

PATENT PENDING

### FEATURES

- High Stability: Fluctuation (p-p) 3 % Max.
- High Input Energy: 1 J (per one flash)
- Long Life:  $8 \times 10^7$  flashes Min.
- Short Arc: 3 mm
- Spectral Distribution: 190 nm to 2000 nm (Sapphire glass window type)
- High Repetition Rate Meeting TV rate: 60 Hz
- Short flash pulse-width (FWHM): 2.90  $\mu$ s (at 2  $\mu$ F, 1000 V)
- Built-in Reflective Mirror/1.5 Times Brighter (L7684, L7685)



TLSXF0105



TLSXF0105

### APPLICATIONS

- Stroboscope for FA High Speed Image Processing
- Industrial Stroboscope
- Pollution Analysis etc.

### CHARACTERISTICS

| Parameter  | L7684              | L6604 | L7685                         | L6605 | Unit         |
|--|--------------------|-------|-------------------------------|-------|--------------|
| Window Material                                    | Borosilicate Glass |       | Single Crystal Sapphire Glass |       | —            |
| Spectral Distribution                              | 240 to 2000        |       | 190 to 2000                   |       | nm           |
| Reflective Mirror                                  | Built-in           | —     | Built-in                      | —     |              |
| Operating Voltage                                  | 300 to 1000        |       |                               |       | V            |
| Recommended Operating Voltage                      | 700 to 1000        |       |                               |       | V            |
| Trigger Voltage                                    | 5 to 10            |       |                               |       | kV           |
| Trigger Capacitor Value                            | 0.22               |       |                               |       | $\mu$ F      |
| Maximum Average Input Energy (single) <sup>Ⓐ</sup> | 1                  |       |                               |       | J            |
| Maximum Average Input (continuous) <sup>Ⓑ</sup>    | 60                 |       |                               |       | W            |
| Arc Length   | 3                  |       |                               |       | mm           |
| Maximum Repetition Rate <sup>Ⓒ</sup>               | 60                 |       |                               |       | Hz           |
| Output Fluctuation (p-p)                           | 3                  |       |                               |       | % Max.       |
| Guaranteed Life (number of flashes) <sup>Ⓓ</sup>   | $8 \times 10^7$    |       |                               |       | flashes Min. |
| Applicable Trigger Socket                          | E6647              |       |                               |       | —            |
| Applicable Power Supply                            | C6096 <sup>Ⓔ</sup> |       |                               |       | —            |
| Applicable Cooling Jacket                          | E6611 <sup>Ⓕ</sup> |       |                               |       | —            |

**NOTE:** <sup>Ⓐ</sup>Average input energy (E) is calculated by the below formula.

$$E = 1/2 CV^2$$

E: Average input energy (J)      C: Main discharge capacitor value (F)  
V: Main discharge voltage (V dc)

<sup>Ⓑ</sup>Average Input(W) is calculated by the below formula.

$$W = E \times f$$

f: Repetition frequency (repetition rate)

<sup>Ⓒ</sup>At 1 J/flash (60 W) input. Maximum 100 Hz operation is possible with keeping average input 60 W or lower.

<sup>Ⓓ</sup>At 1 J/flash input energy (60 W) with using the cooling jacket of E6611.

<sup>Ⓔ</sup>It is necessary to have an additional external capacitor E7289-01 for 60 W input, when 1 J/flash input energy is needed.

<sup>Ⓕ</sup>It has to be used for the operation more than 15 W input.

