

LED Lamp Module

A60 F0 type module



- Maximum up to 7W
- CREE LEDs
- E26 and E27 lamp base
- UL plastic material

The lamp base can be compatible to either E26 or E27 standard base.

The Heat dissipation of A60 F0 type module heat sink can be up to maximum 7 wattage.

A60 F0 type module uses UL listed material for all the plastic components.

A60 F0 type module will be the best solution for bulb lamp.

►► Table of Contents

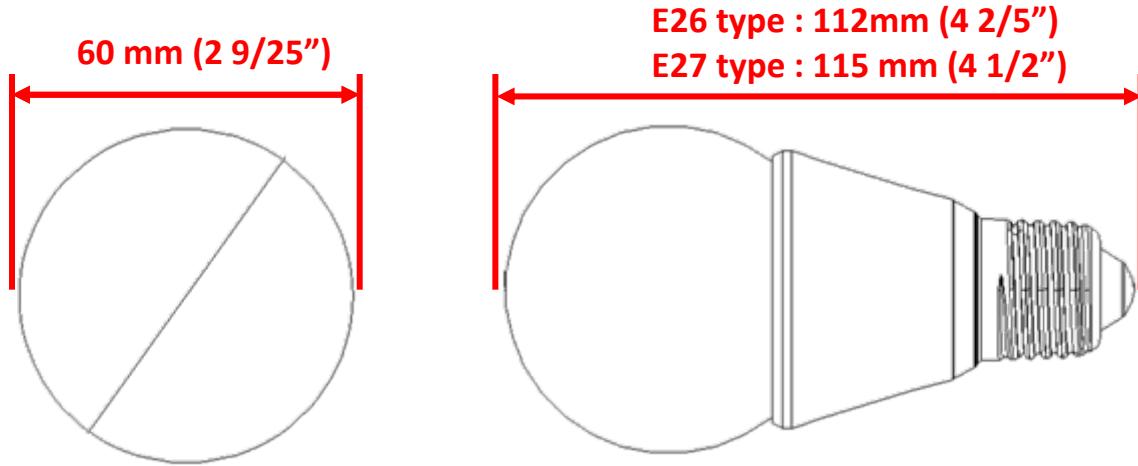
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► Specifications

| | | |
|---------------------|---|----------|
| Module Name | A60 F0 type module | |
| With the use of LED |  CXA1512 | |
| Rating Power | Maximum up to 7 Wattage | |
| LED Quantity | 1pcs | |
| LED Dispose Mode | 1S | |
| Lens efficiency | 80% | |
| Lamp holder | E26 type | E27 type |
| Exterior Dimension | 60*112 mm | 60*115mm |
| Beam Angle | 270 deg. | |
| Operate Temperature | -20°C ~+50°C | |
| Storage Temperature | -20°C ~+50°C | |

Table 1 : The specifications for A60 F0 type.

► Exterior Dimension



Tolerance : 2.5 mm (1/10")

Figure 1 : The exterior dimension for A60 F0 type module.

► Nomenclature

M A60F0 B E27 – L B7 01 – BAG 00

X1

Company Code

M : Ledlink Module

X2

Product Series Type

A60F0 : A60F0 type

X3

Exterior Color

W : White
B : Black

X4

Lamp Holder

E26 : E26 type
E27 : E27 type

X5

Lens type

L : Lampshade

X6

Beam Angle

B7 : 270 degrees

X7

Lens Quantity

01: Single

X8

Lens Number

BAG:BAG model

X9

Package

00 : series number

Figure 2 : The nomenclature for A60 F0 type module.

Part Number

| Part Number | Lamp Holder | Heat sink Material | Plastic Material | Plastic Color | Cover color |
|------------------------|-------------|--------------------|----------------------|---------------|-------------|
| MA60F0BE26-LB701-BAG00 | E26 type | ADC 12 + Anodized | UL approval Plastic* | Black | |
| MA60F0WE26-LB701-BAG00 | | | | White | |
| MA60F0BE27-LB701-BAG00 | E27 type | | | Black | |
| MA60F0WE27-LB701-BAG00 | | | | White | |

* : Please refer to " reference information " in page 11 ~ 15.

Table 2 : The part number for A60 F0 type.

