HAMAMATSU

WATER-COOLED TYPE DEUTERIUM LAMPS
L1314, L1835

High Intensity, 150 W Type, Vacuum UV (from 115 nm) Light Source - L1835

The L1314 and L1835 are water-cooled 150 W deuterium lamps that deliver a radiant intensity 3 to 4 times higher than standard 30 W deuterium lamps. The lamp bulb is enclosed in a cylindrical metal jacket specially designed for water cooling. The L1314 has a synthetic silica window for an efficient emission of UV radiation, and the L1835 employs a MgF_2 (magnesium fluoride) window which even allows emitting vacuum UV radiation. Select the lamp that matches wavelengths required by your application. Vacuum flanges are also available as options in the L1835 for easy mounting to a vacuum chamber.

▲Left: L1835 Right: L1314 TLSOF0140

APPLICATIONS

- **Spectrophotometer, Fluorescence Spectrophotometer**
- **Removal of static electricity from the semiconductor wafer**
- **PID (Photo Ionization Detector)**
- **Solar Simulator**
- **Optical CVD**
- **Optical Chemical Reaction**
- **Excitation Light Source**

SPECIFICATIONS

GENERAL

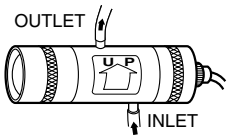
Parameter	L1314	L1835	Unit
Spectral Distribution	160 to 400	115 to 400	nm
Window Material	Synthetic silica	MgF_2	—
Aperture Size	2.5		mm dia.
Cooling Method	Water cooling Ⓐ		—
Weight (Approx.)	720	950	g
Installation to Vacuum Port	No	Yes	—

RECOMMENDED OPERATING CONDITION / CHARACTERISTICS (at 25 °C)

Parameter		Value	Unit
Warm-up	Heater Voltage (DC, AC)	10 ± 1	V
	Heater Current (DC, AC)	1.2	A Typ.
	Warm-up Time	20	s
Operation	Heater Voltage (DC)	5	V
	Heater Current (DC)	1	A Typ.
Discharge Starting Voltage (DC)		500	V Min.
Anode Current		1.2	A
Tube Drop Voltage (DC)		120 ± 10	V
Output Stability	Drift (Max.)	±1.0	%/h
	Fluctuation (Max.)	0.5	% p-p
Water Flow Rate		1.5	L/min
Estimated Life		300	h

NOTE: ⒶTypes L1314 and L1835 cannot be operated without cooling water passing through them. Care should be taken that the lamp is positioned properly so that the two nozzles are aligned vertically, with the water flowing into the jacket at the bottom nozzle and leaving the jacket at the top nozzle. If this arrangement is not observed, there is a danger of damaging the lamp due to overheating.

