description
1	Lens

2. Table of color offerings:

Symbol	Color	Dominant wavelength range
U	Ultraviolet	250~410nm

3. Table of power consumptions:

Symbol	Description
1	1W

4. Table of packaging types:

Symbol	Description
P	Tape

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Max. DC Forward Current (mA)	I_F	700 ^[1]	mA
Max. Peak Pulse Current (mA)	I_{Pulse}	1000 ^[2]	mA
Power Dissipation	P_d	3	W
Max. ESD Resistance	V_B	8000	V
Thermal Resistance	R_{th}	5 ^[4]	K/W
Max. Junction Temperature	T_J	125 ^[5]	°C
Operating Temperature	T_{Opr}	-40 ~ +110	°C
Storage Temperature	T_{Stg}	-40 ~ +110	°C

Notes:

1. Maximum forward current is 700mA (Thermal Pad=25°C).
2. Duty cycle = 1/10@1KHZ
3. The ELUMA series LEDs are not designed for reverse bias use.
4. Thermal Resistance is from junction to backside of component.
5. Maximum junction temperature of UV is 125°C.

Electro-Optical Characteristic

Parameter	Symbol	Min.	Typ.	Max	Unit	Condition
Radiant Flux	Φ_e	700	---	---	mW	IF=500mA
Forward Voltage	V _F	3.4	---	4	V	
Peak Wavelength	λ_p	---	368	---	nm	
Viewing Angle	2 θ 1/2	---	120	----	deg	

Parameter	Symbol	Min.	Typ.	Max	Unit	Condition
Radiant Flux	Φ_e	900	---	---	mW	IF=500mA
Forward Voltage	V _F	3.2	---	3.8	V	
Peak Wavelength	λ_p	---	385	---	nm	
Viewing Angle	2 θ 1/2	---	120	----	deg	

Parameter	Symbol	Min.	Typ.	Max	Unit	Condition
Radiant Flux	Φ_e	900	---	---	mW	IF=500mA
Forward Voltage	V _F	3	---	3.6	V	
Peak Wavelength	λ_p	---	395	400	nm	
Viewing Angle	2 θ 1/2	---	120	----	deg	

Parameter	Symbol	Min.	Typ.	Max	Unit	Condition
Radiant Flux	Φ_e	900	---	---	mW	IF=500mA
Forward Voltage	V _F	3	---	3.6	V	
Peak Wavelength	λ_p	---	405	---	nm	
Viewing Angle	2 θ 1/2	---	120	----	deg	

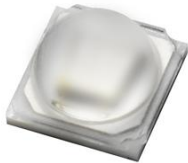
Notes:

1. Radiant flux measurement tolerance: $\pm 10\%$.
2. The data of luminous flux measured at thermal pad=25°C
3. Typical radiant flux or light output performance is operated within the condition guided by this datasheet.

PN of the ELUMA series: UVA LEDs

The table below is a list of part numbers for the Everlight ELUMA 1.8W series UVA LED. Typical view angle is 120°. These clearly listed binning options allow for proper design and implementation into UV applications. The Order Codes below are currently available UVA ELUMA LEDs.

For Example: If you order product using P/N : ELUMA-R51U1-0VPNE-DP2P3 , you will be specifying:



Color	Typ. Peak Wavelength (nm)	Forward Voltage (V)	Minimum Radiant Flux (mW)
UV	368	3.6	700

UV, ELUMA series LEDs at 500mA are listed below

Color	Order Code of ELUMA	Minimum Radiant Flux (mW)	Peak Wavelength (nm)	Forward Voltage (V)
Ultraviolet	ELUMA-R51U1-0VPNE-DP2P3	700	365~375	3.25-4.15
	ELUMA-R61U1-0VPNE-DP2P3	800	365~375	3.25-4.15
	ELUMA-R71U1-0VPNE-CP5P6	900	380~390	2.95-3.85
	ELUMA-R81U1-0VPNE-CP5P6	1000	380~390	2.95-3.85
	ELUMA- R71U1-0VPNE-CP7P8	900	390~400	2.95-3.85
	ELUMA- R81U1-0VPNE-CP7P8	1000	390~400	2.95-3.85
	ELUMA- R71U1-0VPNE-CP9P0	900	400-410	2.95-3.85
	ELUMA- R81U1-0VPNE-CP9P0	1000	400-410	2.95-3.85

Product Binning Peak Wavelength Bins

Group	Bin	Minimum Peak Wavelength (nm)	Maximum Peak Wavelength (nm)
U UVC	1	260	265
	2	265	270
	3	270	275
	4	275	280
	5	280	285
P UVA	1	360	365
	2	365	370
	3	370	375
	4	375	380
	5	380	385
	6	385	390
	7	390	395
	8	395	400
	9	400	405
	0	405	410