► The circuit design reference

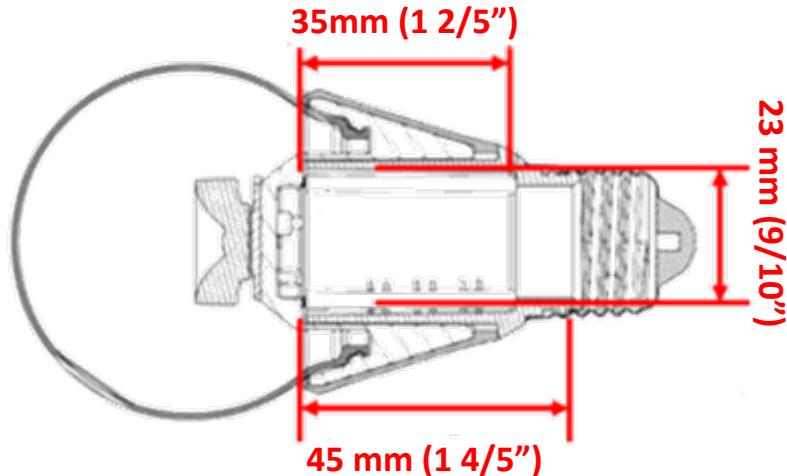


Figure 3 : The maximum size of the circuit area for A60 F0 type module.

Notification : A60 F0 type module doesn't include the circuit part

► Life Time

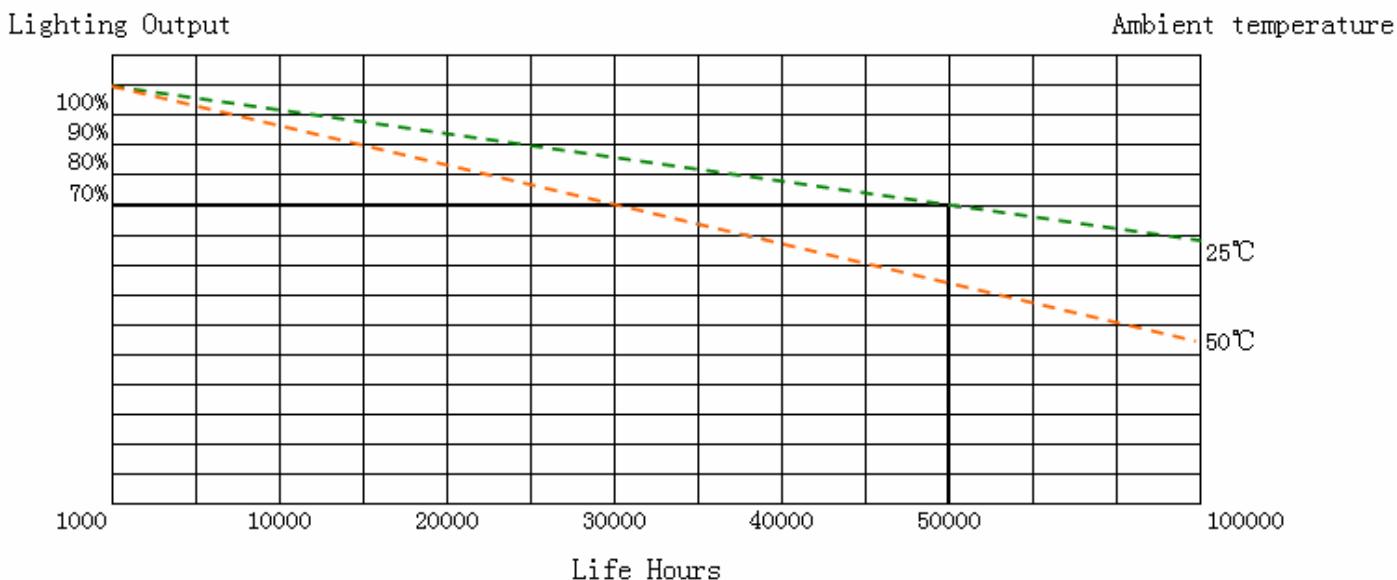


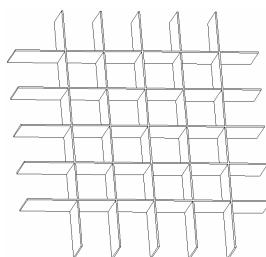
Figure 4: Lighting Output & Life Hours

▶ Package information

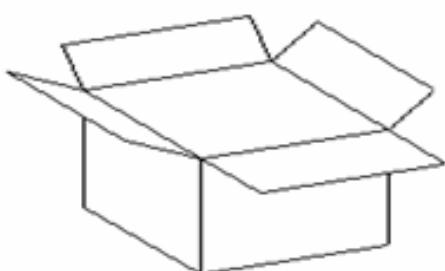
Lamp shade part :



