Bright View Electronics

SPECIFICATIONS FOR BRIGHT VIEW ELECTRONICS OVAL LED LAMP

MODEL : BVU- 429QH9M

Date: 2007/12/18

PRELIMINARY
Version-1

Bright View Electronics

OVAL LED LAMP

BVU-429QH9M

■ Description

- Dice Material： AlGaInP Orange Red
- Light Color： Orange Red Color
- Lens Color： Red Tinted Diffused
- Stand-Off P/N： BVU-429QH9M R

■ Features

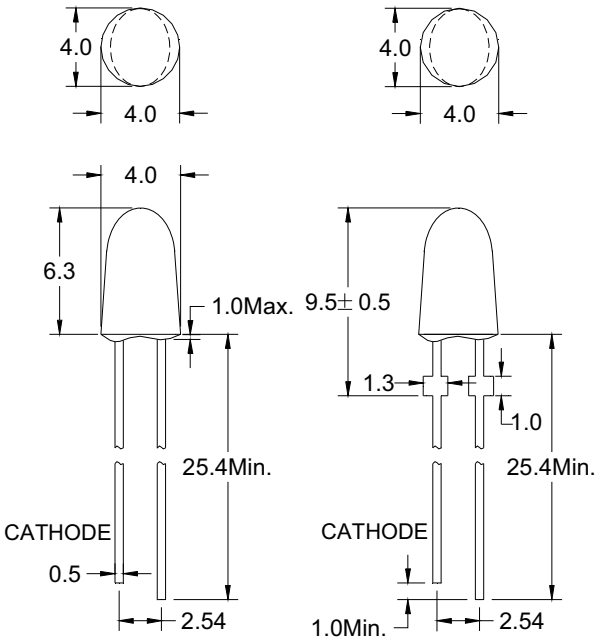
- Well defined spatial radiation pattern
- Viewing angle：major axis 120^0
  minor axis 60^0
- High luminous output
- Superior resistance to moisture

■ Applications

- Commercial outdoor advertising
- Battery power equipment
- Telecommunication indicators

OVAL LED LAMP **BVU-429QH9M**

■ Outline Dimensions： (mm)



Leadframe orientation perpendicular

Tolerance：± 0.25 mm

■ Part Numbering System：

B V U - 4 2 9 Q H 9 M R

- R — Stand-offs code
- M — Leardframe code
- 9 — Lens Color Code
- H — Dice Code
- 429 — Lens Configuratuion Code
- BVU — Product Code

■ Sub Part Numbering :

Please also refer to the label on product bags and cartons.

■ Absolute Maximum Ratings at Ta = 25 ℃

PARAMETER	MAX.	UNIT
Power Dissipation (P_D)	75	mW
Continuous Forward Current (I_F)	30	mA
Peak Forward Current (1/10 Duty Cycle , 0.1ms Pulse Width) (I_{FP})	160	mA
Reverse Voltage (V_R)	5	V
Derating Linear From 50℃	0.4	mA/℃
Operating Temperature Range (Topr)	−40 to + 100	°C
Storage Temperature Range (Tstg)	−40 to + 100	°C
Lead Solder Temperature 1.6mm Below Package (Tsld)	260 °C for 5 seconds	

■ Electro-Optical Characteristicsat at Ta = 25 ℃

PARAMETER	SYMBOL	TEST CONDITION	VALUES			UNIT
			MIN.	TYP.	MAX.	
Forward Voltage	V_F	I_F=20mA	—	1.8	2.4	V
Reverse Current	I_R	V_R= 5V	—	—	100	μA
Peak Emission Wavelength	λp	I_F=20mA	—	630	—	nm
Dominant Wavelength	λd	I_F=20mA	—	626	—	nm
Viewing Angle at 50% Iv	2θ 1/2	I_F=20mA	—	120/60	—	Deg.

■ Bin Grade Limits (I_F = 20 mA) Luminous Intensity / mcd

Tolerance：± 15%

Bin	F	G	H	I	J	K
Min.	360	465	600	780	1000	1300
Max.	465	600	780	1000	1300	1680

One delivery will include three different ranks of products .

