SPECIFICATION

Product : 3535 Ceramic UV LED

Part No. : IWS-C3522-UV-XX5K1

Date : 2014. 12. 18 Ver. 1.0

Proposed By	Checked By	Checked By	Checked By	Approval
결 재 완 료				

Comment

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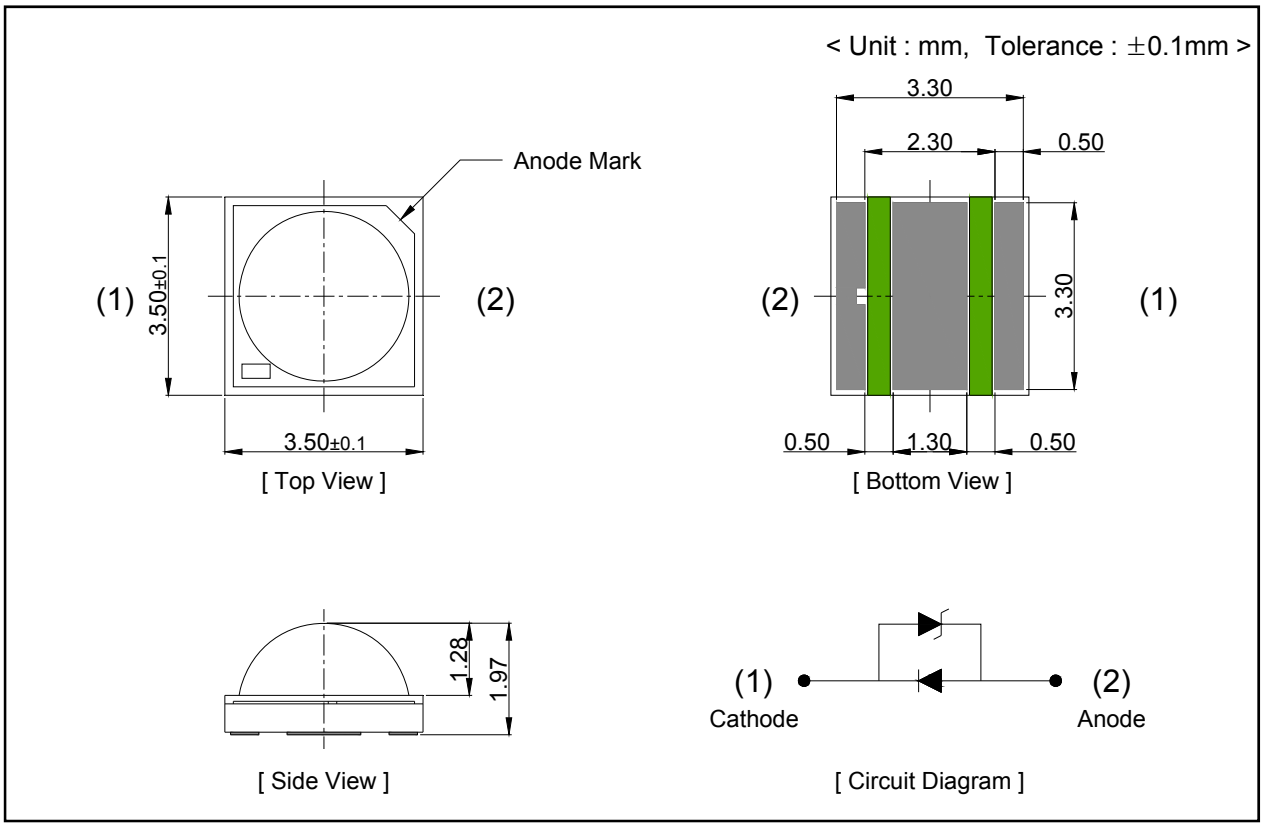
1. Features

- SMD Ceramic Package with Silicone Lens
- Small Size High-flux LED : 3.5 x 3.5 x 2.0mm
- Wide Viewing Angle : 130°