← Lamp shade



← Put Mode:
1PCS*36=36pcs



← Inner Box:
36PCS*6=216pcs

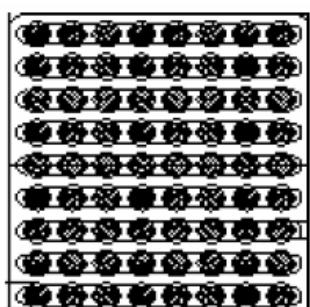
Figure 5: The package information for Lamp shade part.

▶ Package information

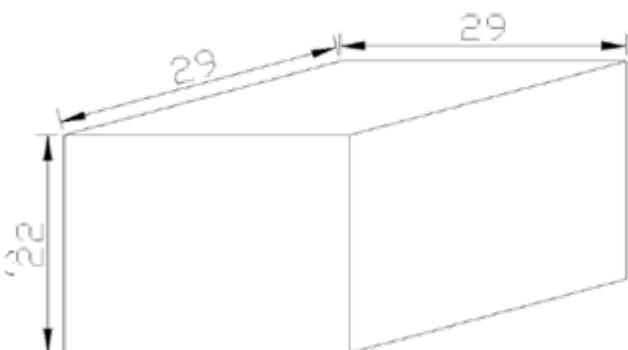
Lens part :



← Lens



← Put Mode:
8PCS*9=72pcs



← Inner Box:
72PCS*12=864pcs

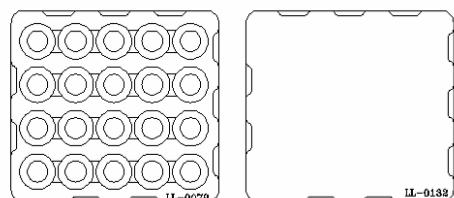
Figure 5: The package information for Lens part.

▶ Package information

Heat sink part :



← Heat sink



Put Mode:
20pcs



Inner Box:
 $20 \times 3 = 60$ pcs

Figure 6 : The package information for heat sink part.

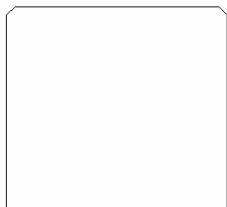
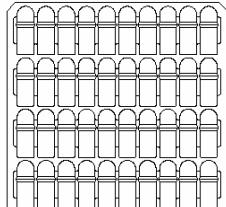
▶ Package information

Lamp base part :



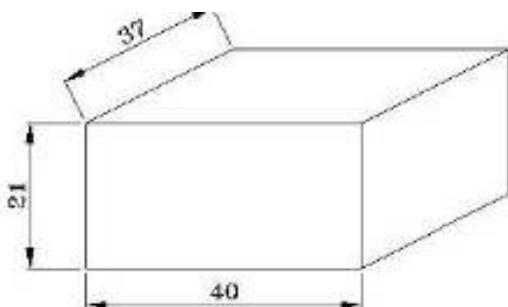
←

Lamp Base



←

Put Mode:
 $1 \times 40 = 40 \text{ pcs}$



←

Inner Box:
 $40 \times 6 \text{ Tier} = 240 \text{ pcs}$

Figure 7 : The package information for lamp base part..

► Reference information

The UL card of UL plastic material :

