



Data Sheet

Customer:

Part No:

Sample No:

Description:

Item No:

CL-S195VUGC

1615 SMD R+YG Bi-Color

Customer			
Check	Inspection	Approval	Date

Surface Mounted Chip LED

◆ Features :

- Compatible with automatic placement equipment
- Compatible with reflow solder process

◆ Applications :

- Automotive_Telecommunication
- Indicators
- LCD Back-lights
- Illuminations

◆ Absolute Maximum Ratings

(Ta=25°C)

<i>Item</i>	<i>Symbol</i>	<i>Maximum</i>	<i>Unit</i>
Peak Forward Current(1/10 Duty Cycle 0.1ms Pulse Width)	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Derating Linear From 25°C		0.4	mA/°C
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +85	°C

◆ Electrical/Optical Characteristics

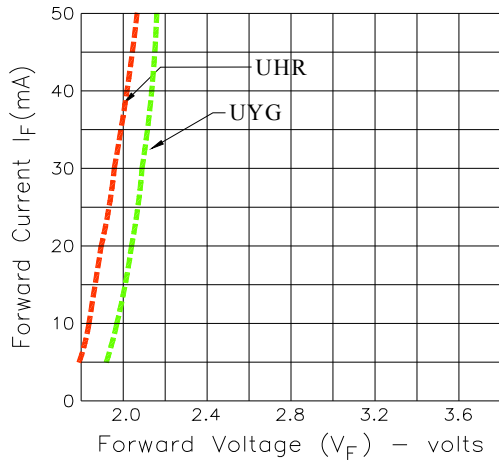
(Ta=25°C)

<i>Chip</i>			<i>Lens Appearance</i>	<i>Absolute Maximun Rating</i>			<i>Electro-optical Data (At 20mA)</i>				<i>Viewing Angle 2θ1/2 (deg)</i>
<i>Emitted Color</i>	<i>λ_p (nm)</i>	<i>λ_D (nm)</i>		<i>Δλ (nm)</i>	<i>P_D (mW)</i>	<i>I_{Fmax} (mA)</i>	<i>V_F (V)</i>		<i>I_V (mcd)</i>		
							<i>Typ.</i>	<i>Max.</i>	<i>Min.</i>	<i>Typ.</i>	
Ultra High Red (Die 1)	645	631	Water Clear	20	78	30	2.1	2.6	45.0	72.0	120°
Ultra Yellow Green (Die 2)	575	574		15	78	30	2.2	2.6	18.0	28.5	

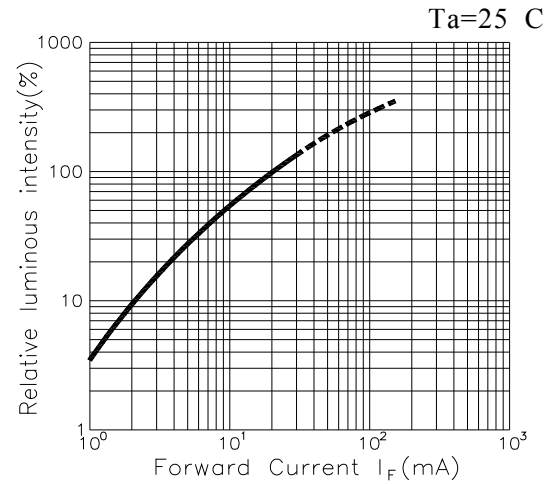
※*The measuring tolerance* → Luminous intensity ±15%
Wavelength (λ_D) ±2nm