2. Applications

- Architectural Lighting
- Decorative and Entertainment Lighting
- Curing System
- General Lighting

3. Outline Drawing and Dimension



Note

1. All dimensions are in millimeters
2. All dimensions without tolerances are for reference only

4. Absolute Maximum Ratings (Ta = 25 ℃)

Parameter	Symbol	Value	Unit
Power Dissipation per Chip	P_d	2.8	W
Continuous Forward Current	I_F	700	mA
Peak Forward Current ※1	I_{FP}	1000	mA
Operating Temperature	T_{opr}	-30 ~ 85	℃
Storage Temperature	T_{stg}	-40 ~ 100	℃
Soldering Temperature	T_{sol}	260 (5sec)	℃
Thermal Resistance	R_{thj-s}	8	K/W

※1 Duty ratio = 1/10, Pulse width = 10ms

5. Electrical & Optical Characteristics (Ta : 25℃)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Forward Voltage ※2	V_F	I_F = 500 mA	3.4	-	4.0	V
Reverse Voltage	V_{RZ}	I_R = 5 mA	0.7	0.8	1.5	V
Radiant Flux ※3	Φ_e	I_F = 500 mA	500	-	1,100	mW
Peak Wavelength ※4	W_P	I_F = 500 mA	360	-	370	nm
			380	-	390	
			390	-	400	
			400	-	410	
Viewing Angle ※5	$2\theta_{1/2}$	I_F = 500 mA	-	130	-	deg.

※2 Forward Voltage has a tolerance of ±0.05 V.

※3 Radiant Flux is measured with an integrating sphere and has an accuracy of 10%.

※4 Peak Wavelength has an accuracy of ±2nm

※5 Viewing Angle is the angle until 50% of brightness measured from the front part of LED.

5.1 Radiant Flux Rank

Rank	Radiant Flux (mW)	Remark
E	500 ~ 600	365nm
F	600 ~ 700	
G	700 ~ 800	385nm 395nm 405nm
H	800 ~ 900	
J	900 ~ 1,000	
K	1,000 ~ 1,100	

5.2 Forward Voltage Rank

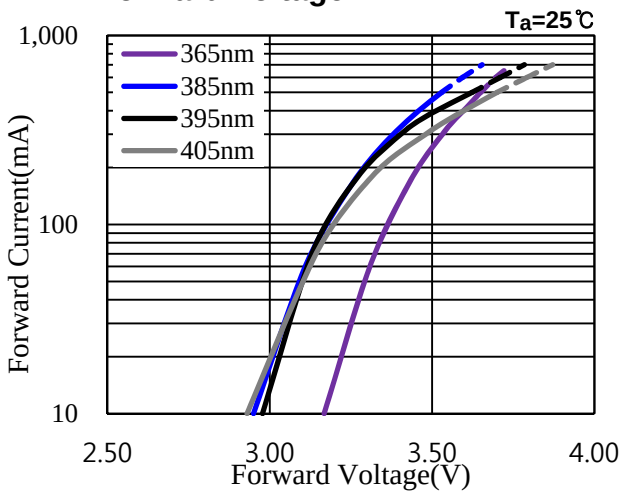
Rank	Forward Voltage (V)	Remark
4	3.4 ~ 3.6	-
5	3.6 ~ 3.8	
6	3.8 ~ 4.0	