| Component - Plastics | | | | | | | E135714 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| NYTEX COMPOSITES CO LTD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 LANE 468 CHANGSUI RD, SEC 4, PEITOU HSIANG CHANGHUA HSIEN 523 TW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CM-5000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Polyamide 66/6 (PA66/6), blend, mineral fiber, flame retardant, furnished as pellets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BK | 1.6 | V-0 | 2 | 1 | 65 | 65 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3.2 | V-0 | 1 | 1 | 65 | 65 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Comparative Tracking Index (CTI): - | | | | Inclined Plane Tracking (IPT): - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dielectric Strength (kV/mm): - | | | | Volume Resistivity (10 ¹² ohm-cm): - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High-Voltage Arc Tracking Rate (HVTR): - | | | | High Volt, Low Current Arc Resis (D495): - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensional Stability (%): - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Report Date: 2013-03-19 | | | | © 2013 UL LLC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IEC and ISO Test Methods | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Test Name | Test Method | Units | Thickness Tested (mm) | Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flammability | IEC 60695-11-10 | Class (color) | 1.6 | V-0 (BK) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3.2 | V-0 (BK) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Glow-Wire Flammability (GWF) | IEC 60695-2-12 | C | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Glow-Wire Ignition (GWIT) | IEC 60695-2-13 | C | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IEC Ball Pressure | IEC 60695-10-2 | C | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Flexural Strength | ISO 178 | MPa | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Tensile Impact | ISO 8256 | KJ/m ² | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Izod Impact | ISO 180 | KJ/m ² | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO Charpy Impact | ISO 179-2 | KJ/m ² | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Figure8 : The UL card information of the sink part.

► Reference information

The UL card of UL plastic material :

| Component - Plastics | | | | | | | | E206114 |
|--|----------------------------------|-------------------|--------------------------|-----|---------------|------------|------------|---------|
| STYRON (HONG KONG) LTD | | | | | | | | |
| TSING YI R & D LABORATORY, 40-50 TSING YI RD, TSING YI ISLAND N T HK | | | | | | | | |
| EMERGE PC 8130-(i)(f1) | | | | | | | | |
| Polycarbonate (PC), "EMERGE", furnished as pellets | | | | | | | | |
| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str | |
| ALL | 1.5 | V-0 | 2 | 1 | 130 | 115 | 130 | |
| | 3.0 | V-0.5VA | 2 | 1 | 130 | 115 | 130 | |
| Comparative Tracking Index (CTI): 2 | | | | | | | | |
| Dielectric Strength (kV/mm): - | | | | | | | | |
| High-Voltage Arc Tracking Rate (HVTR): 1 | | | | | | | | |
| Dimensional Stability (%): - | | | | | | | | |
| Inclined Plane Tracking (IPT): - | | | | | | | | |
| Volume Resistivity (10^8 ohm-cm): - | | | | | | | | |
| High Volt, Low Current Arc Resis (D495): 7 | | | | | | | | |
| (f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C. | | | | | | | | |
| (i) - Followed by suffix numbers 3-15 incl. indicating melt flow rate | | | | | | | | |
| ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL. | | | | | | | | |
| Report Date: | 2011-07-12 | | | | | | | |
| Last Revised: | 2013-08-30 | | | | | | | |
| © 2014 UL LLC | | | | | | | | |
| IEC and ISO Test Methods | | | | | | | | |
| Test Name | Test Method | Units | Thickness Tested (mm) | | Value | | | |
| Flammability | IEC 60695-11-10, IEC 60695-11-20 | Class (color) | 1.5 | 3.0 | V-0 (ALL) | | | |
| Glow-Wire Flammability (GWF) | IEC 60695-2-12 | C | - | - | V-0.5VA (ALL) | | | |
| Glow-Wire Ignition (GWI) | IEC 60695-2-13 | C | - | - | | | | |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - | | | | |
| IEC Ball Pressure | IEC 60695-10-2 | C | 3.0 | 137 | | | | |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - | | | | |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - | | | | |
| ISO Flexural Strength | ISO 178 | MPa | - | - | | | | |
| ISO Tensile Impact | ISO 8256 | KJ/m ² | - | - | | | | |
| ISO Izod Impact | ISO 180 | KJ/m ² | - | - | | | | |
| ISO Charpy Impact | ISO 179-2 | KJ/m ² | - | - | | | | |
| © 2014 UL LLC | | | | | | | | |

Figure 9 : The UL card information of the Lamp shade part.