◆ *Typical Electro-Optical Characteristic Curves*

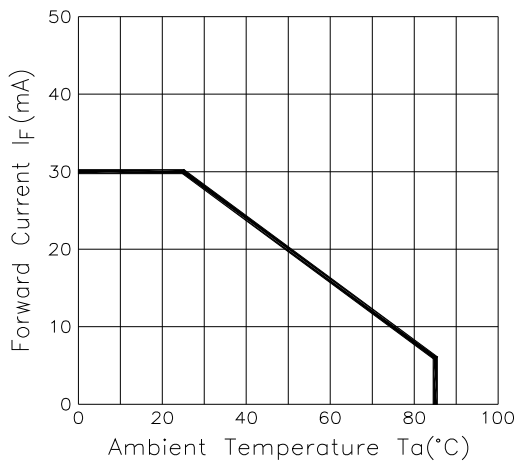
Forward Current Vs. Forward Voltage



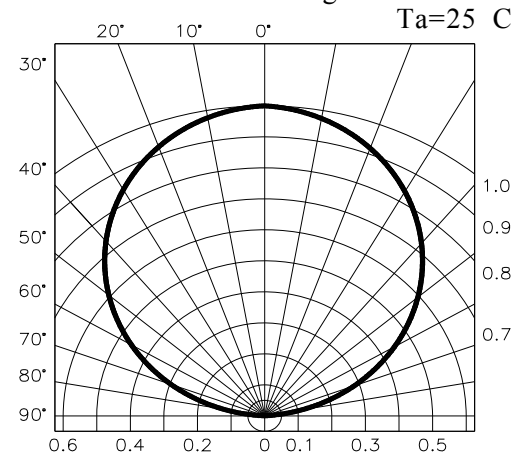
Luminous Intensity Vs. Forward Current



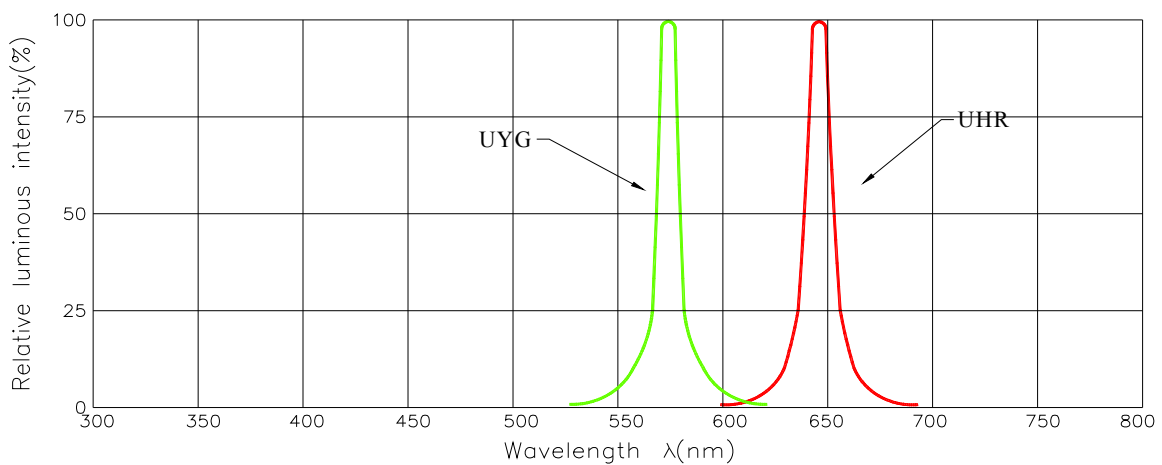
Forward Current Derating Curve