Radiant Flux Bin

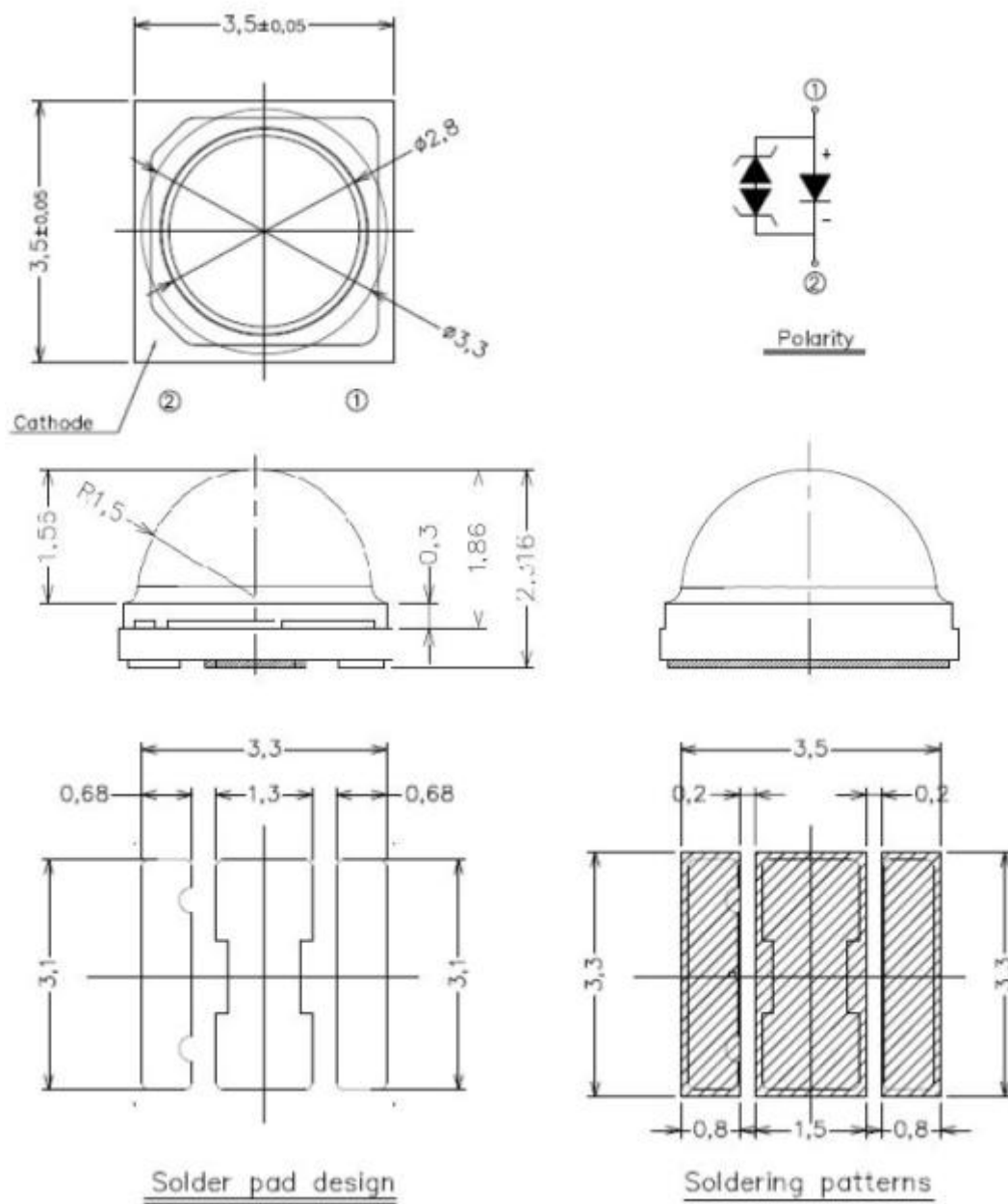
Group	Bin	Minimum Radiant Flux (mw)	Maximum Radiant Flux (mw)
Q	1	0	25
	2	25	50
	3	50	75
	4	75	100
	5	100	125
	6	125	175
	7	175	225
	8	225	275
	9	275	350
R	1	350	425
	2	425	500
	3	500	600
	4	600	700
	5	700	800
	6	800	900
	7	900	1000
	8	1000	1300
	9	1300	1600
S	1	1200	1300
	2	1300	1400
	3	1400	1500
	4	1500	1600