► Reference information

The UL card of UL plastic material :

| Component - Plastics | E48268 | | | | | | |
|--|--------------------------|--------------------------------|-----------|---|-------------|--|------------|
| IDEIMITSU KOSAN CO LTD | | | | | | | |
| BASIC CHEMICALS DEPT, 1-1 ANESAKI-KAIGAN, ICHIHARA-SHI CHIBA-KEN 299-0193 JP | | | | | | | |
| LEV1700 | | | | | | | |
| Polycarbonate (PC), furnished as pellets | | | | | | | |
| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str |
| NC | 0.42-1.9 | V-2 | - | - | 80 | 80 | 80 |
| Comparative Tracking Index (CTI): - | | Dimensional Stability (%): - | | High Volt, Low Current Arc Resis (D495): - | | Volume Resistivity (10 ⁸ ohm-cm): - | |
| High-Voltage Arc Tracking Rate (HVTR): - | | | | | | | |
| Dielectric Strength (kV/mm): - | | | | | | | |
| ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL. | | | | | | | |
| Report Date: 2010-04-06 | Last Revised: 2010-04-06 | Underwriters Laboratories Inc® | |  | | | |
| IEC and ISO Test Methods | | | | | | | |
| Test Name | Test Method | Units | Thickness | Tested (mm) | Value | | |
| Flammability | IEC 60695-11-10 | Class (color) | 0.42-1.9 | V-2 (NC) | | | |
| Glow-Wire Flammability (GWFI) | IEC 60695-2-12 | C | - | - | | | |
| Glow-Wire Ignition (GWIT) | IEC 60695-2-13 | C | - | - | | | |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - | | | |
| IEC Ball Pressure | IEC 60695-10-2 | C | - | - | | | |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - | | | |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - | | | |
| ISO Flexural Strength | ISO 178 | MPa | - | - | | | |
| ISO Tensile Impact | ISO 8256 | kJ/m ² | - | - | | | |
| ISO Izod Impact | ISO 180 | kJ/m ² | - | - | | | |
| ISO Charpy Impact | ISO 179-2 | kJ/m ² | - | - | | | |
| Underwriters Laboratories Inc® | | | | | | | |

Figure 10 : The UL card information of the lens part.

► Reference information

The UL card of UL plastic material :

| | | | | | | | | | | | | | |
|--|--------------------------|--|-----|-------------------|-------------|--------------------------|------------|--|--|--|--|--|--|
| Component - Plastics | | E48268 | | | | | | | | | | | |
| IDEMITSU KOSAN CO LTD | | | | | | | | | | | | | |
| 1-1 MARUNOUCHI 3-CHOME, CHIYODA-KU, TOKYO 100-0005 JP | | | | | | | | | | | | | |
| URC2500 | | | | | | | | | | | | | |
| Polycarbonate (PC), furnished as pellets | | | | | | | | | | | | | |
| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str | | | | | | |
| WT | 1.5 | V-0 | - | - | 80 | 80 | 80 | | | | | | |
| | 3.0 | V-0 | - | - | 80 | 80 | 80 | | | | | | |
| Comparative Tracking Index (CTI): - | | Dimensional Stability (%): - | | | | | | | | | | | |
| High-Voltage Arc Tracking Rate (HVTR): - | | High Volt, Low Current Arc Resis (D495): - | | | | | | | | | | | |
| Dielectric Strength (kV/mm): - | | Volume Resistivity (10^X ohm-cm) : - | | | | | | | | | | | |
| UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL. | | | | | | | | | | | | | |
| Report Date: 2006-09-18 | Last Revised: 2006-09-18 | Underwriters Laboratories Inc® | | | | | | | | | | | |
|  | | | | | | | | | | | | | |
| IEC and ISO Test Methods | | | | | | | | | | | | | |
| Test Name | | Test Method | | Units | | Thickness Tested (mm) | | | | | | | |
| IEC Flammability | | IEC 60695-11-10 | | Class (color) | | 1.5 | V-0 (WT) | | | | | | |
| | | | | 3.0 | | V-0 (WT) | | | | | | | |
| Glow-Wire Flammability (GWFI) | | IEC 60695-2-12 | | C | | - | | | | | | | |
| Glow-Wire Ignition (GWIT) | | IEC 60695-2-13 | | C | | - | | | | | | | |
| IEC Comparative Tracking Index | | IEC 60112 | | Volts (Max) | | - | | | | | | | |
| IEC Ball Pressure | | IEC 60695-10-2 | | C | | - | | | | | | | |
| ISO Heat Deflection (1.80 MPa) | | ISO 75-2 | | C | | - | | | | | | | |
| ISO Tensile Strength | | ISO 527-2 | | MPa | | - | | | | | | | |
| ISO Flexural Strength | | ISO 178 | | MPa | | - | | | | | | | |
| ISO Tensile Impact | | ISO 8256 | | kJ/m ² | | - | | | | | | | |
| ISO Izod Impact | | ISO 180 | | kJ/m ² | | - | | | | | | | |
| ISO Charpy Impact | | ISO 179-2 | | kJ/m ² | | - | | | | | | | |
| Underwriters Laboratories Inc® | | | | | | | | | | | | | |

