Product Specification

Number: L-KLS9-L-2835URC-1

Name: LEDs

Customer: _____

Date: 2024-11-12

Customer Signature:

NINGBO KLS ELECTRONIC CO; LTD

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Compi	Check	Review	Approva
Jenny	Jack.C		

Revision Status

Version	Date	Revision Description	Prepared	Checked	Approved

TECHNOLOGY DATA SHEET & SPECIFICATIONS

Features

1、Chip material: InGaN

2、Emitted color: Red

4、Low power consumption.

5、High efficiency.

6、Versatile mounting on P.C.Board or panel.

7、Low current requirement.

8、3mm diameter package.

9、This product don't Contained restriction Substance, compliance ROHS standard.

Usage Notes:

˙Surge will damage the LED

˙When using LED, it must use a protective resistor in series with DC current about 60mA

Applications

1、For a variety of electronic products, light sources and the state, outdoor signal instructions.

2、A variety of lighting project and indoor and outdoor Lighting.

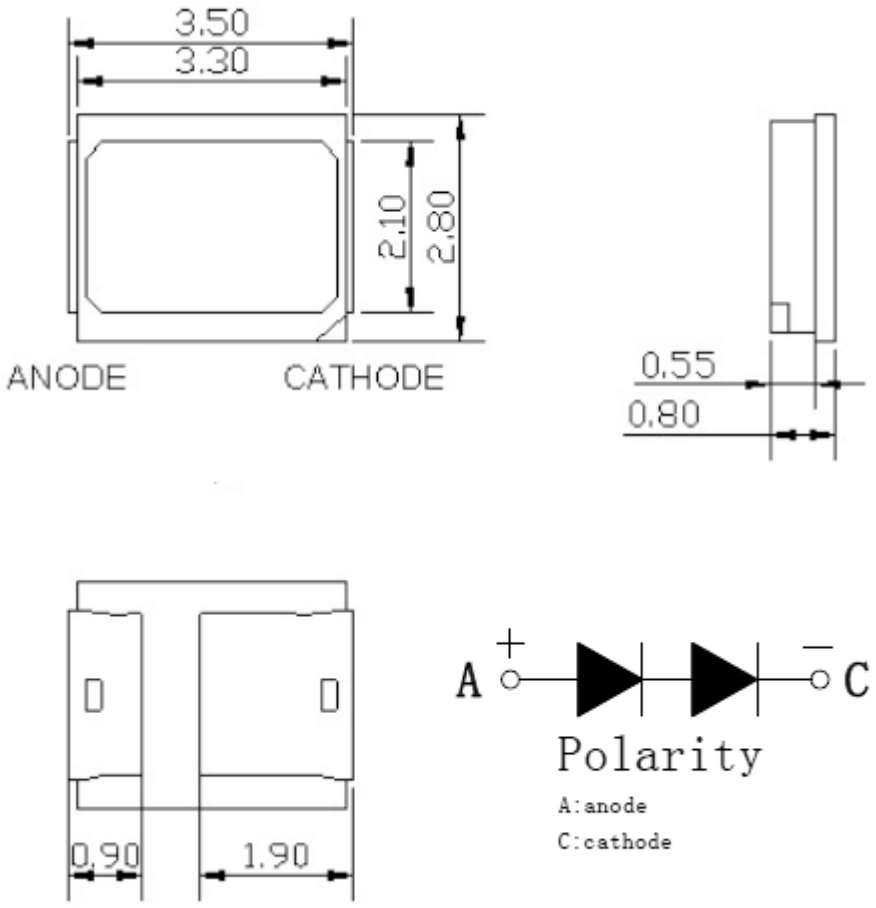
3、Recreational facilities, a variety of media, images and performances such as art lighting.

4、Infrared transmitting and receiving control.

Device Selection Guide

LED Part No.	Chip		Lens Color
	Material	Emitted Color	
L-KLS9-L-2835URC-1	InGaN	Red	Water clear

Package Dimensions



Notes:

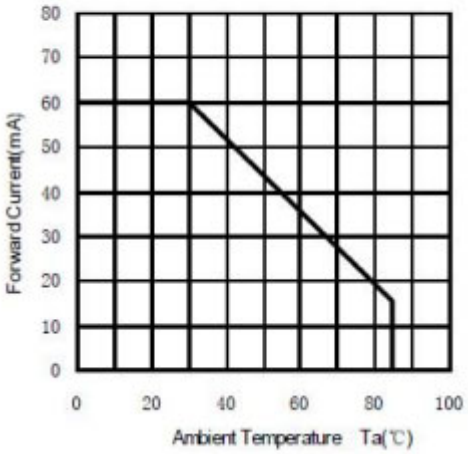
1、All dimension are in millimeters(inches)

2、Tolerance is_0.25mm(0.01)unless otherwise specified.

