



Data Sheet

Customer:

Part No:

Sample No:

Description:

Item No:

CL-SP192UDR-5mA-02

1608 SMD Red Color

Customer			
Check	Inspection	Approval	Date

Features

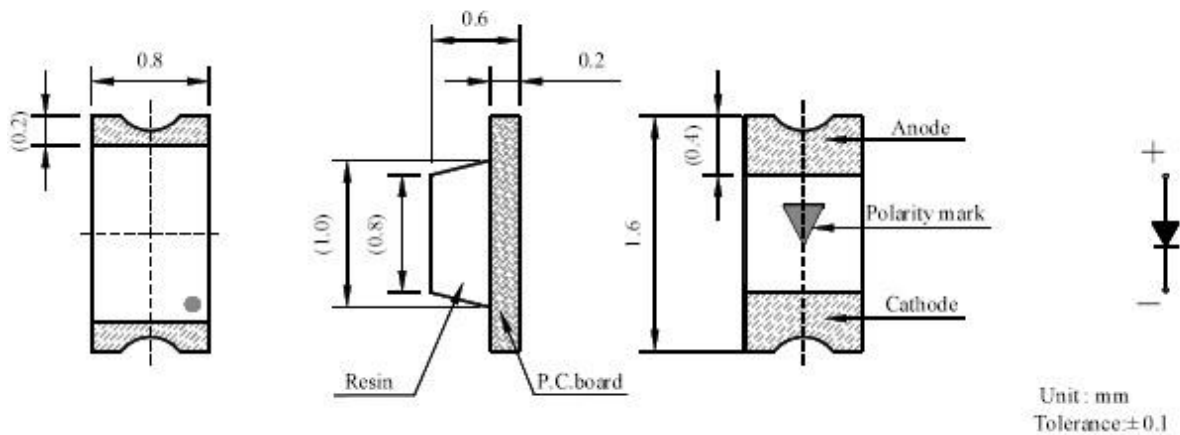
- _1.6mmX0.8mm SMT LED, 0.60mm THICKNESS.
- _LOW POWER CONSUMPTION.
- _WIDE VIEWING ANGLE.
- _IDEAL FOR BACKLIGHT AND INDICATOR.
- _VARIOUS COLORS AND LENS TYPES AVAILABLE.
- _PACKAGE: 4000PCS / REEL.
- _RoHS COMPLIANT.



Description

The Hyper Red source color devices are made with DH InGaAlP on GaAs substrate Light Emitting Diode.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1 (0.004") unless otherwise noted.
3. Specifications are subject to change without notice.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 5mA		Viewing Angle
			Min.	Typ.	2 θ 1/2
CL-SP192UDR-5mA-02	RED	WATER CLEAR	3.6	7.2	120

Note:

1. θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

Electrical / Optical Characteristics at T_A=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ_D	Dominant Wavelength	RED	630	640	nm	IF=5mA
$\Delta\lambda_{1/2}$	Spectral Line Half-width	RED	25		nm	IF=5mA
C	Capacitance	RED	105		pF	VF=0V;f=1MHz
VF	Forward Voltage	RED	1.6	2.0	V	IF=5mA
IR	Reverse Current	RED		2	uA	VR = 7V

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or wavelength), the typical accuracy of the sorting process is as follows:

1. Wavelength: +/-1nm
2. Luminous Intensity: +/-15%
3. Forward Voltage: +/-0.1V

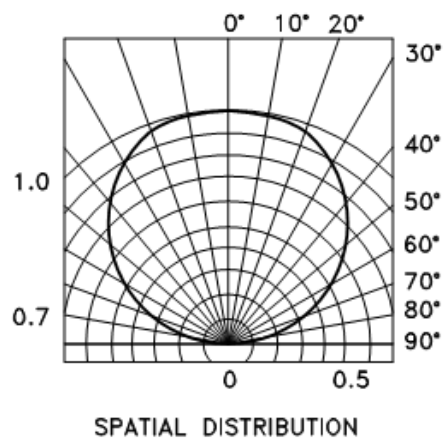
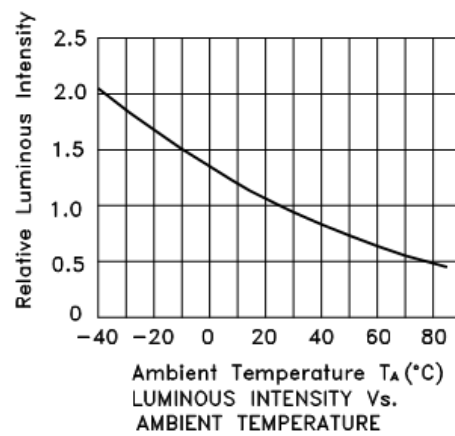
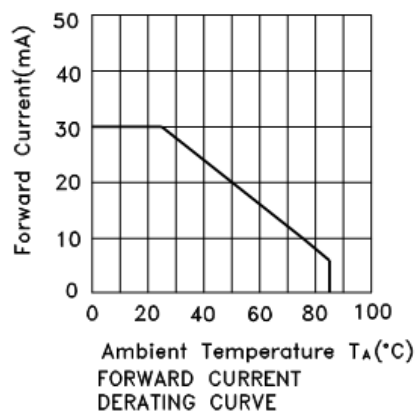
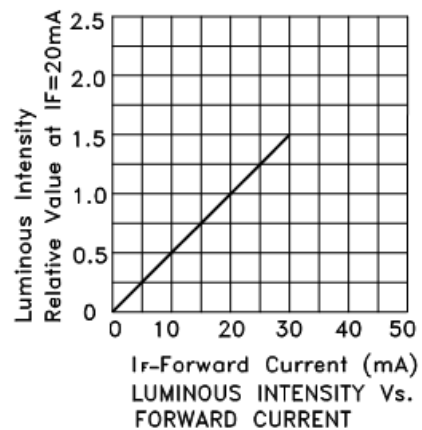
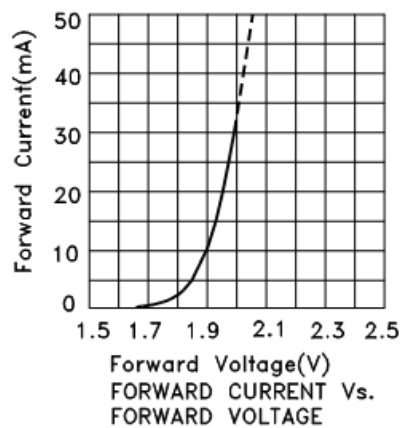
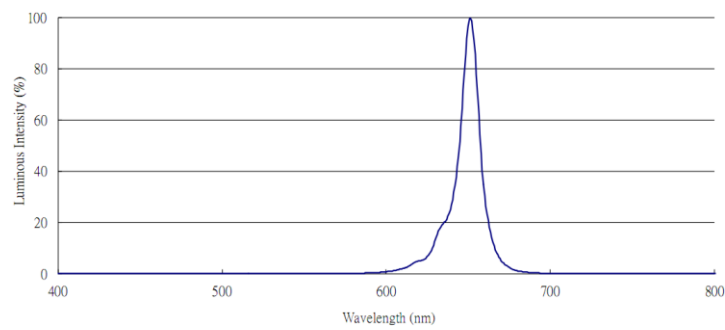
Note: Accuracy may depend on the sorting parameters

Absolute Maximum Ratings at T_A=25°C

Parameter	RED	Units
Power dissipation	60	mW
DC Forward Current	25	mA
Peak Forward Current [1]	60	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	

Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.



RELIABILITY

Test Items and Results

NO	Test item	Standard	Test Conditions	Hours/ Cycles	Sample	Number of Damaged
1	Temperature Cycle	JEITA ED-4701	-40℃~25℃~100℃~ 25℃ 30min 5min 30min 5min	100 Cycles	50	0/50
2	Thermal Shock	MIL-STD-2 02G	-40℃~100℃ 15 min 15 min	500 Cycles	50	0/50
3	High Temperature Storage	JEITA ED-4701 200 201	T _a =100℃	1000 hours	50	0/50
4	Low Temperature Storage	JEITA ED-4701 200 201	T _a =-40℃	1000 hours	50	0/50
5	Life Test		T _a =25±5℃ I _F =20mA	1000 hours	50	0/50
6	High Humidity Heat Life Test		T _a =60℃ RH=85% I _F =20mA	1000 hours	50	0/50
7	Solderabilit y (reflow soldering)	JEITA ED-4701 300 303	T _{sol} =235℃±5℃, 5 sec Use flux	Weld once, 5 seconds	10	0/10
8	Solder resistance (reflow soldering)	JEITA ED-4701 300 301	T _{sol} =260℃, 10 sec Pretreatment: 35℃ 95%RH 96 hours	Weld twice, 10 seconds each time	10	0/10

If the above test items are different from the customer's test requirements or have special customer requirements, they can be trial-produced according to the actual situation and in accordance with the customer's requirements. If the customer does not require it, the trial-production should be carried out according to our company's test standards. Different products use different currents for testing.