Figure 11 : The UL card information of the lamp base part.(White)

► Reference information

The UL card of UL plastic material :

| Component - Plastics | | | | | | | | E48268 |
|--|-----------------|-----------------|--------------------------|-----------|-------------|------------|------------|--|
| IDEMITSU KOSAN CO LTD | | | | | | | | |
| 1-1 MARUNOUCHI 3-CHOME, CHIYODA-KU, TOKYO 100-0005 JP | | | | | | | | |
| LE1700 | | | | | | | | |
| Polycarbonate (PC), furnished as pellets | | | | | | | | |
| Color | Min Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str | |
| NC | 0.45-0.50 | V-2 | - | - | 80 | 80 | 80 | |
| | 1.5 | - | 3 | 3 | 80 | 80 | 80 | |
| Comparative Tracking Index (CTI): - | | | | | | | | Inclined Plane Tracking (IPT): - |
| Dielectric Strength (kV/mm): - | | | | | | | | Volume Resistivity (10^8 ohm-cm): - |
| High-Voltage Arc Tracking Rate (HVTR): - | | | | | | | | High Volt, Low Current Arc Resis (D495): - |
| Dimensional Stability (%): - | | | | | | | | |
| ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL. | | | | | | | | |
| Report Date: 2000-03-31 | | | | | | | | © 2012 UL LLC |
| Last Revised: 2009-03-30 | | | | | | | | |
| IEC and ISO Test Methods | | | | | | | | |
| Test Name | Test Method | Units | Thickness Tested (mm) | Value | | | | |
| Flammability | IEC 60695-11-10 | Class (color) | 0.45-0.50 | V-2 (HIC) | | | | |
| | | | 1.5 | - (HIC) | | | | |
| Glow-Wire Flammability (GWF) | IEC 60695-2-12 | C | - | - | | | | |
| Glow-Wire Ignition (GWIT) | IEC 60695-2-13 | C | - | - | | | | |
| IEC Comparative Tracking Index | IEC 60112 | Volts (Max) | - | - | | | | |
| IEC Ball Pressure | IEC 60695-10-2 | C | - | - | | | | |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2 | C | - | - | | | | |
| ISO Tensile Strength | ISO 527-2 | MPa | - | - | | | | |
| ISO Flexural Strength | ISO 178 | MPa | - | - | | | | |
| ISO Tensile Impact | ISO 8256 | kJ/m^2 | - | - | | | | |
| ISO Izod Impact | ISO 180 | kJ/m^2 | - | - | | | | |
| ISO Charpy Impact | ISO 179-2 | kJ/m^2 | - | - | | | | |
| © 2012 UL LLC | | | | | | | | |

Figure 12 : The UL card information of the lamp base part.(Black)

► Reference information

The SGS card of SGS plastic material :

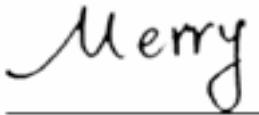
| | | | |
|---|---------------------|-------------------|-------------|
| SGS | | | |
| Test Report | No. CANEC1319750803 | Date: 26 Dec 2013 | Page 1 of 5 |
| DONGGUAN CITY DAHONG PLASTIC PRODUCTS FACTORY INDUSTRIAL DISTRICT, SHANGTONG VILLAGE QISHITOWN | | | |
| <p>The following sample(s) was/were submitted and identified on behalf of the clients as : POWDER BLACK</p> <p>SGS Job No. : CP13-065023 - GZ.</p> <p>Client Ref. Info. : K401, K402, K402A, K403, K404, K417, K418, B2014, B2014A, B2014C, B2014E, B2014P, B2015, B8008, B8008-A, B8007, B8011, B8011A, B8012, B8015, B859, C90584 Mixture</p> <p>Date of Sample Received : 17 Dec 2013</p> <p>Testing Period : 17 Dec 2013 - 23 Dec 2013</p> <p>Test Requested : Selected test(s) as requested by client.</p> <p>Test Method : Please refer to next page(s).</p> <p>Test Results : Please refer to next page(s).</p> <p>Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.</p> | | | |
| <p>Signed for and on behalf of SGS-CSTC Ltd.</p>  <p>Merry Lv Approved Signatory</p> <p>This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not constitute a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced in full or in part without the prior written consent of the Company. Any wilful attempt to do so may result in criminal prosecution and civil redress. The Company reserves the right to sue for damages in such event.</p> <p>SGS SGS China Technical Services Co., Ltd Guangdong Branch Laboratory</p> <p>18/F R&D Center Park, Guanghe Economic & Technology Development District, Guangzhou, China 510663 T (86-20) 82195555 F (86-20) 82075113 www.sgs-group.com.cn 中英 · 汉英 · 英中 技术开发部 科学技术 82195555 82075113 sgschina@sgs.com</p> | | | |