5.3 Peak Wavelength Rank

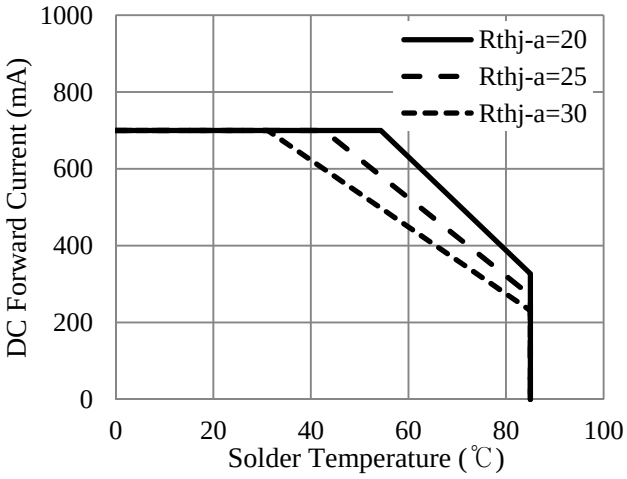
Rank	Peak Wavelength (nm)	Remark
A	360 ~ 370	-
B	380 ~ 390	-
C	390 ~ 400	-
D	400 ~ 410	-

6. Typical Characteristic Curve

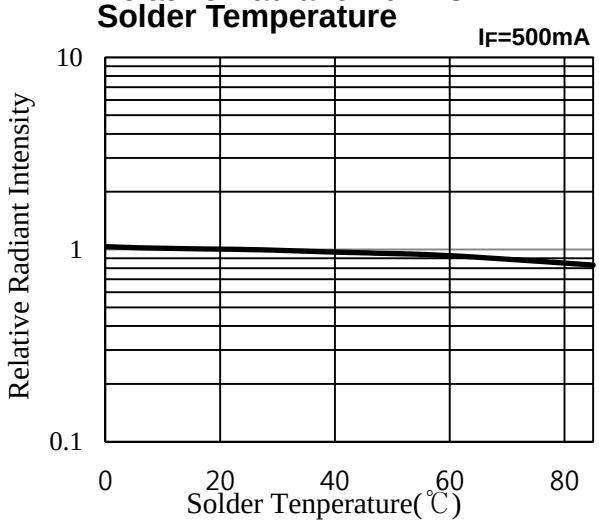
Forward Current vs. Forward Voltage



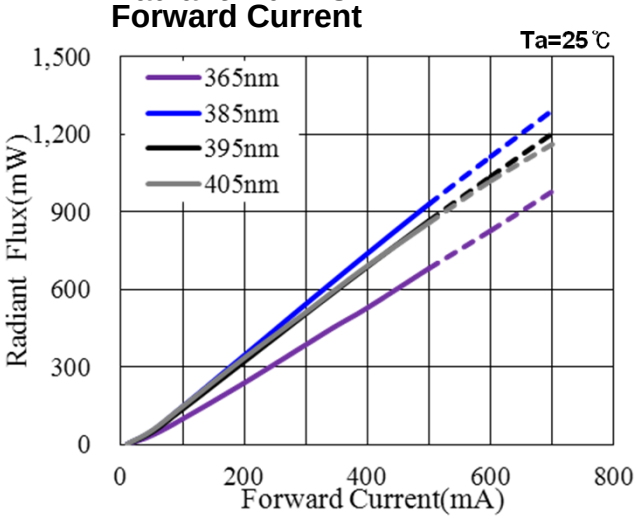
Forward Current vs. Solder Temperature



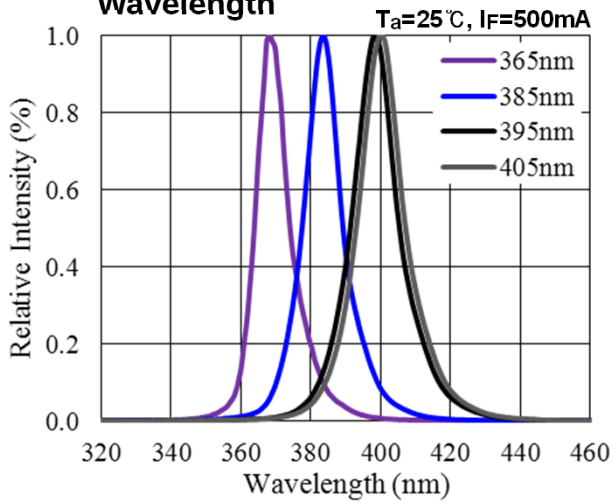
Relative Radiant Flux vs. Solder Temperature