■ Bin Grade Limits (I_F = 20 mA) Dominant Wavelength / nm

Tolerance：± 1 nm

Bin	QD	QE	QF	QG
Min.	617	621	625	629
Max.	621	625	629	633

Please contact our sales department for more information.

■ Bin Grade Limits (I_F = 20 mA) Forward Voltage / v

Tolerance：± 0.05 V

Bin	16	18	20	22
Min.	1.6	1.8	2.0	2.2
Max.	1.8	2.0	2.2	2.4

Please contact our sales department for more information.

■ Characteristics Data

AlGaInP GaAs Orange Red LED

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

FIG. 1 Forward Current vs. Forward Voltage
(Ta = 25 °C)

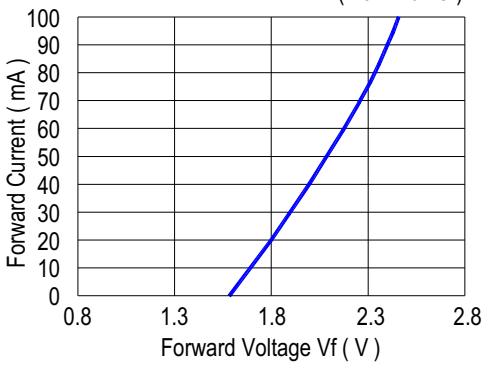


FIG. 2 Relative Intensity vs. Forward Current
(Ta = 25 °C)

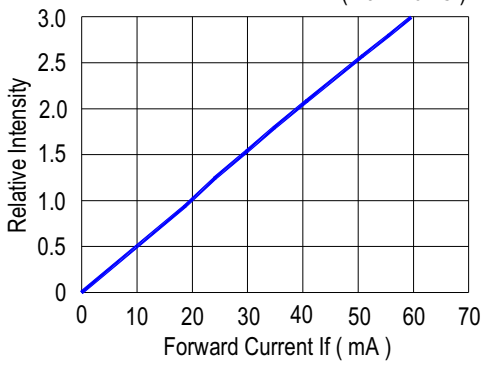


FIG. 3 Forward Voltage vs. Temperature

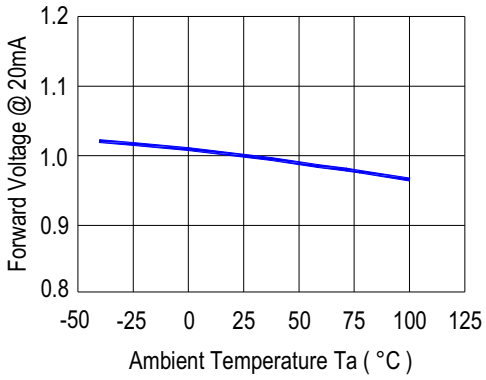


FIG. 4 Relative Intensity vs. Temperature

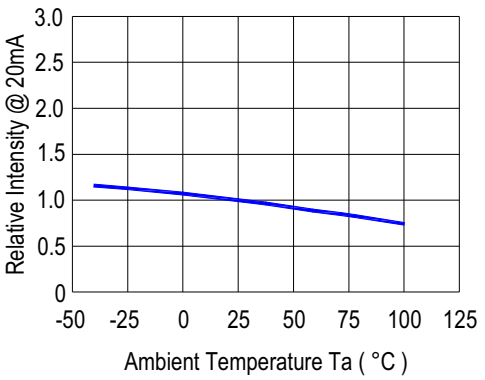


FIG. 5 Relative Intensity vs. Wavelength (λp)
(Ta = 25 °C)