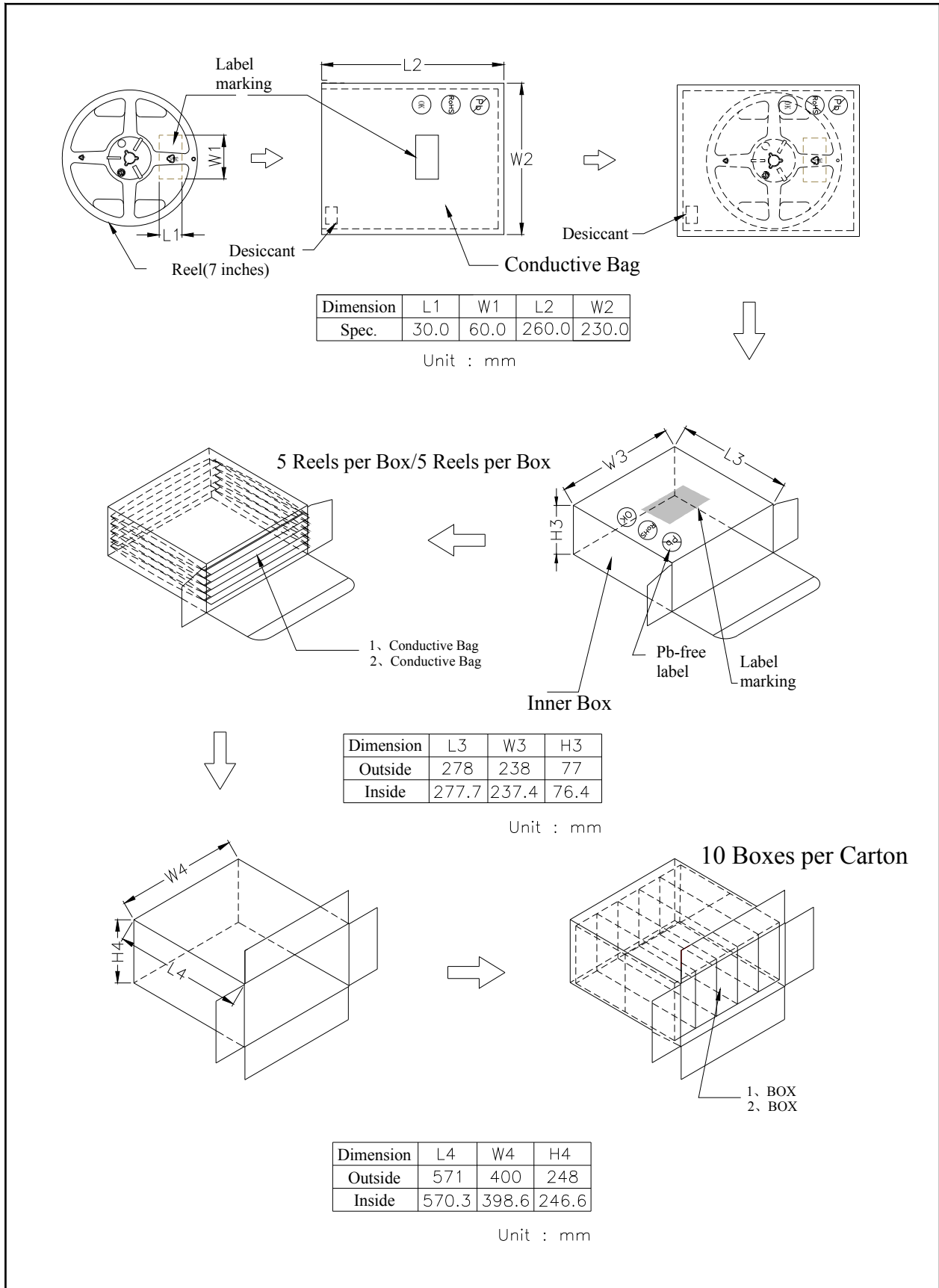


Radiation Diagram



Spectrum Distribution



◆ Packing and Shipping Instruction


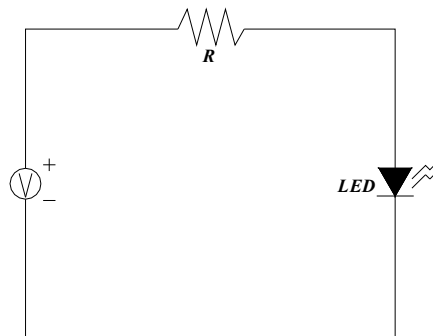
◆ **Descriptions :**

- The Chip-LED Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature application, etc.