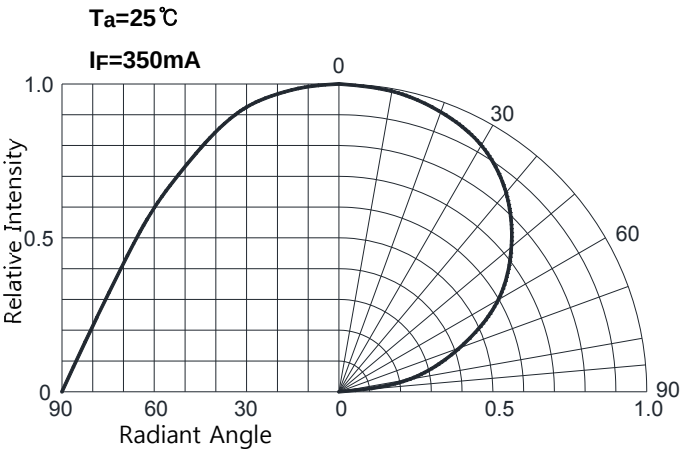
Radiant Flux vs. Forward Current



Relative Intensity vs. Wavelength

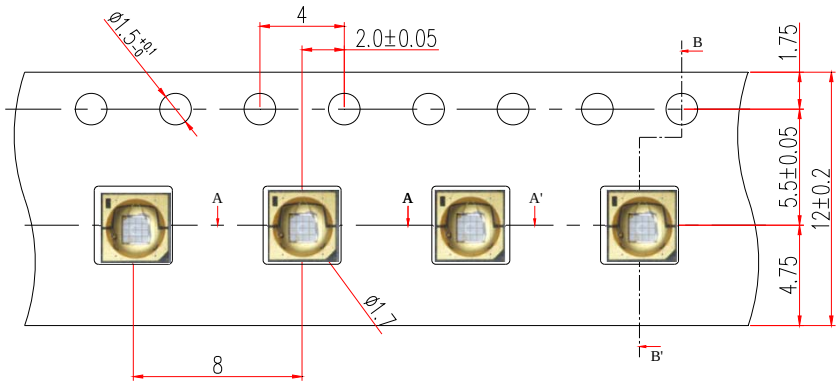


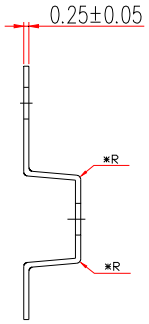
Radiant Diagram



7. Dimension of Tape / Reel

7.1 Tape Dimension





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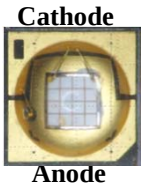