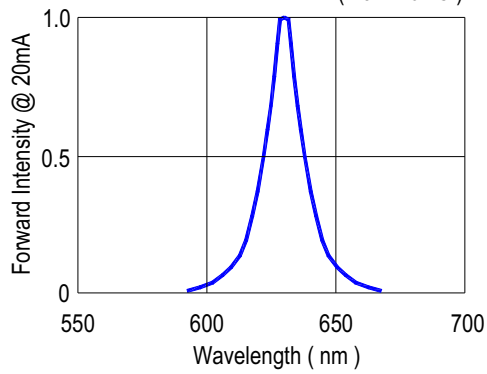
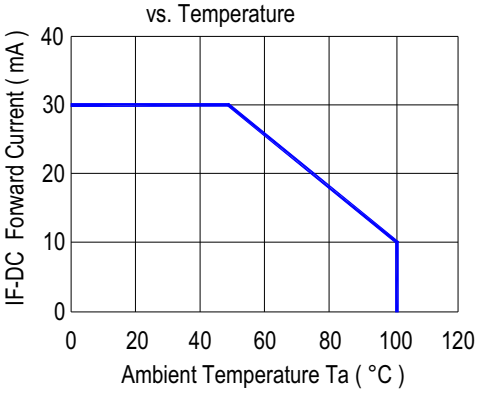
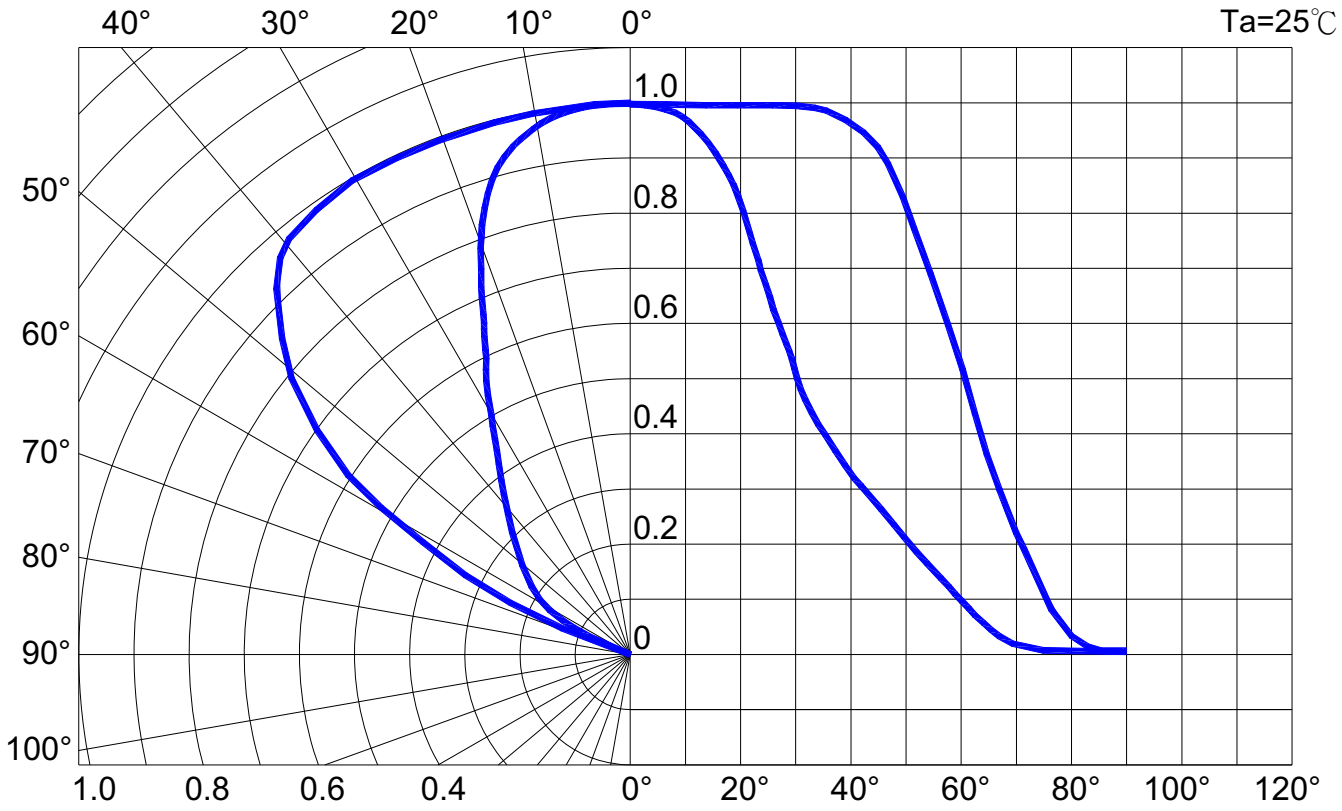