# 60 W XENON FLASH LAMP SERIES

Figure 1: Spectral Distribution

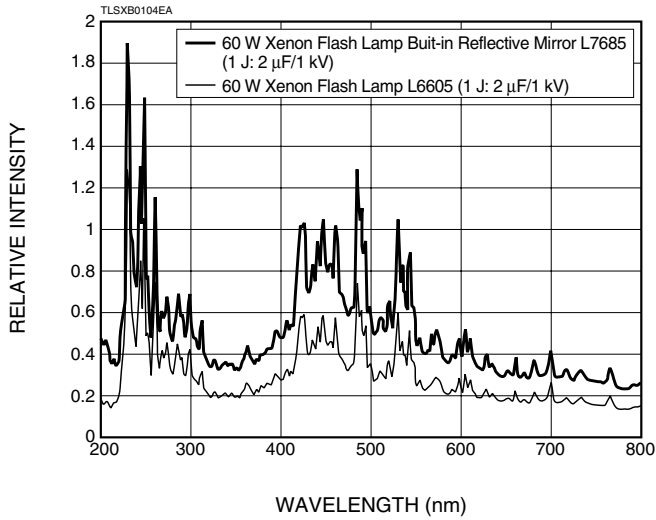


Figure 2: Flash Pulse Waveforms (L6604, L6605)

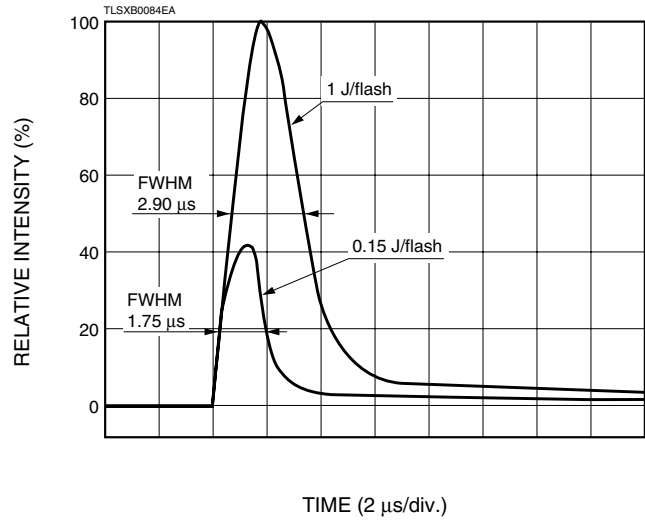
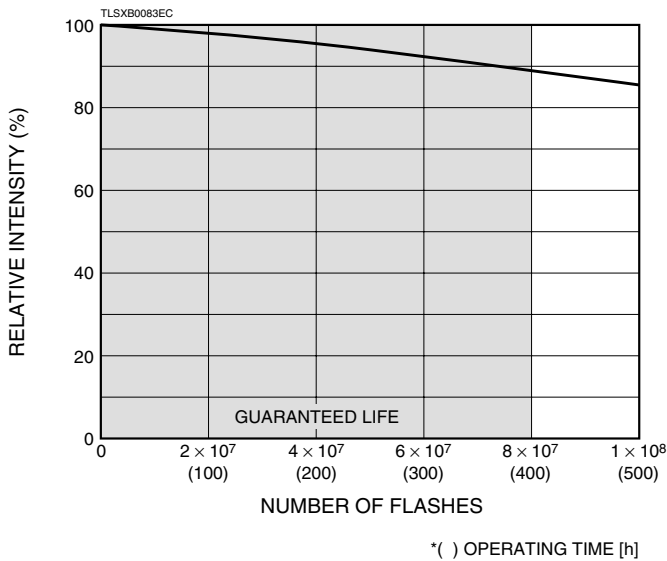


