SINCE 1981

# BRIGHT LED ELECTRONICS CORP.

## PHOTO LINK RECEIVER SPECIFICATION

TOTAL PAGE: 8
PAGE: 1
REVISION: 1.1

●DEVICE NUMBER：BFRX-1101/H4

| SHEET / DATE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | CONTENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002.12.04 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | | Initial Released |
| 2002.12.18 | 1.1 | 1.1 | - | - | - | - | - | - | | | Dimensions: Pin out |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| TOTAL PAGE | 8 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|


佰鴻工業股份有限公司
**BRIGHT LED ELECTRONICS CORP.**
台北縣板橋市和平路 19 號 3 樓
3F., No. 19, Ho Ping Road, Pan Chiao City,
Taipei, Taiwan, R. O. C.
Tel: 886-2-29591090
Fax: 886-2-29547006/29558809
www.brtled.com.


| APPROVED | DRAWN |
|---|---|
| 曾 2002.12.18 慶霖 | 謝 2002.12.18 碧霞 |

# BRIGHT LED ELECTRONICS CORP.

PHOTO LINK RECEIVER SPECIFICATION

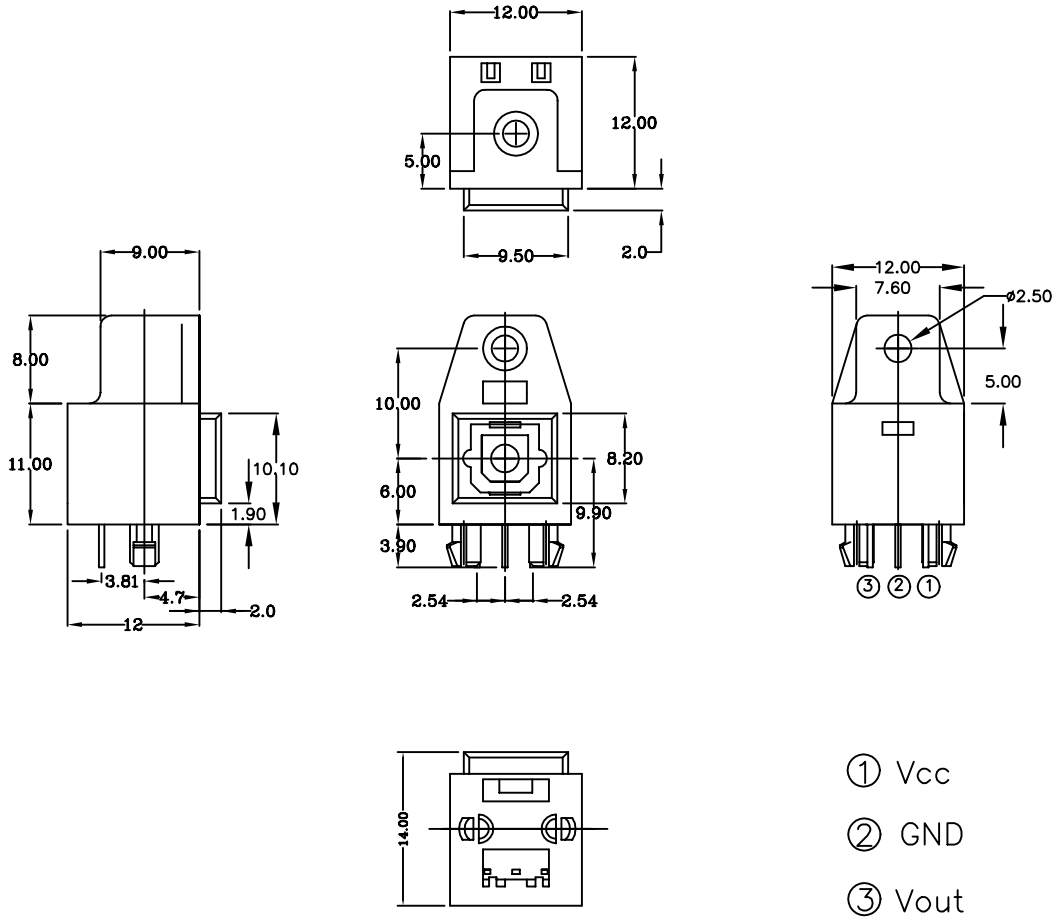
●DEVICE NUMBER: BFRX-1101/H4



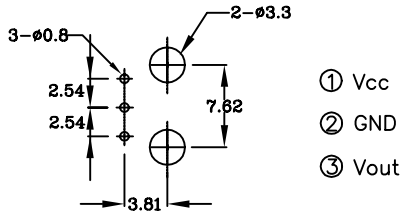
## ●Features:

1. Conform to EIAJ Standard CP-1201 (For Digital Audio Interface including Fiber Optic inter-connections).
2. ATC (Automatic Threshold Control) Circuit is used for stabilized output at a wide range of optical power level.
3. A self-tapping hole for easy attachment to the panel of Audio Equipments.
4. Operating voltage: 4.75 to 5.25 V.

## ●Outline Dimensions




## ●Recommended drilling as viewed from the soldering face




NOTES: Tolerance is ±0.3 mm unless otherwise noted.

# BRIGHT LED ELECTRONICS CORP.

## PHOTO LINK RECEIVER SPECIFICATION



### ●Absolute Maximum Ratings (Ta=25℃)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Storage Temperature | Tstg | -40 to + 70 | ℃ |
| Operating Temperature | Topr | -20 to + 70 | ℃ |