FIG. 6 Maximum Forward Current
vs. Temperature

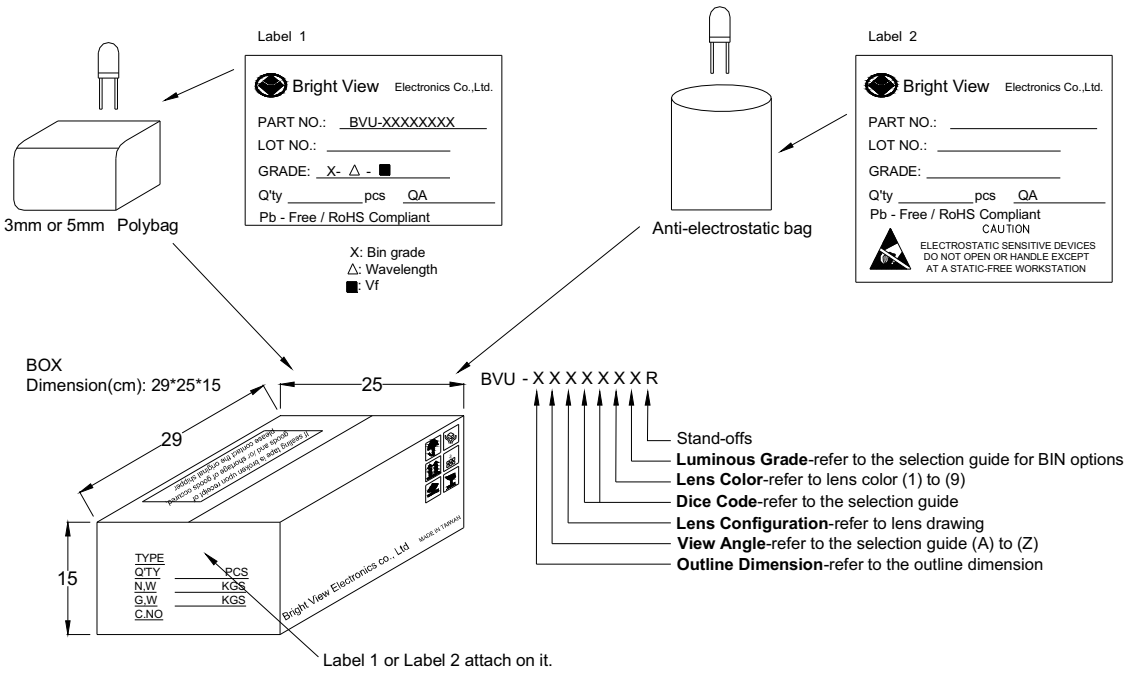


■ **Radiation Characteristic：**

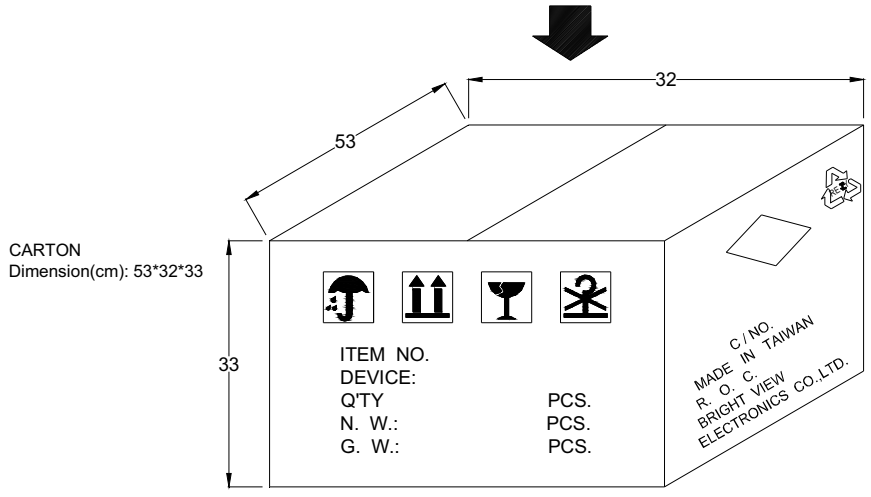


OVAL LED LAMP BVU-429QH9M

■ Packaging :



Device	Q'ty / Polybag (pcs)	Polybag / Box A	Fig.
5mm(T-1 3/4)	1000pcs	14 bags	Label 1
3mm(T-1)	1000pcs	20 bags	Label 1
Blue / Green / White	500pcs	18 bags	Label 2



4 Boxes / Carton

5mm : 56,000pcs

3mm : 80,000pcs

Blue / Green / White : 36,000pcs

■ Reliability Test Items and Conditions :

TEST ITEM	TEST CONDITION	ENVIRO-NMENT	QUANTITY	NUMBER OF DAMAGED
OPERATING LIFE TEST MIL-STD-750:1026 MIL-STD-883:1005	CONSTANT CURRENT : SPEC. TEST TIME : 1000 HOURS UNDER ROOM TEMPERATURE	25±5℃	80 PCS	0/80
HIGH TEMP. STORAGE TEST MIL-STD-883:1008	TEMPERATURE : 105±5℃ TEST TIME : 500 HOURS	25±5℃	80 PCS	0/80