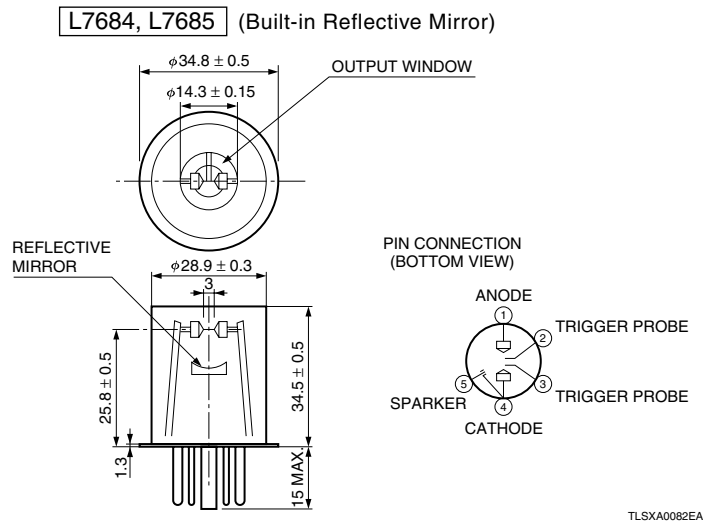
Figure 3: Life Characteristics



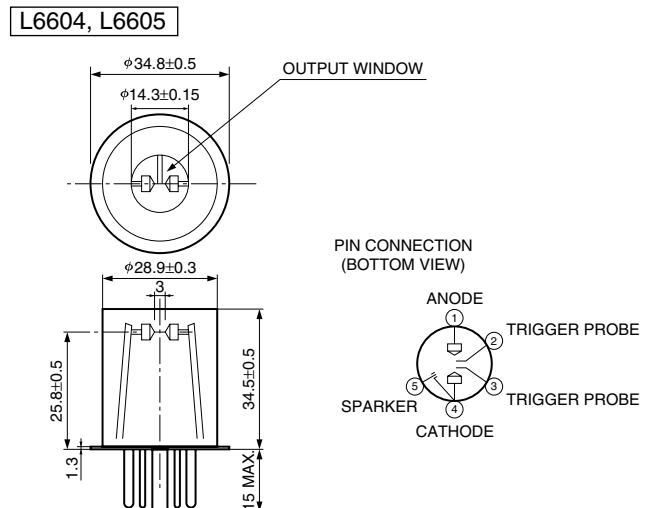
MAIN DISCHARGE VOLTAGE: 1 kV  
 MAIN DISCHARGE CAPACITOR: 2 μF  
 REPETITION RATE: 60 Hz  
 INPUT ENERGY: 1 J / FLASH

The life end is defined as the time when the radiant intensity falls to 50 % of its initial value or when the output fluctuation exceeds ±3 %.

Figure 4: Dimensional Outline (Unit: mm)



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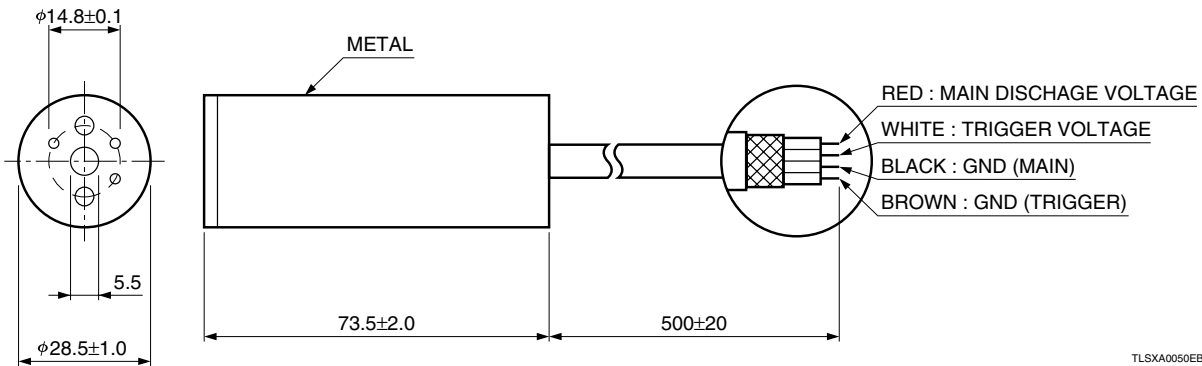
## RELATED PRODUCTS

### ● Trigger Socket E6647

In order to operate a Xenon flash lamp, it is necessary to supply the prescribed high voltage between anode and cathode, and to trigger probes. To facilitate the above operation, the trigger socket consists of high voltage transformer and voltage divider resistors and capacitors chain to supply the appropriate pulse voltage to each electrode.

As E6647 radiates heat from its metal parts during the operation due to the input energy, it is recommended to use a cooling fan to keep the surface temperature of the metal parts at less than 50 °C.

#### ■ Dimensional Outline (Unit: mm)



### ● Power Supply C6096

C6096 has large capability to operate the lamp stable in spite of its compact dimensions. At 1 J/flash input energy becomes over 0.05 J, it is necessary to have an additional external capacitor E7289-01 (option).