Forward Voltage Bins

Group	Bin
C	V1+V2+V3
D	V2+V3+V4
E	V3+V4+V5
F	V1+V2

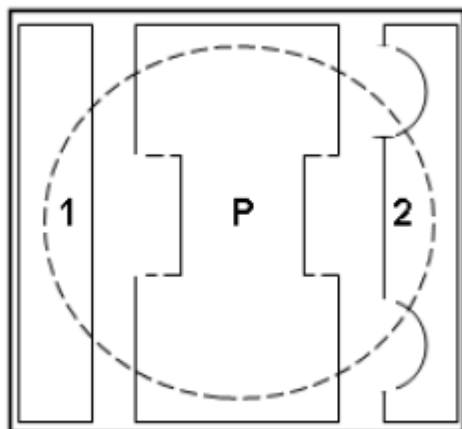
Bin	Minimum Forward Voltage (V)	Maximum Forward Voltage (V)
V1	2.95	3.25
V2	3.25	3.55
V3	3.55	3.85
V4	3.85	4.15
V5	4.15	4.45

Mechanical Dimension

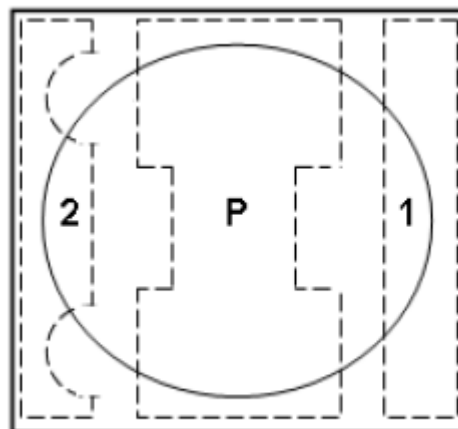


1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.1 mm

Pad Configuration



BOTTOM VIEW