LOW TEMP. STORAGE TEST JIS C 7021:B-12	TEMPERATURE : -55±5℃ TEST TIME : 500 HOURS	25±5℃	80 PCS	0/80
HIGH TEMP. HIGH HUMIDITY TEST MIL-STD-202F:103	TA : 65℃±3℃ 90% -95% RH TEST TIME : 240 HOURS	25±5℃	80 PCS	0/80
TEMPERATURE CYCLING MIL-STD-883E:1010.7 MIL-STD-750:1051	105℃~ 25℃~- 55℃ ~ 25℃ 60min 10min 60min 10min TOTAL : 20 CYCLES	25±5℃	80 PCS	0/80
THERMAL SHOCK TEST MIL-STD-750:1051 MIL-STD-883:1011	105℃±5℃~-55℃±5℃ (30min) (30min) TOTAL : 10 CYCLES	25±5℃	80 PCS	0/80
SOLDER RESISTANCE TEST MIL-STD-202:208D MIL-STD-883:2003	TA : 260℃±5℃ TEST TIME : 10 ±1 SEC	25±5℃	80 PCS	0/80
SOLDERABILITY TEST MIL-STD-202:208D MIL-STD-883:2003	TA : 230℃±5℃ TEST TIME : 5 ±1 SEC	25±5℃	80 PCS	0/80

JUDGMENT CRITERIA OF FAILURE FOR RELIABILITY			
MEASURING ITEMS	SYMBOL	CONDITIONS	FAILURE
LUMINOUS INTENSITY	Iv	If=SPEC.	Iv<0.5*STANDARD
FORWARD VOLTAGE	Vf	If=SPEC.	Vf>1.2*VF(MAX.)
REVERSE CURRENT	Ir	Vr=SPEC.	Ir>2*IR(MAX.)