#### ■ Specifications

| Parameter             |                                    | Description/Value   |
|-----------------------|------------------------------------|---------------------|
| Main Power Supply     | Output Voltage <sup>⑨</sup> (dc)   | 300 V to 1000 V     |
|                       | Output Capacity                    | 60 W Max.           |
|                       | Stability                          | ±1 % Max.           |
|                       | Main Supply Capacitor <sup>①</sup> | 0.1 μF              |
| Trigger Section       | Trigger Output Voltage             | 180 V Typ.          |
|                       | Trigger Capacitor                  | 0.22 μF             |
| Trigger Input Section | Trigger Type                       | Internal / External |
|                       | Repetition Rate <sup>①</sup>       | 10 Hz to 100 Hz     |
|                       | Trigger Input Impedance            | 1 kΩ                |
|                       | Input Voltage                      | 5 V                 |
| Input Voltage (dc)    |                                    | 24 V ± 1.2 V        |
| Power Consumption     |                                    | 90 W                |
| Cooling               |                                    | Not Required        |
| Weight                |                                    | Approx. 550 g       |

**NOTE:**⑨ The range of 700 V to 1000 V is used for the operation of 60 W Xenon flash lamp series.

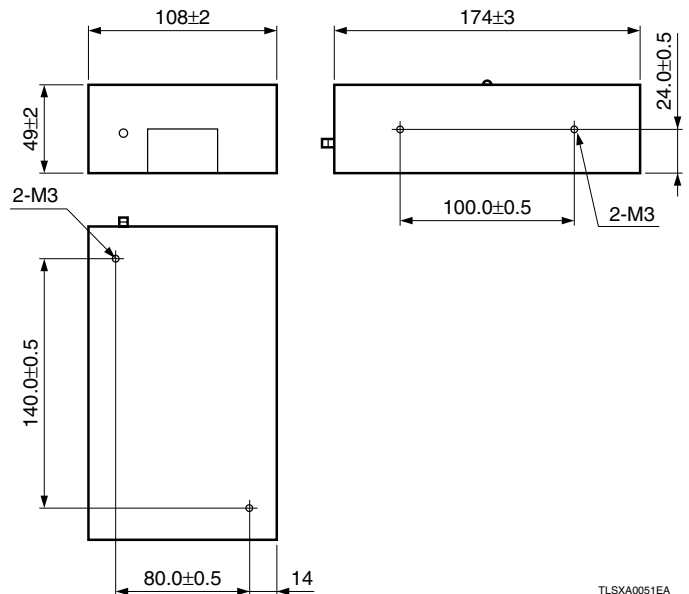
⑥ In the case of connects temperature sensor lead lines from the cooling jacket, the output voltage becomes 0 V when the temperature sensor turns on.

① At 1 J/flash input energy becomes over 0.05 J, it is necessary to have an additional external capacitor E7289-01 (option).

① Don't use beyond 60 Hz at the operation of 60 W input.

Ⓚ A trigger pulse voltage is supplied to each electrode at the same time as an input trigger signal rise.