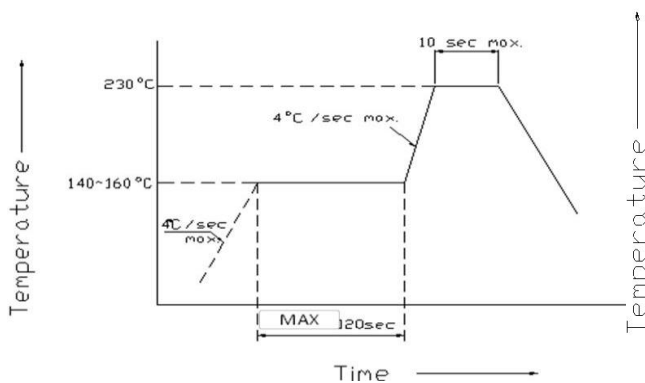
5. Cautions

(1) Soldering Conditions

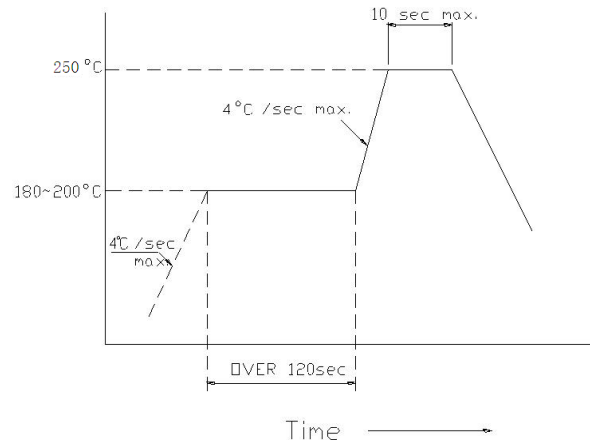
Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

回流焊接 Reflow Soldering			手工焊接	
预热温度 Pre-heat	有铅 Lead Solder	无铅 Lead-free Solder	温度 Temperature	350° C Max.
预热时间 Pre-heat time	140 ~ 160° C 120 sec. Max.	180 ~ 200° C 120 sec. Max.	焊接时间 Soldering time	3 sec. Max. (one time only)
峰值温度 Peak temperature	230° C Max. 10 sec. Max.	250° C Max. 10 sec. Max.		
焊接时间 Soldering time	参考下图	参考下图		
条件 Condition				

(Lead Solder)

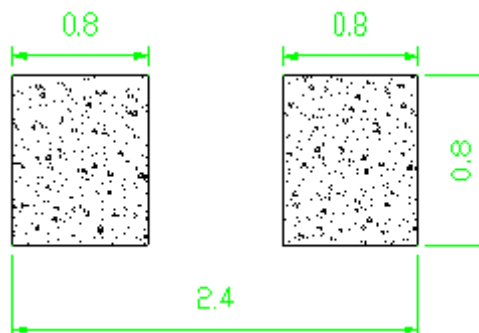


(Lead-Free Solder)



Recommended Soldering Pattern

(Units : mm)



(2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ($V_F > 2.0V$ at $I_F=0.5mA$)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4) Cautions:

4.1. Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2 Products can be used within 15days after packaging, after that, they must be:

4.2.1 Soldered within 24 hrs

4.2.2 Used in the condition: $30^{\circ}C$ within and 60%RH below

4.2.3 Stored in 30%RH for moisture below.

4.3. Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in $85^{\circ}C/6H$.