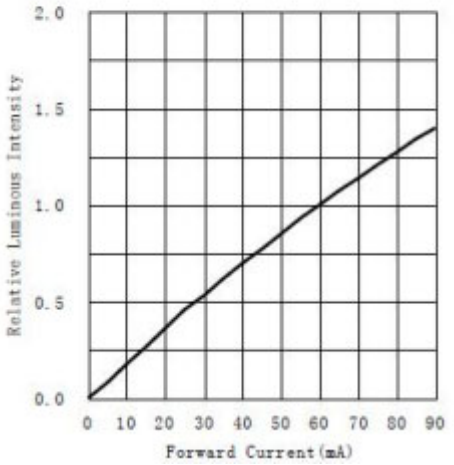
3、Lead spacing is measured where the leads emerge from the package.

4、Specifications are subject to change without notice.

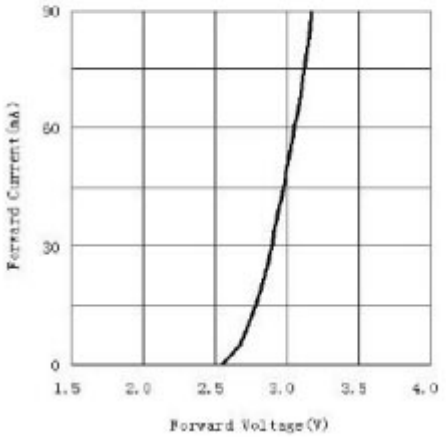
Ambient Temperature vs. Forward Current
环境温度与正向电流特性曲线



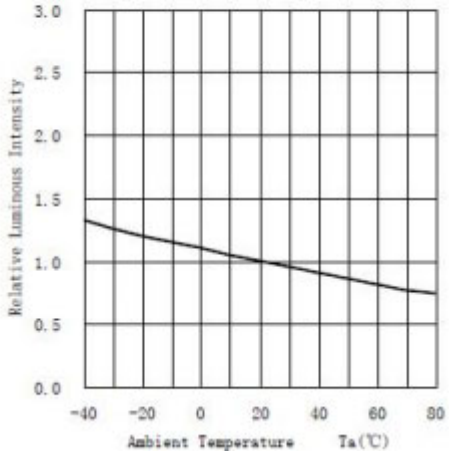
Forward Current VS. Relative Intensity
正向电流与相对光强特性曲线



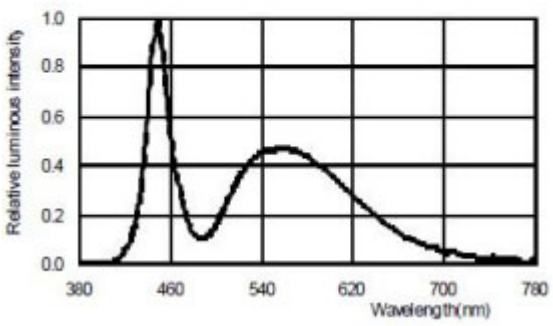
Forward Voltage VS. Forward Current
正向电压与正向电流特性曲线



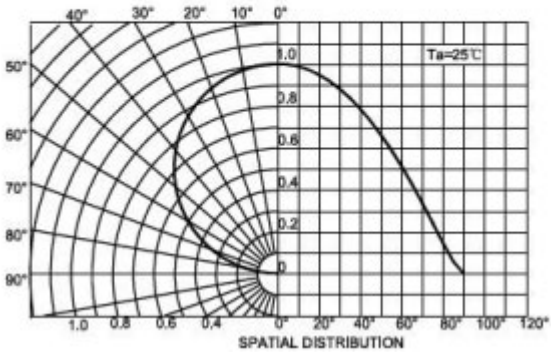
Ambient Temperature VS. Relative Intensity
环境温度与相对光强特性曲线



Relative spectral emission
相对光谱分布特性曲线



Radiation diagram
辐射图特性曲线



Absolute Maximum Rating (T_a=25℃)

Parameter	Symbol	Absolute Maximum Rating	Unit
Peak Forward Current (Duty 1/10 @1KHz)	I_F	150	mA
Forward Current	I_{FM}	120	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	0.5	W
Operating Temperature	Topr	-25～+100	℃
Storage Temperature	Tstg	-40～+100	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 320 ℃ for 3 sec.	

