

Technical Data Sheet

6324/T2C9-1HLA

Features

- 4.8mm round package.
- High luminous power.
- Typical chromaticity coordinates x=0.29, y=0.28 according to CIE1931.
- Bulk, available taped on reel.
- ESD-withstand voltage: up to 4KV
- The product itself will remain within RoHS compliant version.

Page: 1 of 12

Descriptions

- The series is designed for application required high luminous intensity.
- The phosphor filled in the reflector converts the blue emission of InGaN chip to ideal white.

Applications

- Message panels
- Optical Indicators
- Backlighting
- Marker Lights

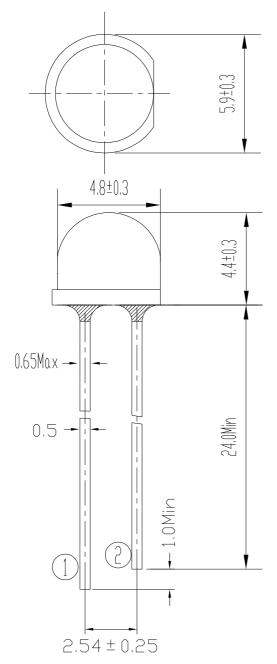
Device Selection Guide

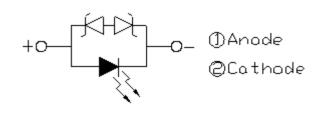
DARTNO	Ch		
PART NO.	Material	Emitted Color	Lens Color
6324/T2C9-1HLA	InGaN	White	Water Clear

Everlight Electronics Co., Ltd. http\\:www.everlight.com Rev 1 Device Number DLE-0000739 Established date: 01/08/2009 Established by: Ruby Lin



Package Dimensions





Notes:

- 1.All dimensions are in millimeters, and tolerance is 0.25mm except being specified.
- 2.Lead spacing is measured where the lead emerges from the package.
- 3. Protruded resin under flange is 1.5mm Max. LED.

Everlight Electronics Co., Ltd.

Device NumberDLE-0000739

 $http \verb|\:www.everlight.com| \\$

Established date: 01/08/2009

Rev 1

Page: 2 of 12



Absolute Maximum Ratings (Ta=25℃)

Parameter Parameter	Symbol	Rating	Unit
Continuous Forward Current	I_{F}	30	mA
Peak Forward Current(Duty /10 @ 1KHZ)	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-40 ~ +85	$^{\circ}\!\mathbb{C}$
Storage Temperature	T_{stg}	-40 ~ +100	$^{\circ}\!\mathbb{C}$
Soldering Temperature (T=5 sec)	T_{sol}	260	$^{\circ}\!\mathbb{C}$
Power Dissipation	P_d	110	mW
Zener Reverse Current	Iz	100	mA
Electrostatic Discharge	ESD	4K	V

Rev 1

Page: 3 of 12



Production Designation

6324/F1C9-□ □ □ □	
\top \top \top	
	Voltage Group
	Luminous Intensity Bins
	Color Group

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Тур.	Max.	Units
Forward Voltage	V_{F}	I _F =20mA	2.8		3.6	V
Zener Reverse Voltage	Vz	Iz=5mA	5.2			V
Reverse Current	I_R	V _R =5V			50	uA
Luminous Intensity	I_{V}	I _F =20mA	715		1800	mcd
Viewing Angle	2θ1/2	I _F =20mA		100		deg
Chuamatiaity Caardinatas	X			0.29		
Chromaticity Coordinates	у	I _F =20mA		0.28		

Established date: 01/08/2009



Page: 5 of 12

Luminous Intensity Combination (mcd at 20mA)

Rank	Min	Max
Н	715	900
J	900	1125
K	1125	1425
L	1425	1800

^{*}Measurement Uncertainty of Luminous Intensity: ±10%

Forward Voltage Combination (V at 20mA)

Rank	0	1	2	3
Forward Voltage	2.8~3.0	3.0~3.2	3.2~3.4	3.4~3.6

^{*}Measurement Uncertainty of Forward Voltage: ±0.1V

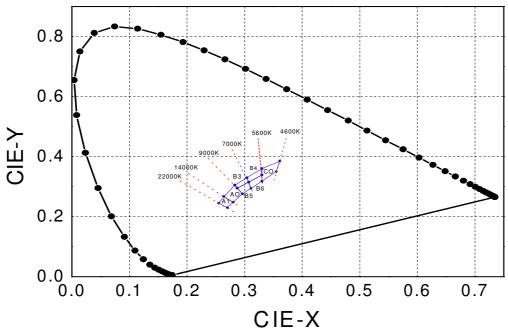
Color Combination (at 20mA)