| Supply Voltage | Vcc | -0.5 to + 7 | V |
| Low level Output Current | $I_{OL}$ | 5 | mA |
| High level Output Current | $I_{OH}$ | -1 | mA |
| Soldering Temperature | Tsol | 260 (1) | ℃ |

Note (1) Soldering time≦5 seconds (More than 1mm apart from package).

### ●Electro-Optical Characteristics (Ta=25℃)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Peak wavelength | λp | | --- | 660 | --- | nm |
| Operating supply voltage | Vcc | | 4.75 | 5.0 | 5.25 | V |
| Data rate | T | NRZ code | 0.1 | --- | 6.0 | Mbps |
| Transmission Distance | D | Using APF (All Plastic Fiber, 970/1000μm) and BFTX-1001 | 0.2 | --- | 5 | m |
| Maximum Receivable Power | $P_{MAX}$ | 6Mbps, Using APF | -14.5 | --- | --- | dBm |
| Minimum Receivable Power | $P_{MIN}$ | 6Mbps, Using APF | --- | --- | -24 | dBm |
| Dissipation current | Icc | Refer to Fig. 1 | --- | 22 | 40 | mA |
| High level output voltage | $V_{oH}$ | Refer to Fig. 2 | 3.6 | 4.0 | --- | V |
| Low level output voltage | $V_{oL}$ | Refer to Fig. 2 | --- | 0.2 | 0.4 | |
| Rise time | $t_r$ | Refer to Fig. 2 | --- | 20 | 40 | ns |
| Fall time | $t_f$ | Refer to Fig. 2 | --- | 20 | 40 | ns |
| Low→High delay time | $t_{PLH}$ | Refer to Fig. 2 | --- | --- | 180 | ns |
| High→Low delay time | $t_{PHL}$ | Refer to Fig. 2 | --- | --- | 180 | |
| Pulse width distortion | △tw | Refer to Fig. 2 | -30 | --- | +30 | |
| Jitter | △tj | Refer to Fig. 2 | --- | --- | 30 | |

### ●Mechanical Characteristics (Ta=25℃)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Insertion Force | | ＊1 | --- | --- | 40 | N |
| Withdrawal Force | | ＊1 | 6 | --- | 40 | |
| Torque for Self-Tap | | Using self-tapping screw ( M3 x 8 ) | 60 | --- | 100 | N-cm |

＊1： Using standard optical fiber cable ( 970/1000 μm)