Electro-Optical Characteristics (T_a=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	12	---	16	Lm	IF=90mA(Note1)
Viewing Angle	$2\theta_{1/2}$	---	120	---	Deg	(Note 2)
Color developing index	Ra	---	---	---	%	IF=90mA
Peak Emission Wavelength	λp	615	620	625	nm	IF=90mA
Spectral Line Half-Width	△λ	---	20	---	nm	IF=90mA
Forward Voltage	V_F	5.8	---	6.2	V	IF=90mA
Reverse Current	I_R	---	---	10	μA	VR=5V

Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

Reliability Test Items And Conditions

No	Item	Test Condition	Sample Number	Criteria for Judging	Ac/Re
1	Solderability	T=235±5℃ T=5sec.	15	Good wetting	0/1
2	Soldering heat	T=260±5℃ T=10sec.	15	IV≥LSL* VF≤USL* IR≤USL	0/1
3	Rapid change of temperature followed by: damp heat，cyclic	L:-40℃ 10min （2~3）min H:+100℃ 10min 5cycle T=（25~55）℃ RH：（90~95）% 2cycle 48h recovery time 2h	11	IV≥LSL VF≤USL IR≤USL	0/1
4	Damp heat，cyclic	T=(25~55)℃ RH=（90~95）% 6 cycle 144h recovery time 2h	11	IV≥0.7LSL VF≤1.1USL IR≤2USL	0/1
5	Electrical endurance	I_F=30mA T=1000h	22	IV≥0.7LSL VF≤1.1USL IR≤2USL	0/1
6	Storage at high temperature	T_{stg}=100±2℃ t=1000h	15	IV≥LSL VF≤USL IR≤USL	0/1
7	Terminal strength	Tensile: W=5N t= 30s **Bending: W=2.5N 2times**	15	No damage	0/1

*U.S.L.: Upper Standard Level

* L.S.L.: Lower Standard Level

APPLICATION NOTES:

1)Soldering：

① Manual soldering by soldering iron：

The use of a soldering iron of less than 25W is recommended and the temperature of the iron must be kept at no higher than 300℃.

② Reflow soldering：

a. The temperature profile as shown in Fig.3 is recommended for soldering SMD LED by the reflow

furnace.

b. Care must be taken that the products be handled after their temperature has dropped down to the normal room temperature after soldering.

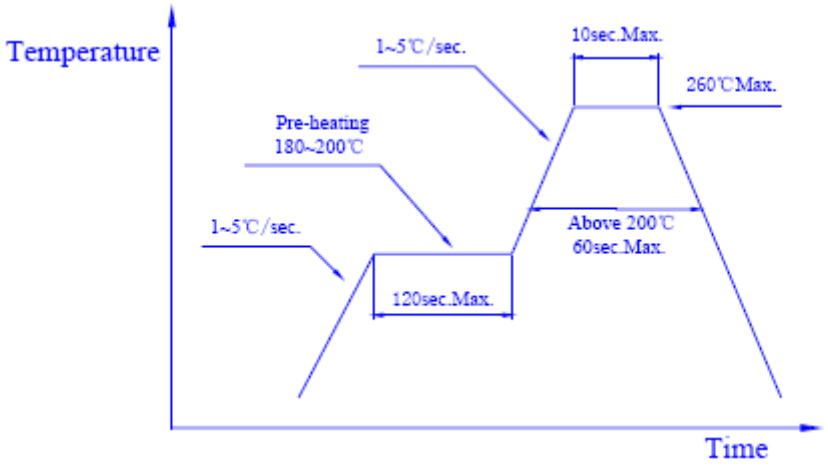


Fig.3

Solder = Sn63-Pb37	Solder = Lead-Free
Average ramp-up rate = 4℃/sec. max.	Average ramp-up rate = 4℃/sec. max
Preheat temperature: 100~150℃	Preheat temperature: 150~200℃
Preheat time = 100 sec. max.	Preheat time = 100 sec. max.
Ramp-down rate = 6℃/sec. max.	Ramp-down rate = 6℃/sec. max.
Peak temperature = 230℃ max.	Peak temperature = 250℃ max.
Time within 5℃ of actual peak temperature = 10 sec. max.	Time within 5℃ of actual peak temperature = 10 sec. max.
Duration above 183℃ is 80 sec. max.	Duration above 217℃ is 80 sec. max.

2)Post solder cleaning：

When cleaning after soldering is needed，the following conditions must be adhered to.

① Cleaning solvents：Freon TF or equivalent or alcohol.

② Temperature：50℃ Max.for 30 seconds or 30℃Max.for 3 minutes

③ Ultrasonic：300W Max.

3) OTHERS：

a. Care must be taken not to cause stress to the epoxy resin portion of SMD LED while it is exposed to the high temperature.

b. Care must be taken not to the rub the epoxy resin portion of SMD LED with a hard or sharp edged article such as the sand blast and the metal hook as the epoxy resin is rather soft and liable to be damaged.