Group	Bins
1	A1+A0+B3+B4+B5+B6+C0

Everlight Electronics Co., Ltd. http\\:www.everlight.com Rev 1 Device NumberDLE-0000739 Established date: 01/08/2009 Established by: Ruby Lin



CIE Chromaticity Diagram



Color Ranks (IF=20mA , $Ta=25^{\circ}C$)

Color Ran	ks		C	ΙE	
A 1	X	0.255	0.264	0.28	0.27
A1	Y	0.245	0.267	0.248	0.23
4.0	X	0.264	0.283	0.296	0.28
A0	Y	0.267	0.305	0.267	0.248
D2	X	0.283	0.304	0.307	0.287
В3	Y	0.305	0.33	0.315	0.295
D4	X	0.304	0.33	0.33	0.307
B4	Y	0.33	0.36	0.339	0.315
D.5	X	0.287	0.307	0.311	0.296
B5	Y	0.295	0.315	0.294	0.276
В6	X	0.307	0.33	0.33	0.311
	Y	0.315	0.339	0.318	0.294
С0	X	0.33	0.361	0.355	0.33
	Y	0.36	0.385	0.35	0.318

^{*}Measurement uncertainty of the color coordinates: ±0.01

Everlight Electronics Co., Ltd. Device NumberDLE-0000739

 $http \verb|\:www.everlight.com| \\$

Rev 1

Page: 6 of 12

Established date: 01/08/2009 Established by: Ruby Lin



Technical Data Sheet

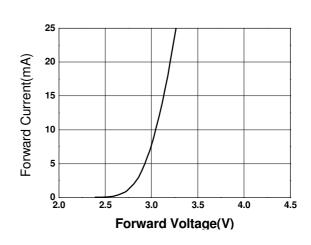
6324/T2C9-1HLA

Typical Electro-Optical Characteristics Curves

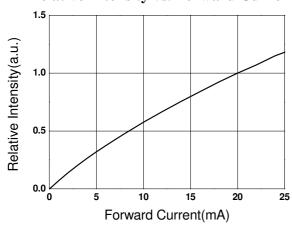
Relative Intensity vs. Wavelength

1.0 Relative Intensity(a.u.) 0.8 0.6 0.4 0.2 0.0 L 350 450 550 600 700 400 500 650 750 Wavelength(nm)

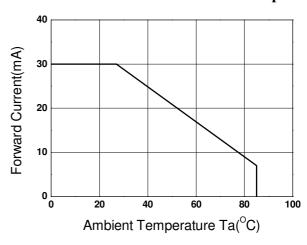
Forward Current vs. Forward Voltage



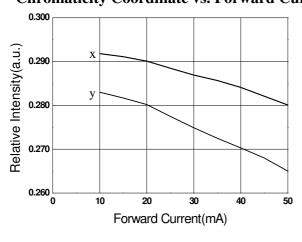
Relative Intensity vs. Forward Current



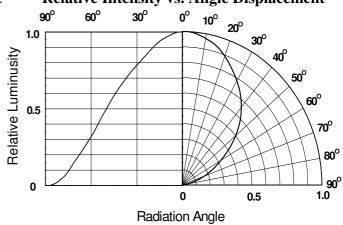
Forward Current vs. Ambient Temp.



Chromaticity Coordinate vs. Forward Current



Relative Intensity vs. Angle Displacement



Everlight Electronics Co., Ltd. Device NumberDLE-0000739

http\\:www.everlight.com Established date: 01/08/2009 Rev 1

Page: 7 of 12

1/08/2009 Established by: Ruby Lin

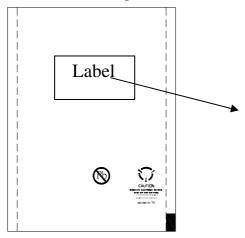


Technical Data Sheet

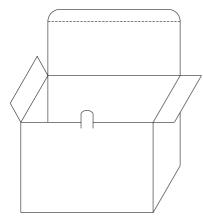
6324/T2C9-1HLA

Packing Specification

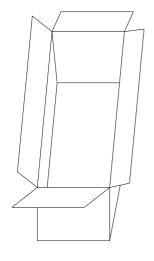
■ Anti-electrostatic bag



Inner Carton



Outside Carton





■ Label Form Specification

CPN: Customer's Production Number

P/N: Production Number QTY: Packing Quantity

CAT: Ranks of Luminous Intensity and Forward Voltage

HUE: Color Rank REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

■ Packing Quantity

1. 500 PCS/1 Bag , 5 Bags/1 Inner Carton

2. 10 Inner Cartons/1 Outside Carton

Everlight Electronics Co., Ltd.