Figure 13 : The SGS card information of the lamp base part.(Black)

► Reference information

The SGS card of SGS plastic material :

SGS

| Test Report | | No. CANEC1319750803 | Date: 26 Dec 2013 | Page 2 of 5 |
|--|------------------|---------------------|-------------------|-------------|
| Test Results : | | | | |
| <u>Test Part Description :</u> | | | | |
| Specimen No. | SGS Sample ID | Description | | |
| SN1 | CAN13-197508.003 | Black powder | | |
| Remarks : | | | | |
| (1) 1 mg/kg = 1 ppm = 0.0001% | | | | |
| (2) MDL = Method Detection Limit | | | | |
| (3) ND = Not Detected (< MDL) | | | | |
| (4) "-" = Not Regulated | | | | |
| <u>RoHS Directive 2011/65/EU</u> | | | | |
| Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES. (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES. (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES. (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis. (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS. | | | | |
| Test Item(s) | Limit | Unit | MDL | 003 |
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1,000 | mg/kg | 2 | ND |
| Mercury (Hg) | 1,000 | mg/kg | 2 | ND |
| Hexavalent Chromium (CrVI) | 1,000 | mg/kg | 2 | ND |
| Sum of PBBs | 1,000 | mg/kg | - | ND |
| Monobromobiphenyl | - | mg/kg | 5 | ND |
| Dibromobiphenyl | - | mg/kg | 5 | ND |
| Tribromobiphenyl | - | mg/kg | 5 | ND |
| Tetrabromobiphenyl | - | mg/kg | 5 | ND |
| Pentabromobiphenyl | - | mg/kg | 5 | ND |
| Hexabromobiphenyl | - | mg/kg | 5 | ND |
| Heptabromobiphenyl | - | mg/kg | 5 | ND |
| Octabromobiphenyl | - | mg/kg | 5 | ND |
| Nonabromobiphenyl | - | mg/kg | 5 | ND |
| Decabromobiphenyl | - | mg/kg | 5 | ND |
| Sum of PBDEs | 1,000 | mg/kg | - | ND |
| Monobromodiphenyl ether | - | mg/kg | 5 | ND |

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Figure 14 : The SGS card information of the lamp base part.(Black)

► Reference information

The SGS card of SGS plastic material :

| SGS | | | |
|--------------------------|---------------------|-------------|-------------------|
| Test Report | No. CANEC1319750803 | | Date: 26 Dec 2013 |
| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> |
| Dibromodiphenyl ether | - | mg/kg | 5 |
| Tribromodiphenyl ether | - | mg/kg | 5 |
| Tetrabromodiphenyl ether | - | mg/kg | 5 |
| Pentabromodiphenyl ether | - | mg/kg | 5 |
| Hexabromodiphenyl ether | - | mg/kg | 5 |
| Heptabromodiphenyl ether | - | mg/kg | 5 |
| Octabromodiphenyl ether | - | mg/kg | 5 |
| Nonabromodiphenyl ether | - | mg/kg | 5 |
| Decabromodiphenyl ether | - | mg/kg | 5 |

Notes :
 (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

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Figure 15 : The SGS card information of the lamp base part.(Black)

► Reference information

The SGS card of SGS plastic material :