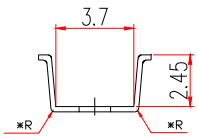

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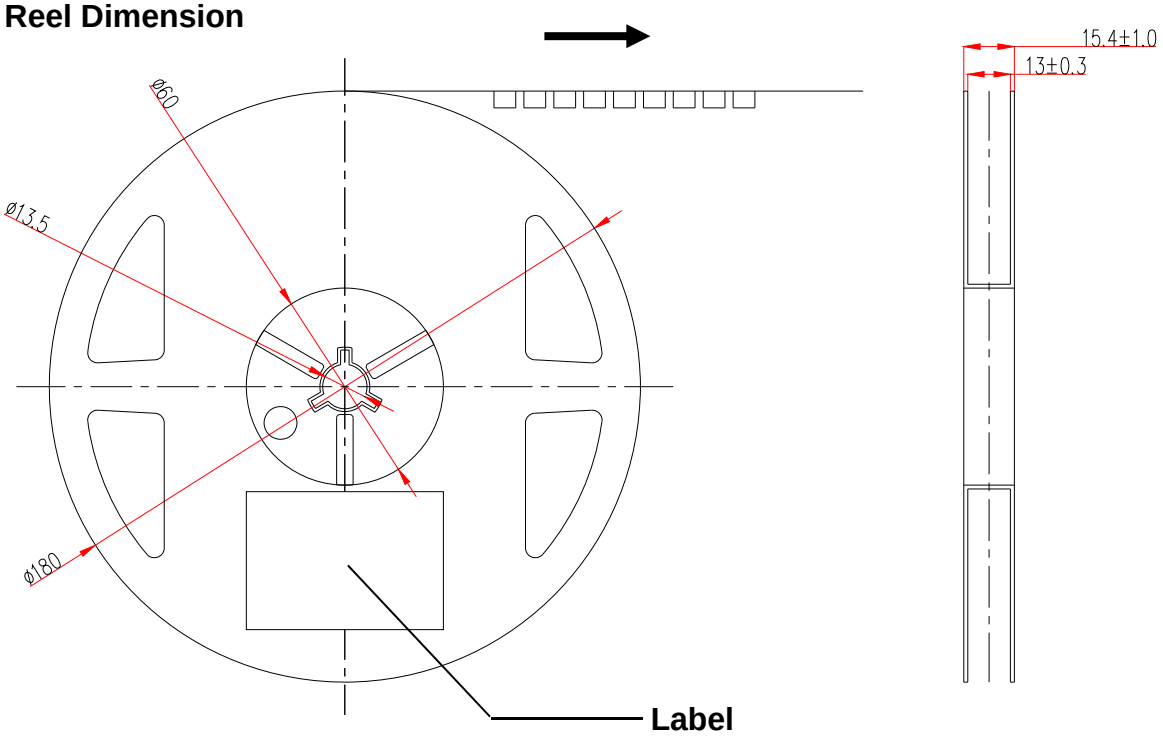
Tolerance ±0.1 , Unit: mm

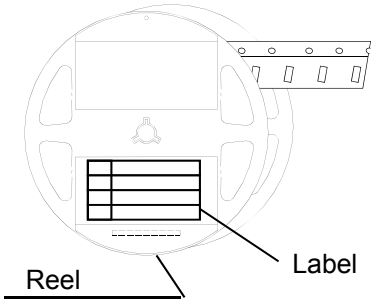
7.2 Reel Dimension



8. Packing Dimension

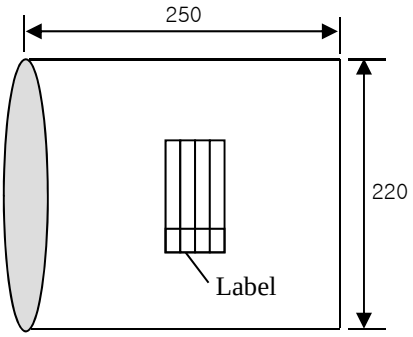
< Unit :mm >

Reel



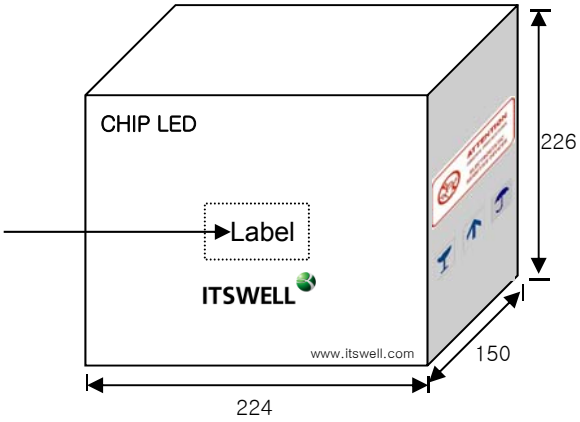
Bake: 60°C, 48hrs

Aluminum Shield Bag



Inclouding Silica gel in a bag

Card board Box



Al Pack Label, Reel Label (70 × 37)