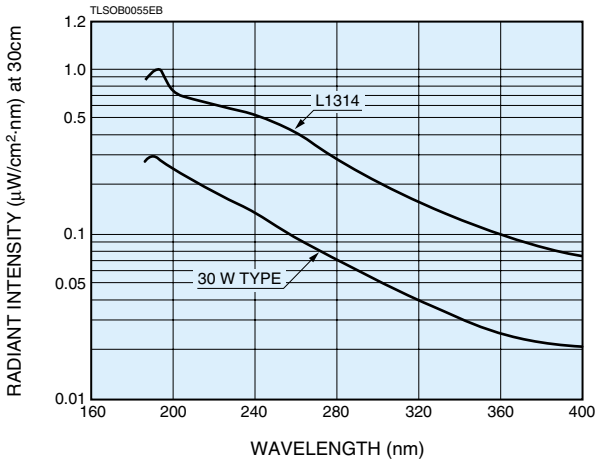
Flow of cooling water



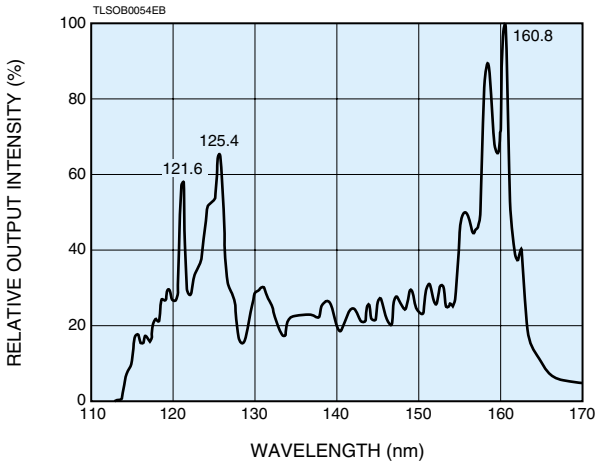
TLSOC0016EC

Figure 1: Spectral Distribution

L1314: UV range

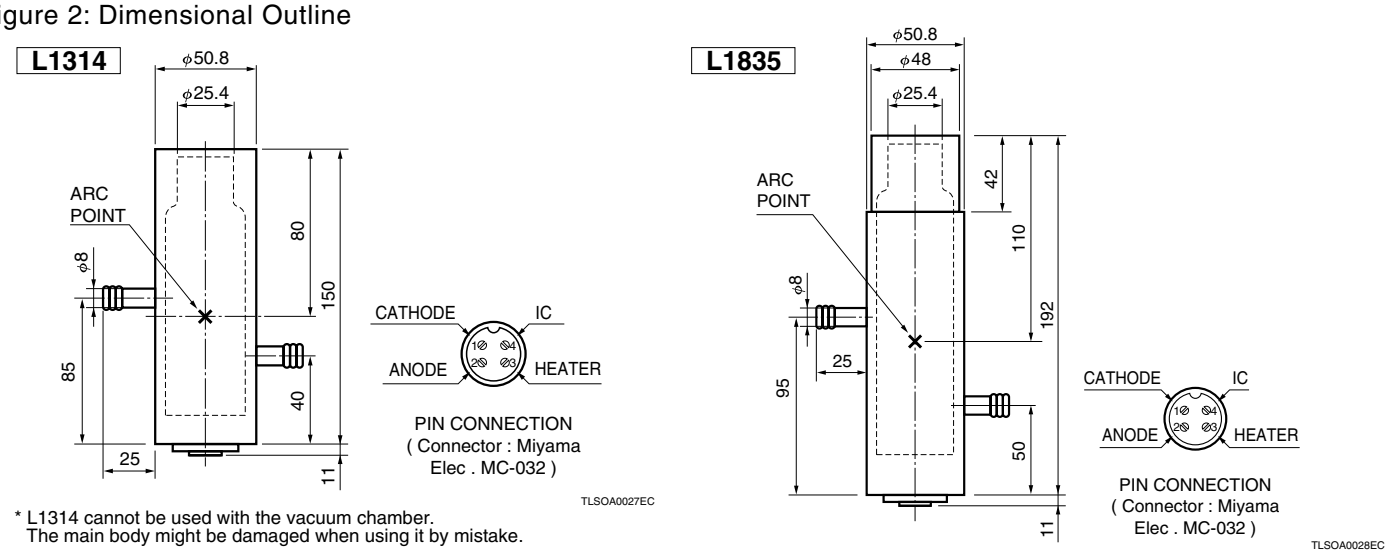


L1835: Vacuum UV range



WATER-COOLED TYPE DEUTERIUM LAMPS L1314, L1835

Figure 2: Dimensional Outline



* L1314 cannot be used with the vacuum chamber.
The main body might be damaged when using it by mistake.

OPTION (sold separately)

● POWER SUPPLY C3150

The C3150 power supply is specifically designed for water-cooled 150 W lamps. Various devices to provide stable light output are built into this power supply. Protective functions such as a water flow rate monitor and lamp lighting monitor also ensure safe and correct operation.

CHARACTERISTICS

Anode output

Parameter		Description/Value
Output Current (DC)		1.2 A
Output Voltage	Normal Operation (DC)	120 V ± 25 V
	No Load (DC)	250 V Typ.
Trigger Voltage		600 V peek
Output Fluctuation	Input Fluctuation (±10 %)	±0.1 % Max.
	Load Fluctuation (normal operation range)	±0.1 % Max.
	Drift	±0.1 %/h Max.
	Ripple	0.1 % p-p Max.
Over-load Protection		1.5 A Fuse

Filament (heater) output

Parameter	Description/Value
Output Voltage for Warm-up (DC)	10 V, 1.2 A
Warm-up Time	Approx. 30 s
Output Voltage for Operation (DC)	5 V ± 0.5 V, 1.0 A
Input Fluctuation (±10 %)	±1.0 % or less
Over-load Protection	2 A slow-blow or by electronic circuit
Input Source Voltage (AC)	100 V / 118 V / 230 V (±10 %)
Apparent Power	Approx. 330 VA
Operating Ambient temperature	0 °C to 40 °C
Performance Guaranteed Temperature	+5 °C to +35 °C
Cooling Method	Forced air cooling
Cooling Water Detection Method	Flow rate switch (1.5 L/min)
Protective Functions (LED on when malfunction)	Less cooling water, excessive temperature in the C3150, short circuit, disconnection
External Dimensions (mm)	215(W) × 125(H) × 265(D)
Weight	Approx. 10 kg

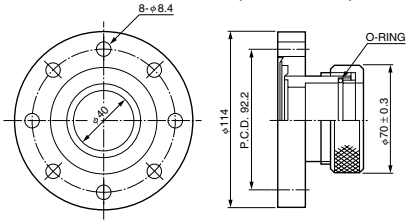
● VACUUM FLANGE E3444 SERIES (for L1835)

Since the L1835 vacuum UV deuterium lamp is often used while installed onto a vacuum chamber, Hamamatsu provides the E3444 series vacuum flanges specially designed for this purpose. Among these, the E3444-02 has a flange conforming to ICF114 specifications, allowing easy installation onto most vacuum chamber ports. The E3444 series also includes a general-purpose "N" flange and JIS (Japanese Industrial Standards) specification flange. Select the desired type depending on the vacuum equipment to be used.

SPECIFICATIONS

Type No.	Sealing Method	Flange	Mount Flange	Sealing Force Retention
E3444	O-Ring	Regular	—	1.33×10^{-4} Pa L/s or less (1×10^{-6} Torr L/s)
E3444-01		JIS VF50	JIS VG50	
E3444-02		ICF114	ICF114	

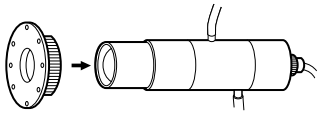
Dimensional Outline E3444-02 (Unit: mm)



TLSOA0053EA

Attachment Reference

It is designed to be simply inserted over the lamp housing.



TLSOC0017EB

HAMAMATSU WEB SITE www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Electron Tube Division
314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910, Bridgewater. N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road Welwyn Garden City Hertfordshire AL7 1BW, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44(0)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171-41 SOLNA, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: info@hamamatsu.se
Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: info@hamamatsu.it

TLSO1012E03
JUL. 2006 IP