Device NumberDLE-0000739

 $http \verb|\:www.everlight.com| \\$

Rev 1

Page: 8 of 12

Established date: 01/08/2009 Established by: Ruby Lin



Notes

1. Lead Forming

- During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
- Lead forming should be done before soldering.
- Avoid stressing the LED package during leads forming. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- Cut the LED leadframes at room temperature. Cutting the leadframes at high temperatures may cause failure of the LEDs.
- When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. 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

- The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Everlight 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.
- Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

3. Soldering

- Careful attention should be paid during soldering. When soldering, leave more then 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering		
Temp. at tip of	300°C Max. (30W	Preheat temp.	100°C Max. (60 sec	
iron	Max.)	Freneat temp.	Max.)	
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max	
Distance	3mm Min.(From	Distance	3mm Min. (From	
	solder joint to		solder joint to epoxy	
	epoxy bulb)		bulb)	

Everlight Electronics Co., Ltd.

http\\:www.everlight.com

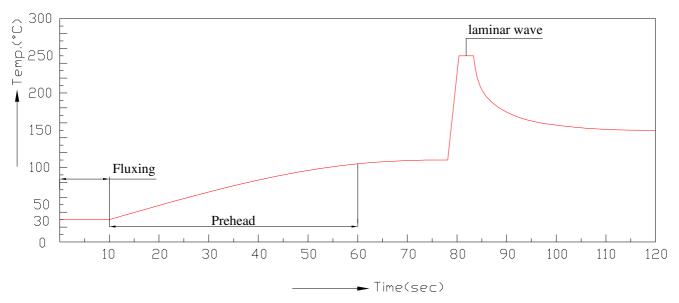
Rev 1

Page: 9 of 12

Device Number DLE-0000739

Established date: 01/08/2009





- Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or handsoldering at the lowest possible temperature is desirable for the LEDs.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

4. Cleaning

- When necessary, cleaning should occur only with isopropyl alcohol at room temperature for a duration of no more than one minute. Dry at room temperature before use.
- 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. Ultrasonic cleaning shall be pre-qualified to ensure this will not cause damage to the LED

Everlight Electronics Co., Ltd. Device NumberDLE-0000739

 $http \verb|\:www.everlight.com| \\$

Rev 1

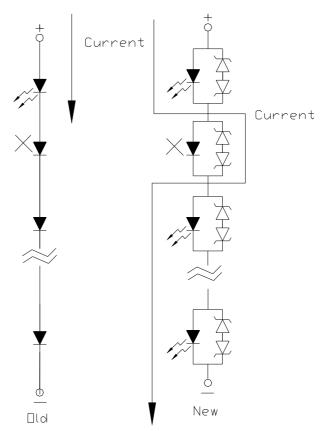
Page: 10 of 12

Established date: 01/08/2009 Established by: Ruby Lin



5. Circuit Protection

- Below the zener reference voltage Vz, all the current flows through LED and as the voltage rises to Vz, the zener diode "breakdown." If the voltage tries to rise above Vz current flows through the zener branch to keep the voltage at exactly Vz.
- When the LED is connected using serial circuit, if either piece of LED is no light up but current can't flow through causing others to light down. In new design, the LED is parallel with zener diode. if either piece of LED is no light up but current can flow through causing others to light up.



6. Heat Management

- Heat management of LEDs must be taken into consideration during the design stage of LED application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
- The temperature surrounding the LED in the application should be controlled. Please refer to the data sheet de-rating curve.

Everlight Electronics Co., Ltd.

http\\:www.everlight.com

Rev 1 Page: 11 of 12

Device NumberDLE-0000739 Esta

Established date: 01/08/2009



7. ESD (Electrostatic Discharge)

- Electrostatic discharge (ESD) or surge current (EOS) can damage LEDs.
- An ESD wrist strap, ESD shoe strap or antistatic gloves must be worn whenever handling LEDs.
- All devices, equipment and machinery must be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing.

8. Other

- Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
- These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

EVERLIGHT ELECTRONICS CO., LTD.

Office: No 25, Lane 76, Sec 3, Chung Yang Rd, Tucheng, Taipei 236, Taiwan, R.O.C

http:\\www.everlight.com

Tel: 886-2-2267-2000, 2267-9936

Fax: 886-2267-6244, 2267-6189, 2267-6306

http\\:www.everlight.com Established date: 01/08/2009 Rev 1 Page: 12 of 12

Everlight Electronics Co., Ltd. Device NumberDLE-0000739