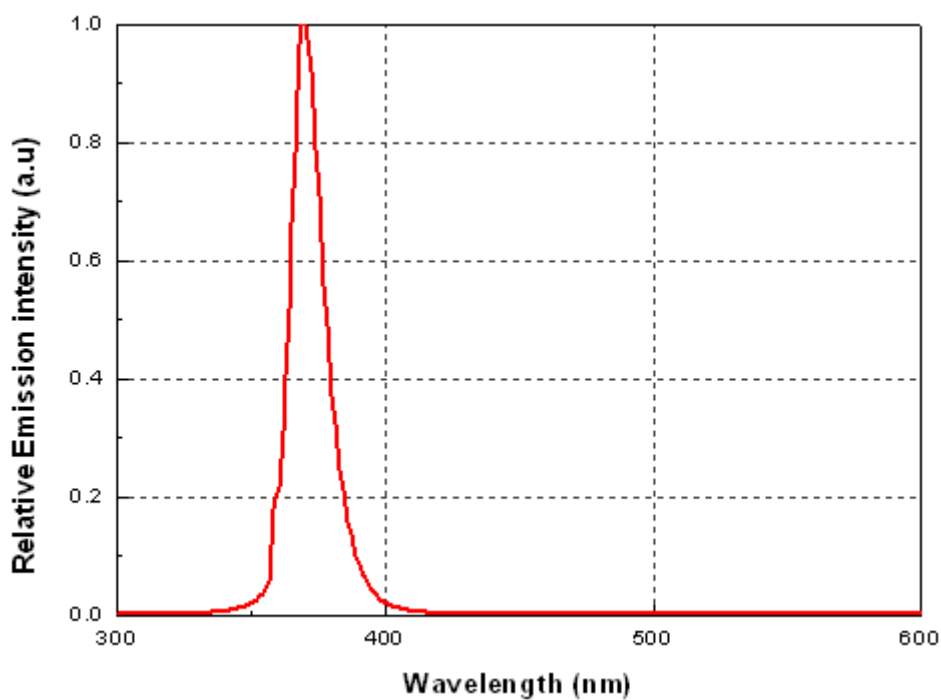


TOP VIEW

PAD	FUNCTION
1	ANODE
2	CATHODE
P	THERMAL PAD

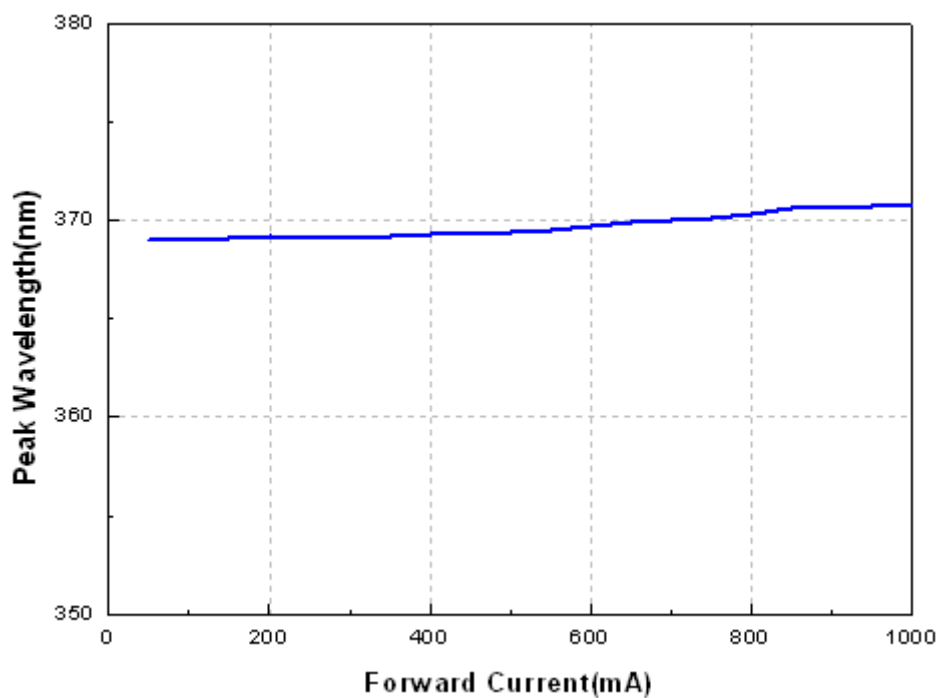
Typical Characteristics Curves

Spectrum @ Thermal Pad Temperature = 25°C



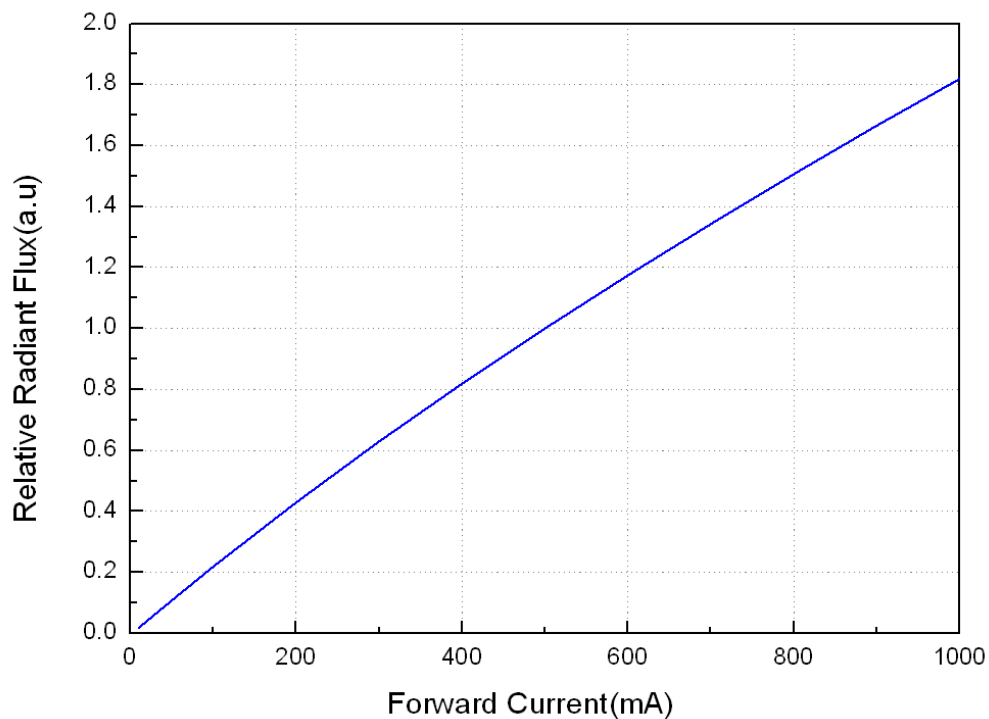
Forward Current V.S. Peak Wavelength

@ Thermal Pad Temperature = 25°C



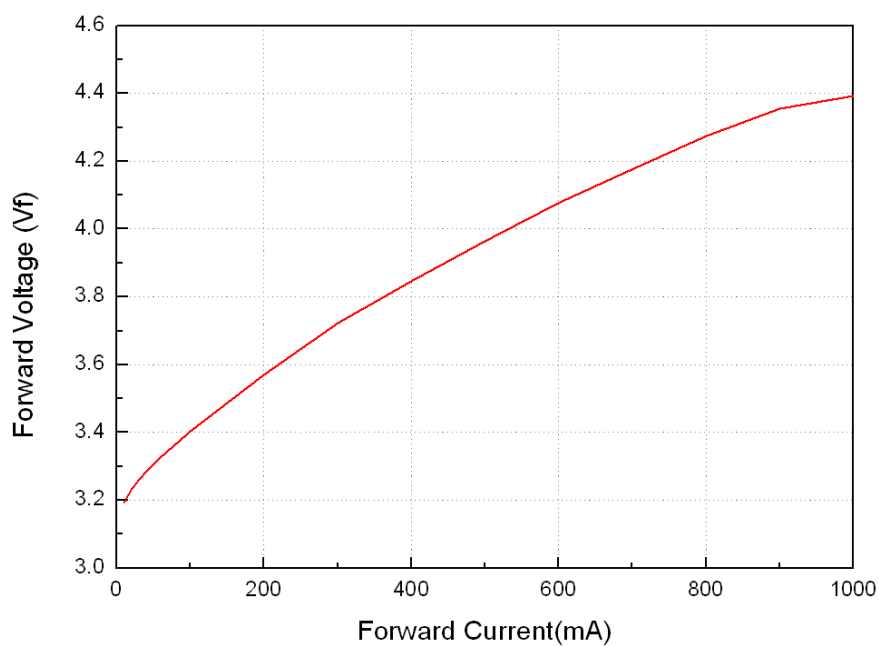
Forward Current vs. Relative Radiant Flux