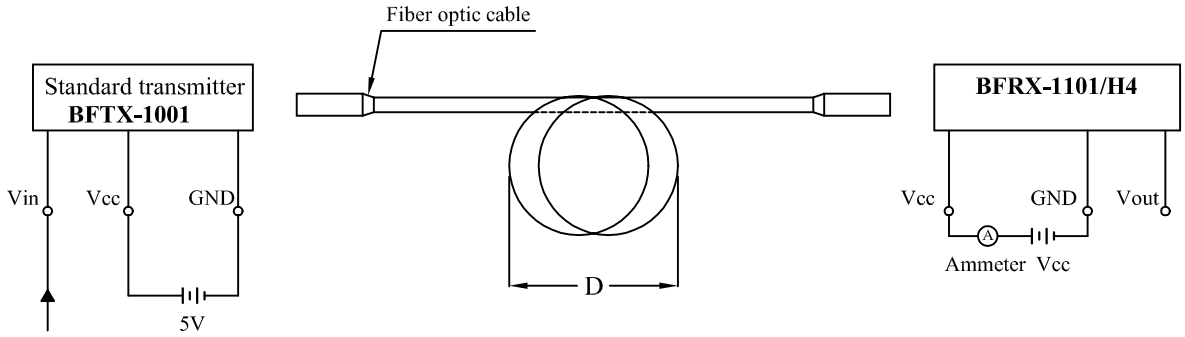
# BRIGHT LED ELECTRONICS CORP.

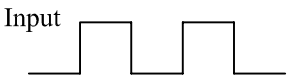
PHOTO LINK RECEIVER SPECIFICATION

●DEVICE NUMBER: BFRX-1101/H4



**●Fig.1 Measuring Method of Dissipation Current.**




6 Mbps NRZ, Duty 50%

Notes: (1) Vcc=5.0V (State of operating)

(2) To bundle up the standard fiber optic cable, make it into a loop with the diameter D=10cm or more.

(3) Pc= -14.5 dBm

(4) Measured on an ammeter

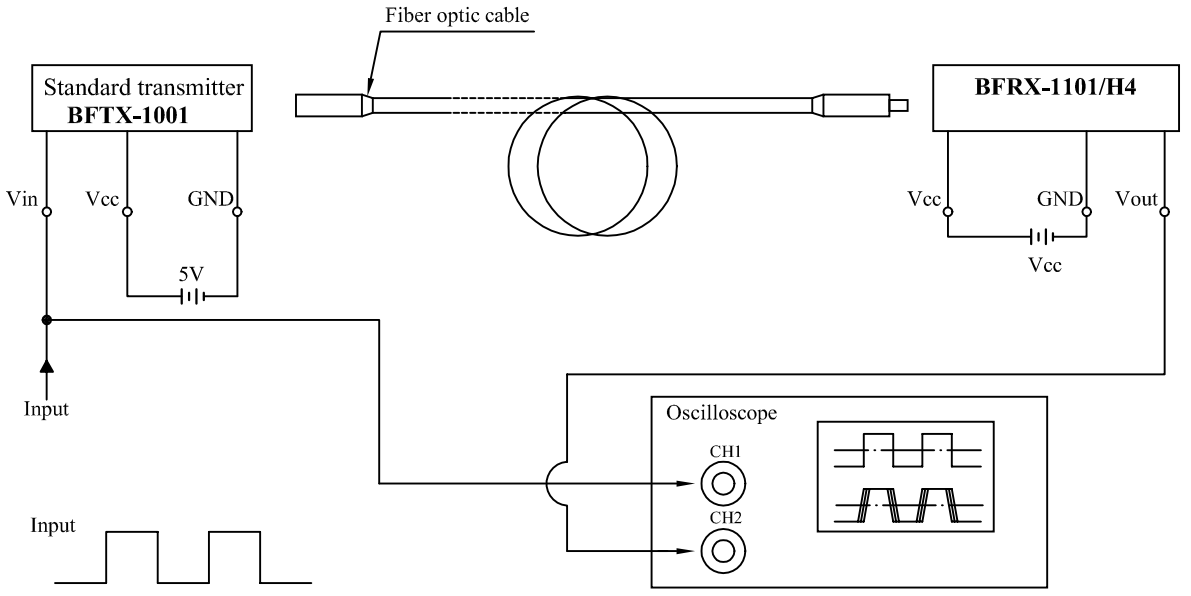
# BRIGHT LED ELECTRONICS CORP.