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Lot : IWS-C3522-UV-XX5K1

	MIN	AVG	MAX	STD
V_F[Volt] Φ_e[mW] W_D[nm]				

Q'ty : yyyy/mm/dd

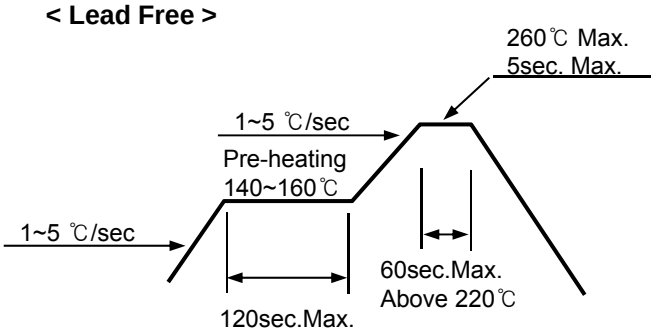
	Dimensions (mm)	Reel / Box	Q'ty / Box(pcs)
Reel	Diameter : Φ180 Width : 15mm	–	500 Max
Al Shield Bag	250 x 220	–	500 Max
Card board Box	224 x 150 x 226	8 Max	4,000 Max

9. Precaution in use

9.1 Soldering Conditions

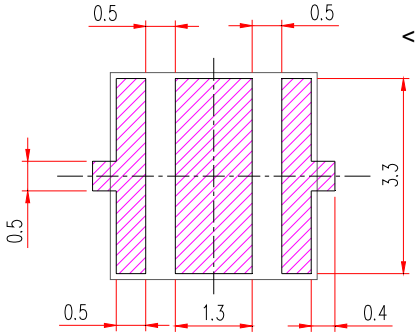
- When soldering Power SMD, Heat may affect the electrical and optical characteristics of the LEDs.
- In soldering, do not stress the lead frame and the resin part under the high temperature.
- The silicone part should be protected from mechanical stress or vibration until the Power SMD return to room temperature after soldering.
- Preliminary heating to be at 160 ℃ max. for 120 Seconds max.
- Soldering heat to be at 260 ℃ max. for 5 sec. Max.
- For manual Soldering is Not more than 3 sec @MAX 350 ℃, under soldering iron

< Lead Free >



<Recommendable soldering pattern>

< Unit: mm >



9.2 Storage

- Before opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.
- The LEDs should be used within a year.
- After opening the package, the LEDs should be kept at 30℃ or less and 30%RH or less.
- The LEDs should be used within 572 hours (4 Week) after opening the package.
- If the moisture absorbent material (silicagel) has faded away or the LED have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60℃±5 for 48 hours.

9.3 Static Electricity

- Static electricity or surge voltage damages the Power SMD . It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- A tip soldering iron is requested to be grounded. An ionizer should also be installed where risk of static.
- All devices, equipment and machinery must be properly grounded (via 1MΩ). It is recommended that measures be taken against surge voltage to the equipment that mounts the Power SMD.

9.4 Cleaning

- Isopropyl Alcohol or Ethylene Alcohol is recommended in 5 minutes at room temperature. Don't use unspecified chemical may cause crack or haze on the surface of the silicone resin.
- Before cleaning, a pre-test should be done to confirm whether any damage to the LED will occur.
- Freon solvents should not be used to clean the LEDs because of worldwide regulations.

9.5 Heat Generation

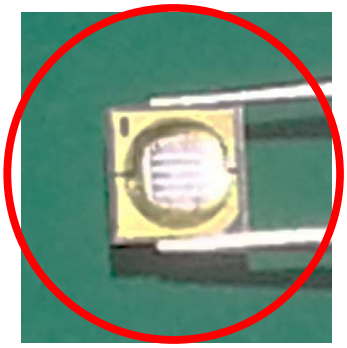
- When the LEDs are illuminating, operating current should be decided after being considering the ambient maximum temperature.
- Please consider the heat generation of the LED when it is designed the PCB.
- The LED's must be mounted on MCPCB or heat sink or applied thermal pad.