@ Thermal Pad Temperature = 25°C

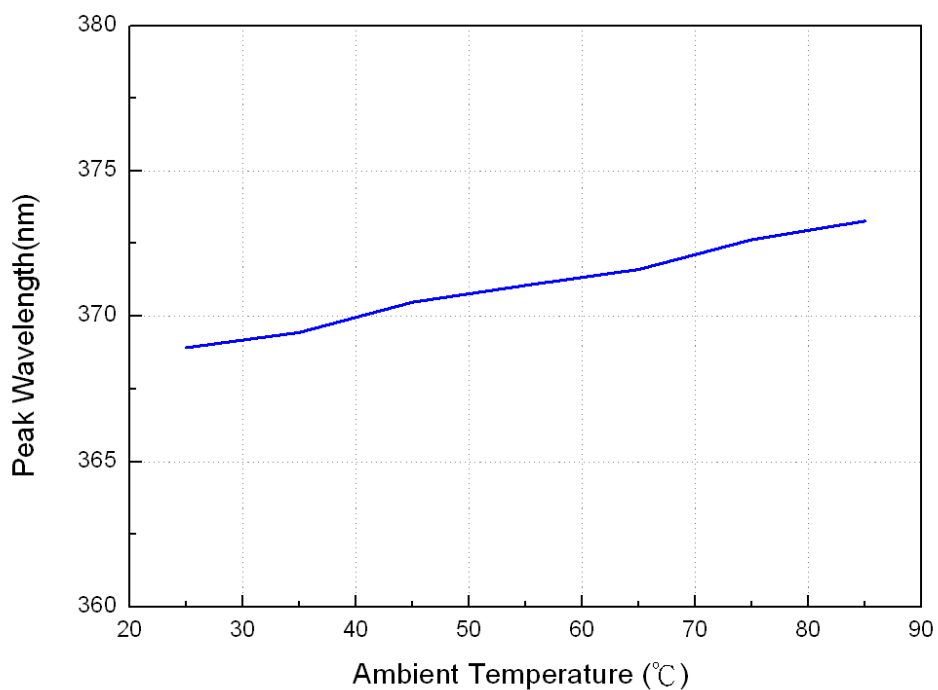


Forward Voltage vs. Forward Current

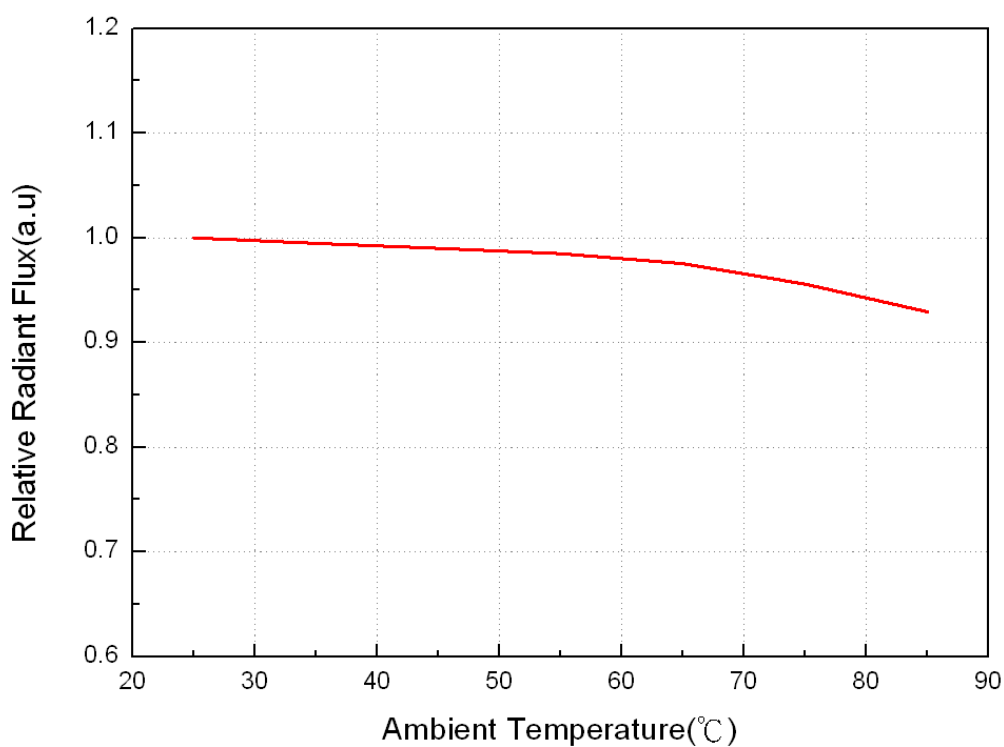
@ Thermal Pad Temperature = 25°C



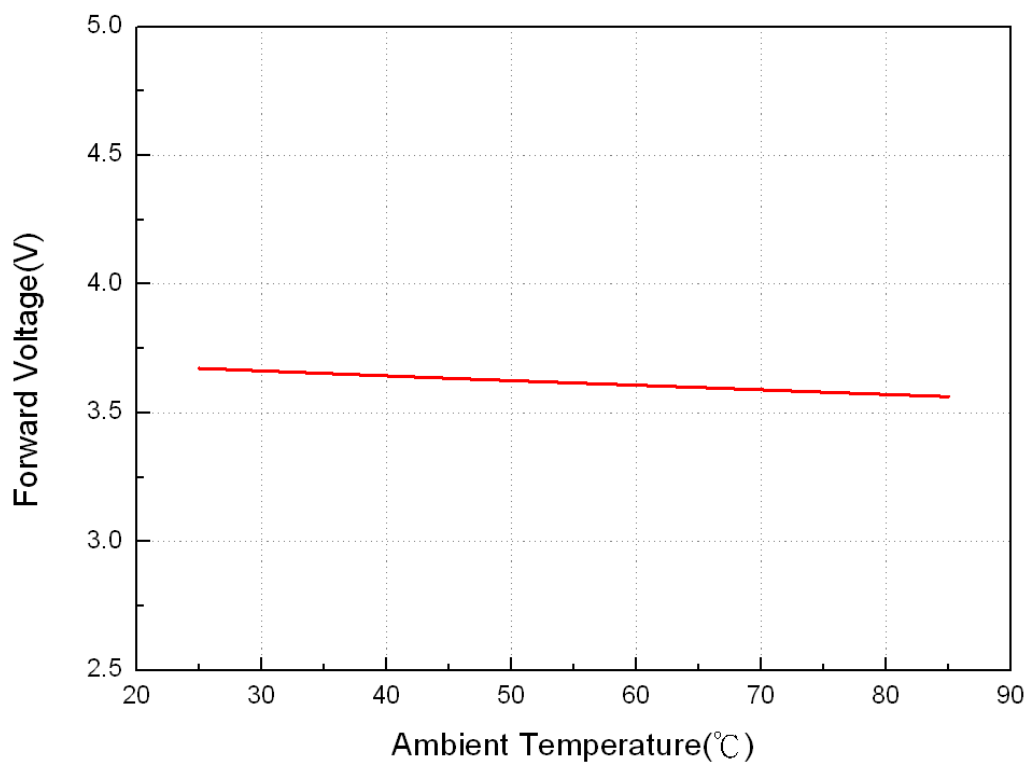