PHOTO LINK RECEIVER SPECIFICATION

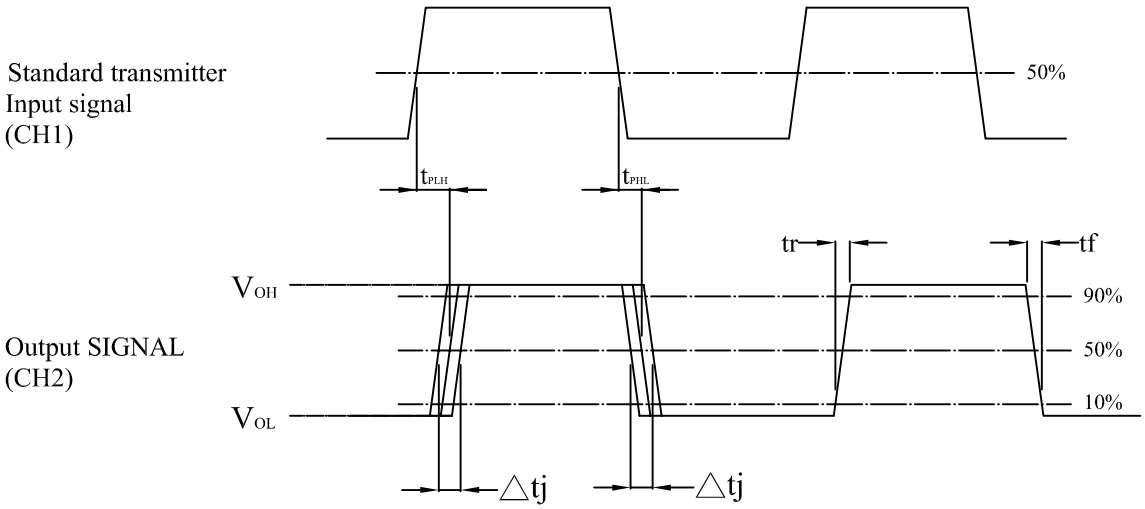
●DEVICE NUMBER: BFRX-1101/H4



**●Fig.2 Measuring Method of Output Voltage and Pulse Response.**




6 Mbps NRZ, Duty 50%




Test item

| Test item | Symbol | Test item |
|---|---|---|
| Low→High pulse delay time | $t_{PLH}$ | Refer to the above prescriptions. |
| High→Low pulse delay time | $t_{PHL}$ | Refer to the above prescriptions. |
| Rise time | $t_r$ | Refer to the above prescriptions. |
| Fall time | $t_f$ | Refer to the above prescriptions. |
| High level output voltage | $V_{OH}$ | Refer to the above prescriptions. |
| Low level output voltage | $V_{OL}$ | Refer to the above prescriptions. |
| Pulse width distortion | △tw | △tw=$t_{PHL}$ -$t_{PLH}$ |
| Jitter | △tj | Set the trigger on the rise of input signal to measure the jitter of the rise of output. |