9.6 Handling LED

ITSWELL recommends the following at all times when handling C3522 LEDs or assemblies containing these LEDs :

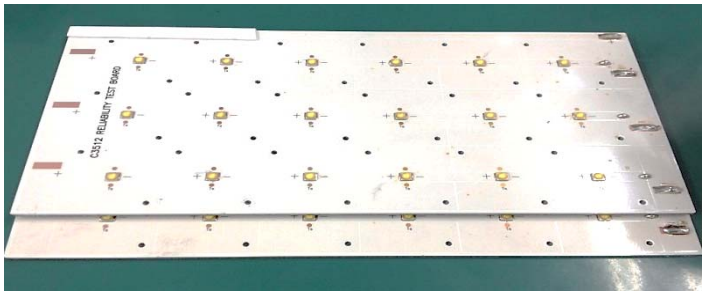
- When handling the LED with tools like Tweezers or Nipper, do not apply Mechanical Forces directly on LED's Surface.
- Do not touch with hand LED Lens surface directly. It may contaminate the Lens surface and affect on optical characteristics.
- LED should be handled from side because LED's molding material may be damaged with scratching on surface, piercing molding material and broking wire.

Incorrect Handling



Correct Handling

- Do not apply more than **1000gf** of shear force onto the lens. It will cause fatal damage of this product.
- Do not stack assembled PCBs together. Failure to comply may cause the resin portion of the product to be cut, chipped, delaminated, deformed, and/or the die/wire bonds to break, which will causes the LEDs not to illuminate.