Ambient Temp vs. Peak Wavelength



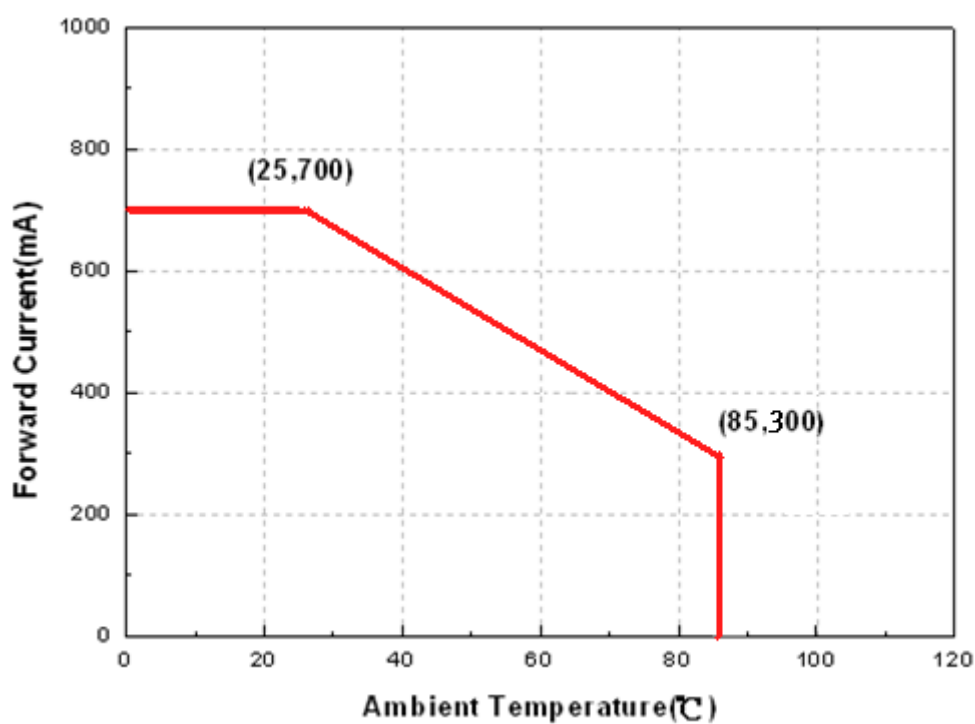
Ambient Temp vs. Relative Radiant Flux



Ambient Temp vs. Forward Voltage

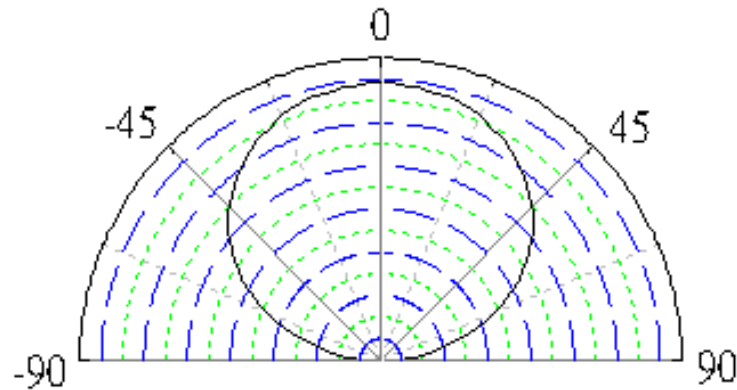


Derating Curve