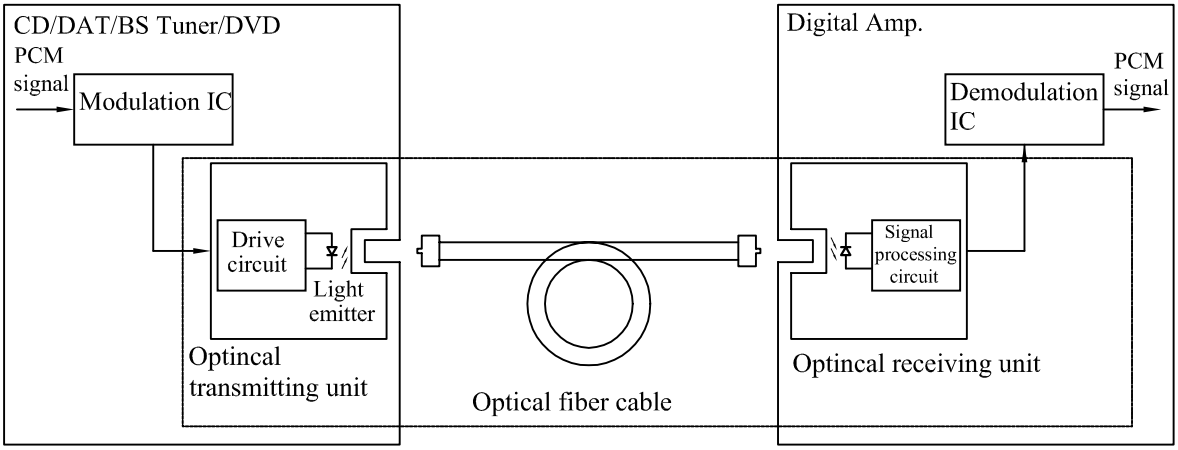
# BRIGHT LED ELECTRONICS CORP.

PHOTO LINK RECEIVER SPECIFICATION

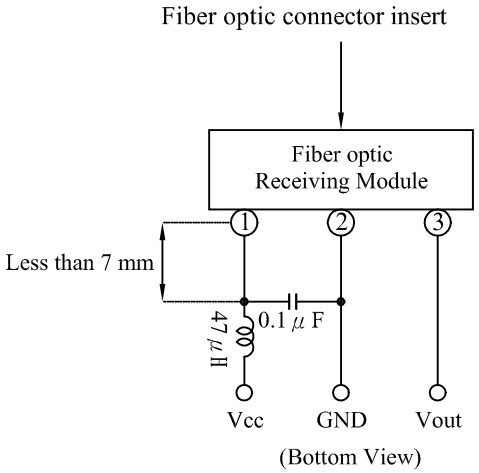
●DEVICE NUMBER: BFRX-1101/H4



## ●System Configuration Example:




## ●Recommended Connection Method:



# BRIGHT LED ELECTRONICS CORP.

**PHOTO LINK RECEIVER SPECIFICATION**

## RELIABILITY TEST



| Classification | Test Item | Reference Standard | Test Conditions | Result |
|---|---|---|---|---|
| Endurance Test | Operation Life | MIL-STD-750:1026<br>MIL-STD-883:1005<br>JIS C 7021 :B-1 | Connect with a power Vcc=5V<br>Ta=Under room temperature<br>Test time=1,000hrs | 0/20 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B<br>JIS C 7021 :B-11 | Ta=85℃±5℃<br>RH=90%-95%<br>Test time=240hrs | 0/20 |
| | High Temperature Storage | MIL-STD-883:1008<br>JIS C 7021 :B-10 | High Ta=105℃±5℃<br>Test time=1,000hrs | 0/20 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low Ta=-55℃±5℃<br>Test time=1,000hrs | 0/20 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D<br>MIL-STD-750:1051<br>MIL-STD-883:1010<br>JIS C 7021 :A-4 | -55℃ ~25℃ ~105℃ ~25℃<br>30min 5min 30min 5min<br>Test Time=10cycle | 0/20 |
| | Thermal Shock | MIL-STD-202:107D<br>MIL-STD-750:1051<br>MIL-STD-883:1011 | -55℃±5℃ ~105℃±5℃<br>10min 10min<br>Test Time=10cycle | 0/20 |
| | Solder Resistance | MIL-STD-202:201A<br>MIL-STD-750:2031<br>JIS C 7021 :A-1 | T.sol=260±5℃<br>Dwell Time=5±1sec. | 0/20 |
| | Solder ability | MIL-STD-202:208D<br>MIL-STD-750:2026<br>MIL-STD-883:2003<br>JIS C 7021 :A-2 | T.sol=230±5℃<br>Dwell Time=5±1sec. | 0/20 |
| | Lead Bending Stress | MIL-STD-750:2036<br>JIS C 7021 :A-11 | 0°~90°~0°bend , 3 cycles<br>Weight 250g | 0/20 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Parameter | Symbol | Measuring conditions | Judgement criteria for failure |
|---|---|---|---|
| Receivable power | Pc | Vcc=5V | -14.5dBm~-24dBm |
| Dissipation current | Icc | Vcc=5V | Over Ux2 |