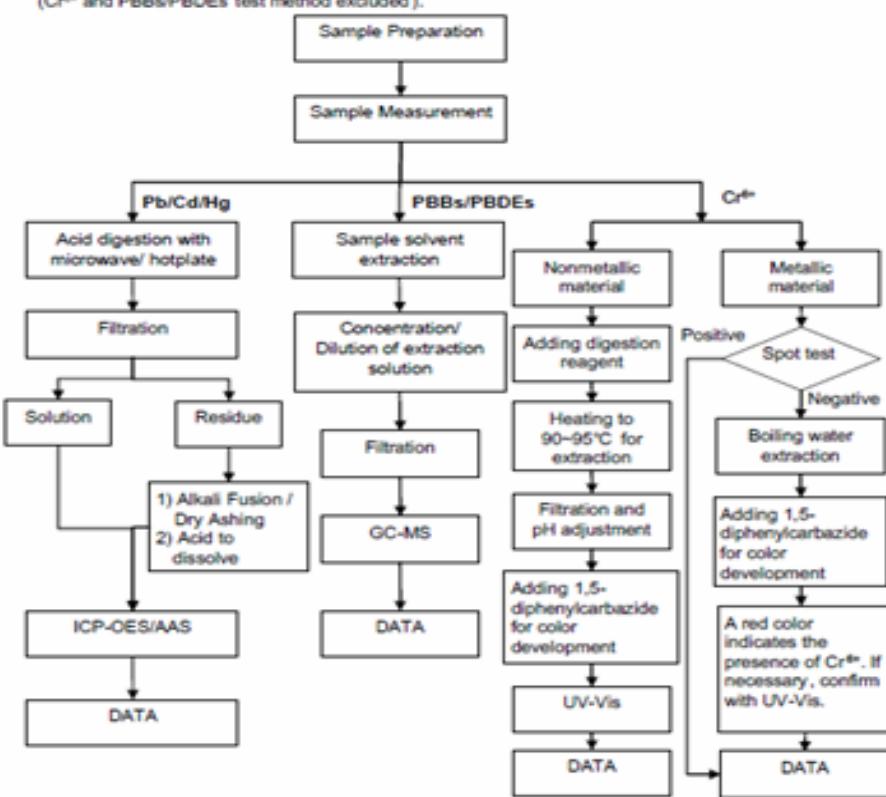
SGS

Test Report No. CANEC1319750803 Date: 26 Dec 2013 Page 4 of 5

ATTACHMENTS

RoHS Testing Flow Chart

1) Name of the person who made testing: Michael Tso / Cutey Yu
 2) Name of the person in charge of testing: Adams Yu / Yolanda Wei
 3) These samples were dissolved totally by pre -conditioning method according to below flow chart (Cr⁶⁺ and PBBs/PBDEs test method excluded).



```

graph TD
    A[Sample Preparation] --> B[Sample Measurement]
    B --> C[Pb/Cd/Hg]
    B --> D[PBBs/PBDEs]
    B --> E[Cr6+]
    
    C --> F[Acid digestion with microwave/ hotplate]
    F --> G[Filtration]
    G --> H[Solution]
    G --> I[Residue]
    H --> J[1) Alkali Fusion / Dry Ashing  
2) Acid to dissolve]
    J --> K[ICP-OES/AAS]
    K --> L[DATA]
    
    D --> M[Sample solvent extraction]
    M --> N[Concentration/ Dilution of extraction solution]
    N --> O[Filtration]
    O --> P[GC-MS]
    P --> Q[DATA]
    
    E --> R[Nonmetallic material]
    R --> S[Adding digestion reagent]
    S --> T[Heating to 90-95°C for extraction]
    T --> U[Filtration and pH adjustment]
    U --> V[Adding 1,5-diphenylcarbazide for color development]
    V --> W[UV-Vis]
    W --> X[DATA]
    
    E --> Y[Metallic material]
    Y --> Z[Positive Spot test]
    Z --> AA[Boiling water extraction]
    AA --> BB[Adding 1,5-diphenylcarbazide for color development]
    BB --> CC[A red color indicates the presence of Cr6+. If necessary, confirm with UV-Vis.]
    CC --> DD[DATA]
    
```

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Figure 16 : The SGS card information of the lamp base part.(Black)

► Reference information

The SGS card of SGS plastic material :



Figure 17: The SGS card information of the lamp base part.(Black)



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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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