Typical Radiation Patterns

Typical Diagram Characteristics of Radiation for ELUMA



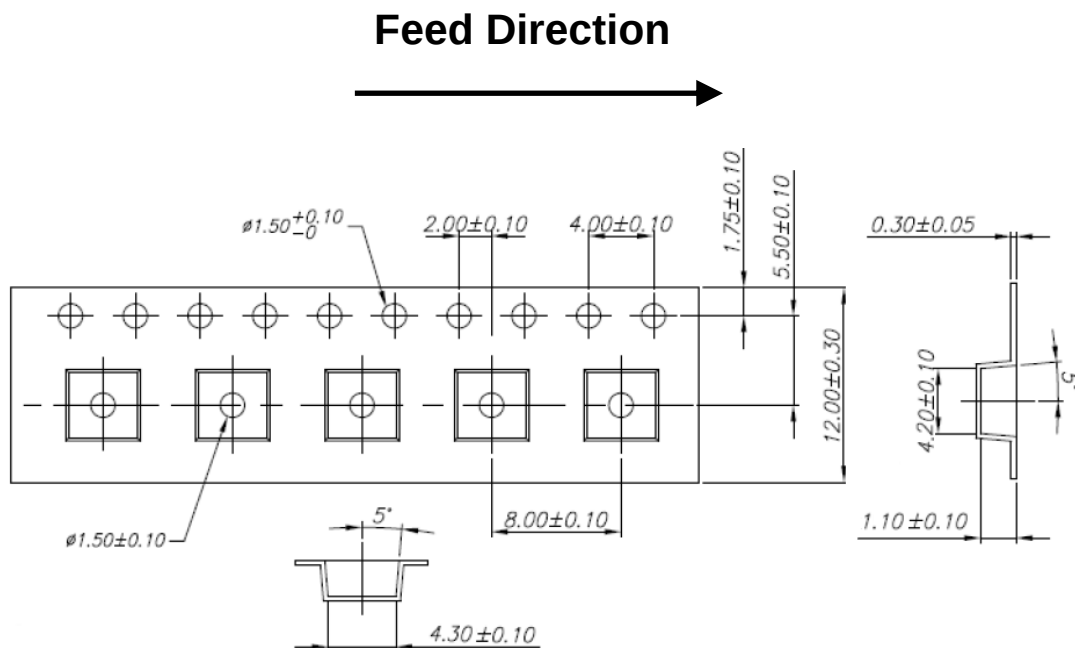
Notes:

1. $2\theta_{1/2}$ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is $\pm 5^\circ$.