Note: 1.U means the upper limit of specified characteristics.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

# BRIGHT LED ELECTRONICS CORP.

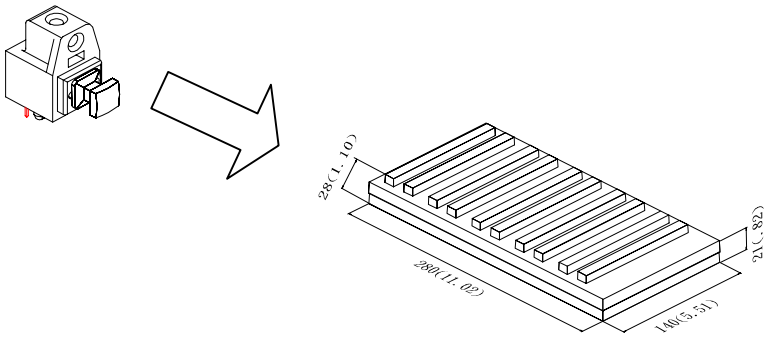
PHOTO LINK RECEIVER SPECIFICATION

PACKAGING DIMMENSIONS



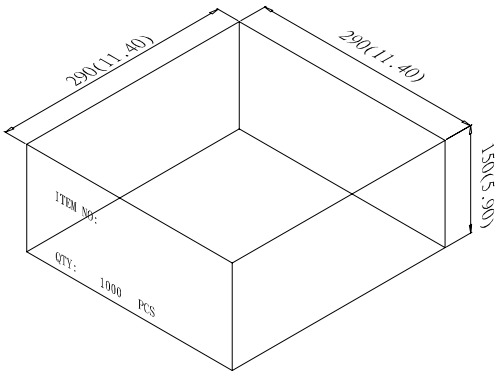
● DEVICE NUMBER: BFRX-1101/H4

● Package Method:(unit:mm)



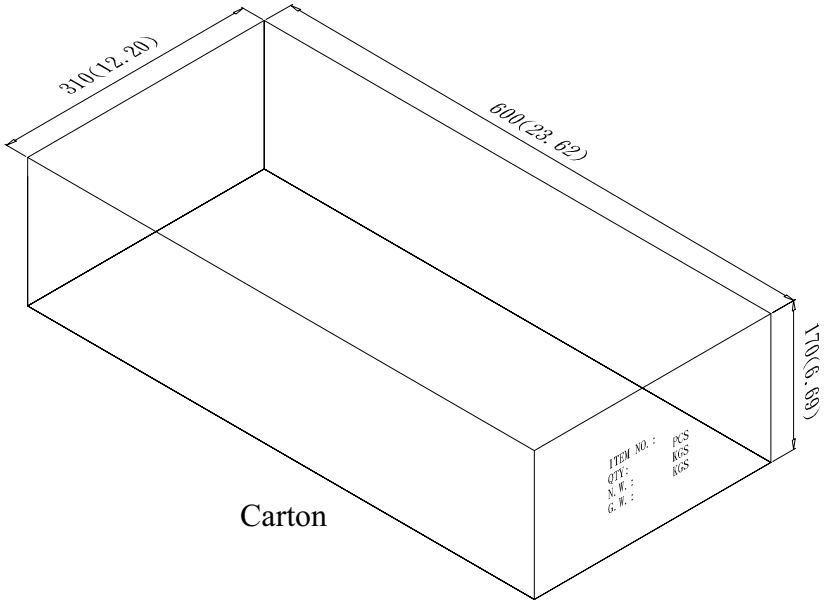

Tray

100 Pcs / Tray




Inner box

10 Tray / Inner box




Carton

2 Inner box / Carton

NOTES : Tray : Tolerance is ± 5 mm unless otherwise noted.

Inner box : Tolerance is ± 10 mm unless otherwise noted.

Carton : Tolerance is ± 10 mm unless otherwise noted.