◆ **Reliability Test Items And Conditions :**

No.	Item	Test Conditions	Test hr/cycle/time	Sample Q'ty	Ac / Re
1	Solder Heat	TEMP : 260°C ± 5°C ; 10 ± 1 sec	2 times	30 pcs	0 / 1
2	Solderability Test ※	TEMP : 235°C ± 5°C ; 3 ± 1 sec	1 time	5 pcs	0 / 1
3	Temperature Cycle	H : +85°C 30min. ∩ 5min. L : -40°C 30min.	100 cycles	20 pcs	0 / 1
4	Thermal Shock	H : +85°C 5min. ∩ L : -40°C 5min.	50 cycles	20 pcs	0 / 1
5	High Temperature Storage	TEMP : 85°C	1000 hrs	20 pcs	0 / 1
6	Low Temperature Storage	TEMP : -40°C	1000 hrs	20 pcs	0 / 1
7	DC Operating Life	$I_F = I_{Fmax}$	1000 hrs	20 pcs	0 / 1
8	High Temperature High Humidity	85°C / 90 ~ 95% R.H.	1000 hrs	20 pcs	0 / 1
9	Shocking test	100 ~ 2000Hz ; 98.1m/s ² X, Y, Z direction	2 hrs	20 pcs	0 / 1
10	Dropping test	Put on pallet ; height : 75cm	3 times	20 pcs	0 / 1
Judgment Criteria					
Forward Voltage V_F		V_F Max-Increase < 1.1x			
Reverse Current I_R		I_R Max-Increase < I_{Rmax}			
Luminous Intensity I_V		I_V Decay < 40%			
※ Tolerability test criteria : coverage is not less than 95%					
Note : Measurement shall be taken after the tested samples have been returned to normal ambient conditions (generally after two hours)					

◆ **Test Circuit**

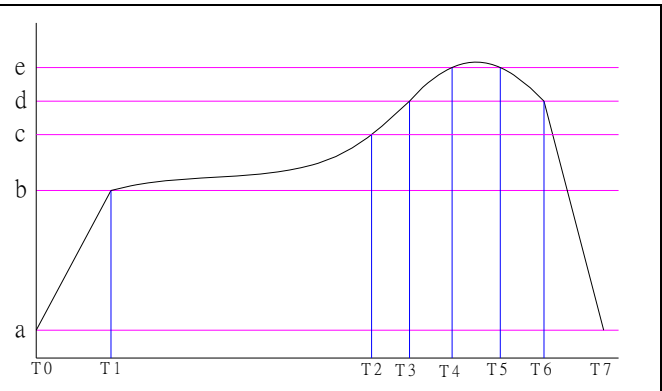


◆ Precautions For Use :

- Overdrive current proof
Customer must apply resistors for protection, otherwise slight voltage shift will cause current change with great deal. (Burn out will happen)
- Storage
 1. The operation of temperature and R.H. are : 5°C ~ 30°C , 60%R.H. Max..
 2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccant. Considering the tape life, we suggest our customers to use our products within 1.5 year (from production date) .
 3. It's recommended to bake before soldering when the package is unsealed more than 72 hrs. The condition is : 60°C±5°C for 15hrs.

◆ Reflow Temp. / Time :

<i>TEMP (°C)</i>		<i>TIME (sec)</i>	
a	25	T0~T1	5°C/sec max
b	150	T1~T2	90~130
c	200	T2~T3	5°C/sec max
d	230	T3~T6	60~90
e	260	T4~T5	10±1
		T6~T7	-6°C/sec max
<i>MSL level</i>		<i>Level 4</i>	


◆ Hand Soldering Iron :

- Temperature at tip of iron : 400°C Max. (35W Max.)
- Soldering time : 3 ± 1sec.

◆ Luminous Intensity BIN Limits

<i>BIN Code</i>	<i>Test condition : @20mA</i>	
UHR	<i>I_{Vmin} (mcd)</i>	<i>I_{Vmax} (mcd)</i>
J	45	72
K	72	115

<i>BIN Code</i>	<i>Test condition : @20mA</i>	
UYG	<i>I_{Vmin} (mcd)</i>	<i>I_{Vmax} (mcd)</i>
G	18	28.5
H	28.5	45
J	45	72

◆ Dominant Wavelength BIN Limits

<i>BIN Code</i>	<i>Test condition : @20mA</i>	
UHR	<i>λ_{Dmin} (nm)</i>	<i>λ_{Dmax} (nm)</i>
1	624	640

<i>BIN Code</i>	<i>Test condition : @20mA</i>	
UYG	<i>λ_{Dmin} (nm)</i>	<i>λ_{Dmax} (nm)</i>
2	570	572
3	572	574
4	574	576