Emitter Tape Packaging

Carrier Tape Dimensions as the following:

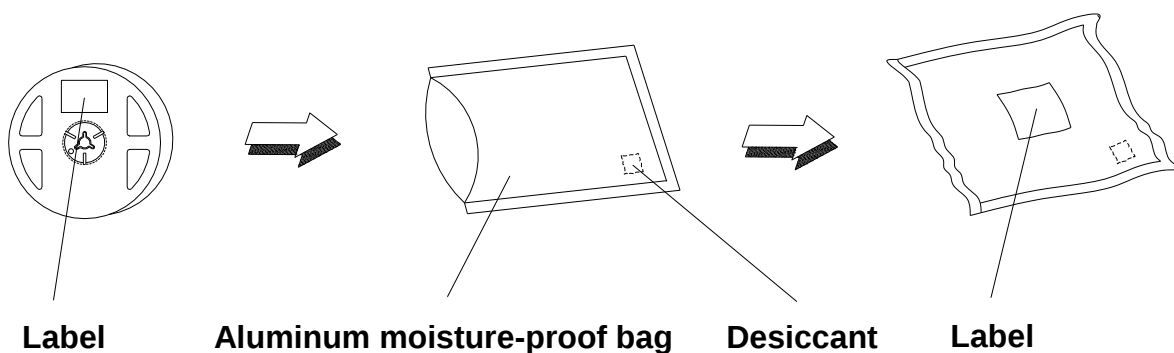
Reel: 2000pcs



Notes:

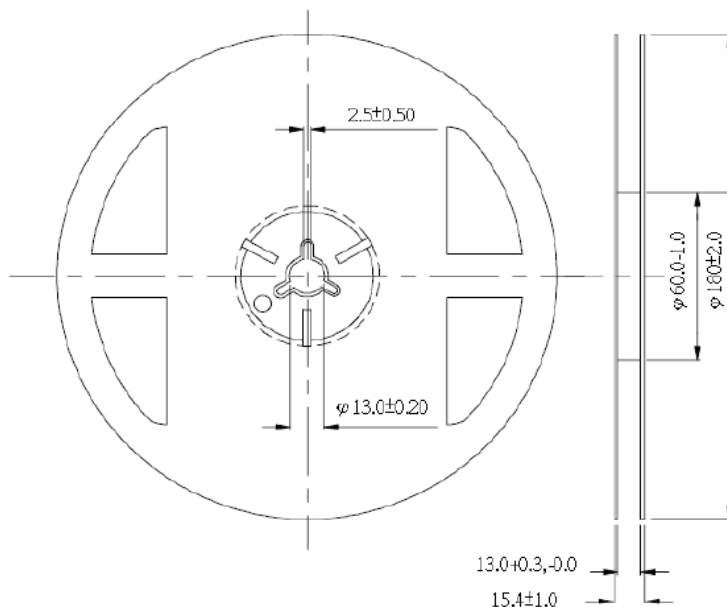
1. Tolerance unless mentioned is $\pm 0.1\text{mm}$; Unit = mm
2. Minimum packing amount is 250/500/1000/2000 pcs per reel

Moisture Resistant Packaging



Emitter Reel Packaging

Reel Dimensions



Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are $\pm 0.1\text{mm}$.

Product Labeling

Label Explanation

CPN: Customer Specification (when required)

P/N : Everlight Production Number

QTY: Packing Quantity

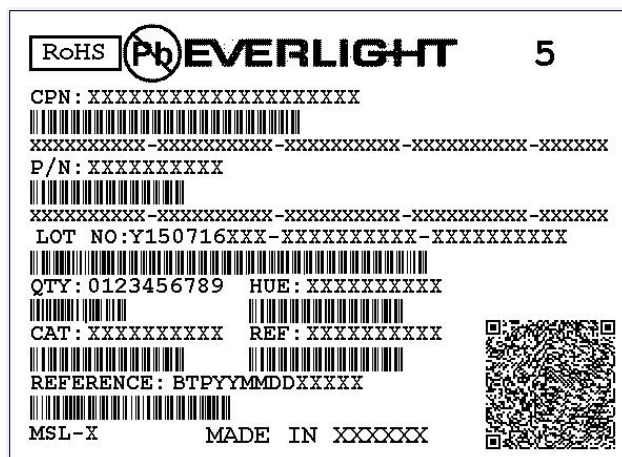
CAT: Luminous Flux (Brightness) Bin

HUE: Color Bin

REF: Forward Voltage Bin

LOT No: Lot Number

MADE IN TAIWAN: Production Place



Storage Conditions

- Before the package is opened :The LEDs should be stored at 30°C or less and 85%RH or less after being shipped from Everlight and the storage life limits are 1 year. The LEDs can be stored up to 3 years if in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- After opening the package: The LED's floor life is 168hrs when environment is 30°C or less and 60%RH or less. The LED should be soldered within 168hrs (7days) after opening the package. If unused LEDs remain, it should be stored in moisture proof packages.
- If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5°C for 24 hours.

Revision History

Current version: **2016/4/13**
Previous version: **N/A**

Device No.
Rev. Ver. 2

Page	Subjects (major change in previous version)	Date of change
1	Add : EU REACH compliant Halogen Free compliant (Br<900ppm,Cl<900ppm,Br+Cl<1500ppm) Pb free	2016/04/13