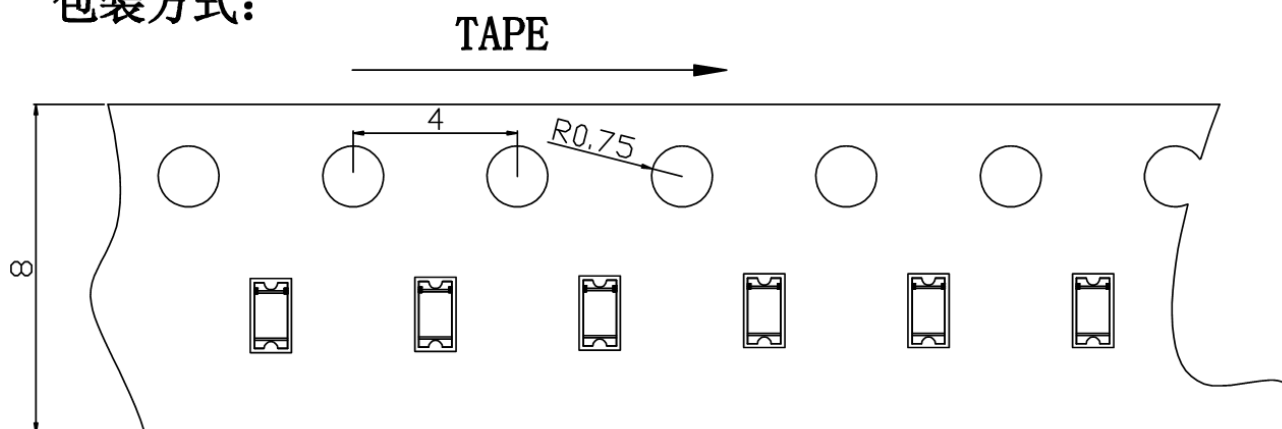
4.4. Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

4.5. Products not be used after opening the package need to be dried out for $85^{\circ}C/6H$

PACKAGING

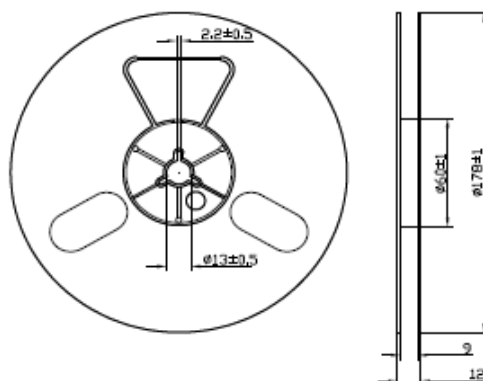
The LEDs are packed in cardboard boxes after taping.

包装方式:

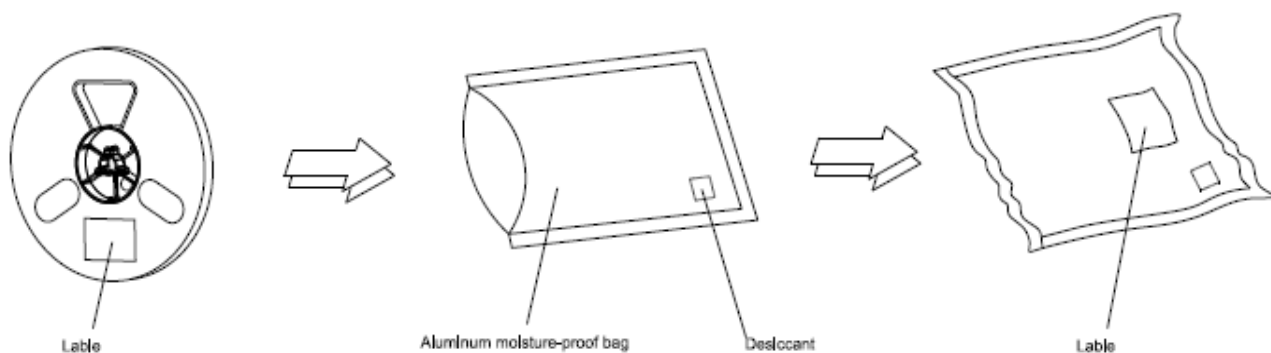


Package: 4000 pcs/reel

Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm

BIN Code	Test Condition @5mA	
UDR	Vfmin(v)	Vfmax (v)
0	1.6	1.7
1	1.7	1.8
2	1.8	1.9
3	1.9	2.0

BIN Code	Test condition: @5mA	
UDR	λ_{dmin} (nm)	λ_{dmax} (nm)
1	630	635
2	635	640

BIN Code	Test condition: @5mA	
UDR	IVmin(mcd)	IVmax (mcd)
D1	3.6	5.7
D2	5.7	7.2
E1	7.2	9.5
E2	9.5	14.5