#### ■ Dimensional Outline (Unit: mm)

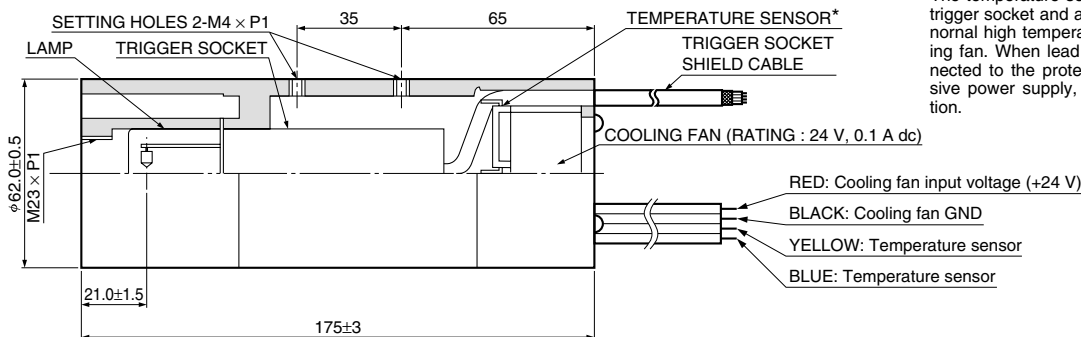


# 60 W XENON FLASH LAMP SERIES

## ● Cooling Jacket E6611

This cooling jacket is exclusively designed for 60 W Xenon flash lamps will keep the temperature of the lamp and electric parts such as the trigger socket at less than maximum ratings and maintain at even temperature by a built-in cooling fan, and offers the stable operation of the lamp. It has to be used for the operation of more than 15 W input.

### ■ Dimensional Outline (Unit:mm)



\* The temperature sensor is for the protection of a lamp, a trigger socket and a power supply, when it detects an abnormal high temperature due to out of work with the cooling fan. When lead lines of temperature sensor are connected to the protection circuit terminal of C6096 exclusive power supply, the power supply will stop its operation.

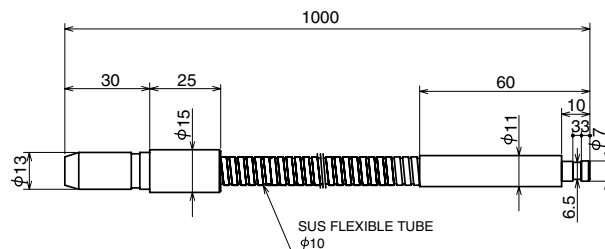
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## ● Light-Guides

Light-guides are effective to guide the output light into a place where does not allow to direct irradiation due to its construction or to plural places simultaneously. A short arc of 60 W Xenon flash lamps allows the light into the light-guides effectively. As the standard option, two types of light guide are available from us upon your application. Please refer to below table. The light-guides holder for the cooling jacket is also available from Hamamatsu. (The light-guides holder will be included for the combination order of the cooling jacket and the standard light-guides.)

| Type No.     | Material             | Transmittance wavelength | Output diameter | Length |
|--------------|----------------------|--------------------------|-----------------|--------|
| <b>A2873</b> | Quartz glass fiber   | 220 nm to 1300nm         | φ5 mm           | 1 m    |
| <b>A7432</b> | Compound glass fiber | 380 nm to 1300nm         | φ5 mm           | 1 m    |

### ■ Dimensional Outline (Unit: mm)

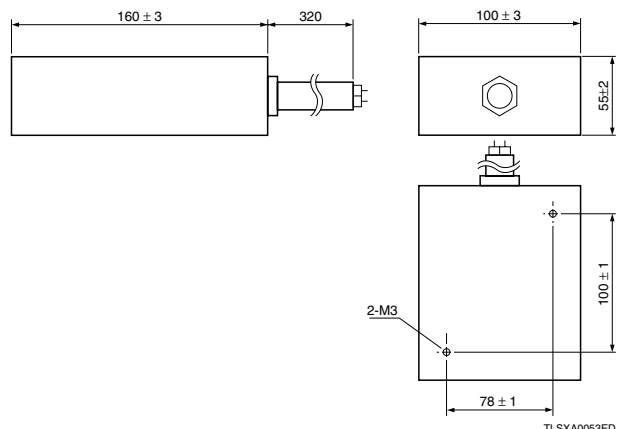


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## ● External Main Discharge Capacitor E7289-01

The exclusive main discharge capacitor (2 μF) for 60 W (1 J/Flash, 60 Hz) inputs the operation of 60 W Xenon flash lamp series. It allows to operate safely by easy connection with a power supply.

### ■ Dimensional Outline (Unit: mm)



TLSXA0053ED

### Warranty

The warranty period will be one year following the date of shipment or specified life time whichever comes first. The area of warranty is limited to replacement of the faulty lamp. Faults resulting from natural disasters and improper usage will also be excluded from warranty.

\* PATENT PENDING : JAPAN 1

# HAMAMATSU

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