■ Cautions :

(1) Lead Forming

- ∗ When forming leads, the leads should be bent at a point at least 3mm from the base of the epoxy bulb. Do not use the base of the leadframe as a fulcrum during lead forming.
- ∗ Lead forming should be done before soldering.
- ∗ Do not apply any bending stress to the base of the lead. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- ∗ When mounting the LEDs onto a printed circuit board, the holes on the circuit board should be exactly aligned with the leads of the LEDs. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

(2) Storage Conditions

- ∗ The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Bright View and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- ∗ Bright View LED leadframes are comprised of a silver plated iron alloy. The silver surface may be affected by environments which contain corrosive gases and so on. Please avoid conditions which may cause the LED to corrode, tarnish or discolor. This corrosion or discoloration may cause difficulty during soldering operations. It is recommended that the LEDs be used as soon as possible.
- ∗ Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

(3) Heat Generation

- ∗ Thermal design of the end product is of paramount importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board, as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in this specification.
- ∗ The operating current should be decided after considering the ambient maximum temperature of LEDs.

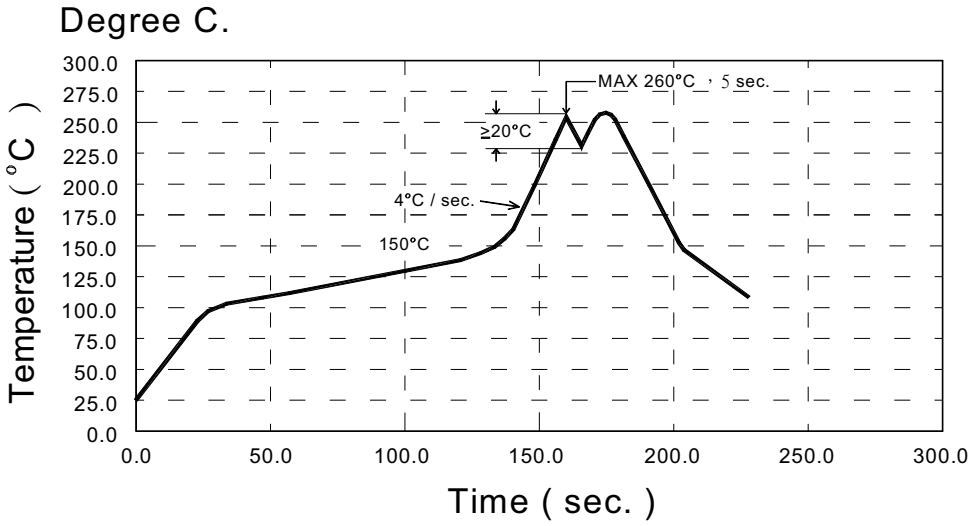
(4) Cleaning

- ∗ It is recommended that isopropyl alcohol be used as a solvent for cleaning the LEDs. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the resin or not. Freon solvents should not be used to clean the LEDs because of worldwide regulations.
- ∗ Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be done to confirm whether any damage to the LEDs will occur.

(5) Soldering

Dip Soldering (wave soldering-solder bath) :

- ∗ Leave 3mm of minimum distance from the base of the epoxy. Soldering beyond the base of the the tie bar (stand off) is recommended.
- ∗ When soldering, do not load stress on the LEDs during heating.
- ∗ Cutting the leadframes at high temperatures may cause LED failure.
- ∗ Never take next process until the component is cooled down to room temperature after reflow.
- ∗ After soldering, do not warp the circuit board.
- ∗ The recommended dip soldering profile is the following:



Manual Soldering (solder iron) :

- ∗ Temperature at tip of iron: 300℃ Max.
- ∗ It's banned to load any stress on the resin during soldering.
- ∗ Soldering time: 3 sec. Max.(one time only).
- ∗ Leave 3mm of minimum distance from the base of the epoxy.

(7) Other

* Care must be taken to ensure that the reverse voltage will not exceed the absolute maximum rating when using the LEDs with matrix drive.

* The LEDs described in this brochure are intended to be used for ordinary electronic equipment (such as office equipment, communications equipment, measurement instruments and household appliances). Consult Bright View sales staff in advance for information on the applications in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as for airplanes, aerospace, submersible repeaters, nuclear reactor control systems, automobiles, traffic control equipment, life support systems and safety devices).

* The appearance and specifications of the product may be modified for improvement without notice.