Incorrect Handling

10. Reliability

10.1 Reliability Test Item

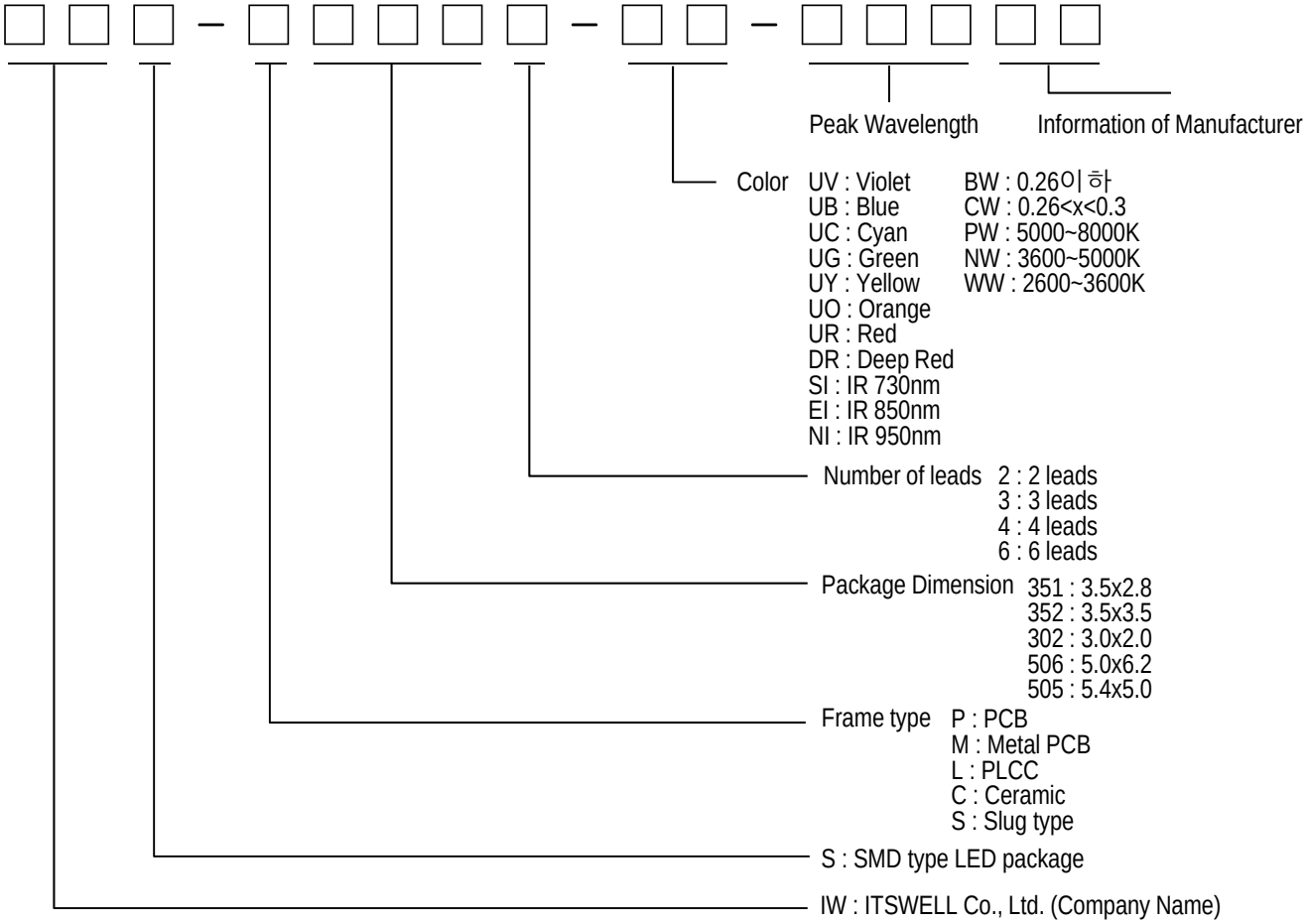
Test Items	Test Conditions	Notes
High Temperature Storage	100℃, 1,000hr.	0/10
Low Temperature Storage	-40℃, 1,000hr.	0/10
Temp. Humidity Storage	60℃, 90% RH, 1,000hr.	0/10
Steady State Operating life	25℃, 500mA , 1,000hr.	0/10
High Temperature Operating Life	85℃, 350mA, 1,000hr	0/10
Low Temperature Operating Life	-30℃, 500mA, 1,000hr.	0/10
Steady State Operating life Of High Humidity Heat	60℃, 90% RH, 350mA, 1,000hr.	0/10
Thermal Shock	-40℃(30min)→100℃(30min.), 100 cycle	0/10
ESD	HBM, 100 pF, 1.5K ohm, 3 times	0/10

10.2 Criteria for Judging the Damage

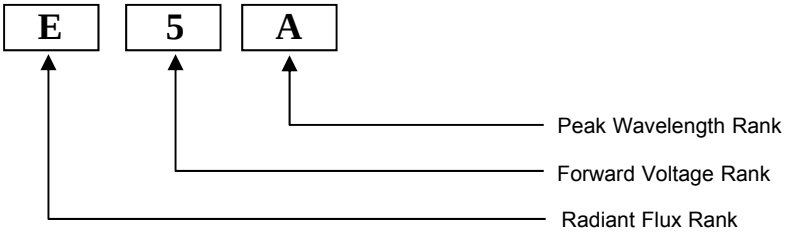
Items	Test Conditions	Criteria for judgment
Radiant Flux (Φ_e)	I_F = 500mA	> 70% of S
Forward Voltage (V_F)	I_F = 500mA	Less than ± 110% of U

* U means the upper limit of specified characteristics, S means initial value.

11. Part Name Description



12. Rank Description



13. Attention : Electric Static Discharge (ESD) Protection

The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs is based chips is still necessary even though they are safe in low static-electric discharge. Material in AlInGaP, GaP, or/and InGaN based chips are STATIC SENSITIVE devices. ESD protection has to considered and taken in the initial design stage. If manual work/process is needed, please ensure the device is well protective from ESD during all the process..

■ Spec. Review History

Review Ver.	Date	Correction List	Etc.
Ver 1.0	2014.12.18	Established	