

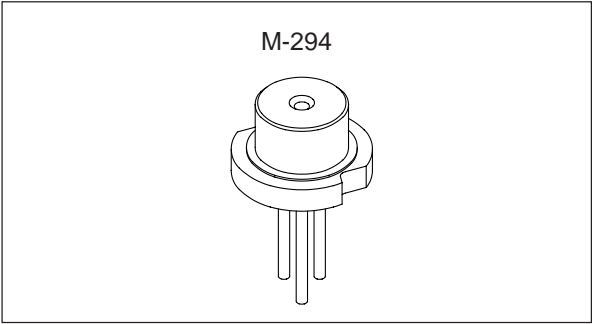
**650nm Index-Guided Red Laser Diode**

**Description**

The SLD1135VS is a index-guided red laser diode for Laser pointer. The wavelength is 20nm shorter than SLD1122VS.

**Features**

- Small astigmatism (7μm typ.)
- Small package (φ5.6mm)
- Single longitudinal mode
- Low operating voltage (2.5V Max)
- Max operating temperature = 40°C (Case temperature)



**Applications**

Laser pointer

**Structure**

- AlGaInP MQW laser diode
- PIN photodiode to monitor laser beam output

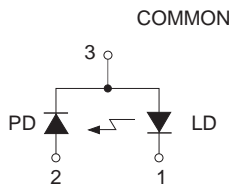
**Recommend Optical Power Output**

5mW

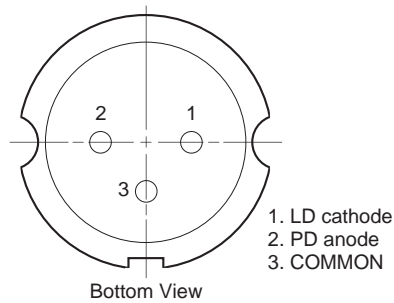
**Absolute Maximum Ratings (Tc = 25°C)**

• Optical power output	P <sub>o</sub>	5	mW
• Reverse voltage	V <sub>R</sub>	LD	2
		PD	15
			V
• Operating temperature	T <sub>opr</sub>	-10 to +40	°C
• Storage temperature	T <sub>stg</sub>	-40 to +85	°C

**Connection Diagram**



**Pin Configuration**



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**Electrical and Optical Characteristics** ( $T_c = 25^\circ\text{C}$ )

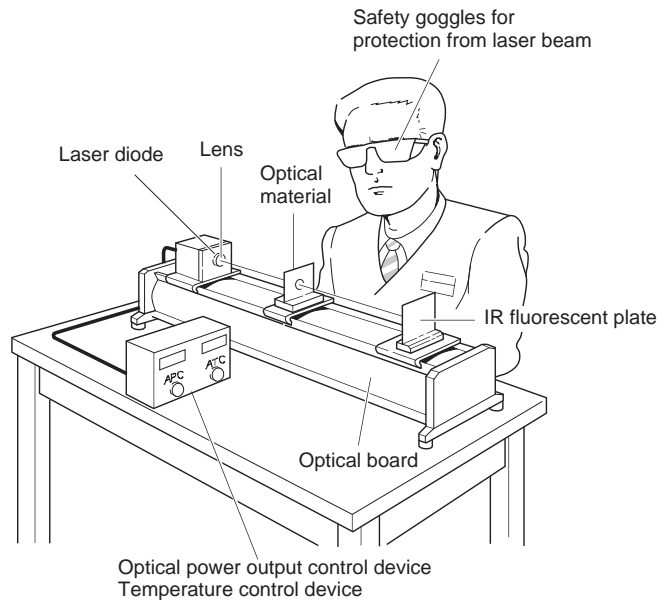
$T_c$ : Case temperature

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Threshold current	$I_{th}$			30	40	mA	
Operating current	$I_{op}$	$P_o = 5\text{mW}$		35	45	mA	
Operating voltage	$V_{op}$	$P_o = 5\text{mW}$		2.2	2.5	V	
Wavelength	$\lambda_p$	$P_o = 5\text{mW}$		650	660	nm	
Radiation angle	Perpendicular	$\theta_{\perp}$	$P_o = 5\text{mW}$	22	30	40	degree
	Parallel	$\theta_{//}$		5	7	12	degree
Positional accuracy	Position	$\Delta X, \Delta Y, \Delta Z$	$P_o = 5\text{mW}$			$\pm 150$	$\mu\text{m}$
	Angle	$\Delta\phi_{//}$				$\pm 3$	degree
		$\Delta\phi_{\perp}$				$\pm 3$	degree
Differential efficiency	$\eta_D$	$P_o = 5\text{mW}$	0.3	0.6	0.9	mW/mA	
Astigmatism	$A_s$	$P_o = 5\text{mW}$		7	15	$\mu\text{m}$	
Monitor current	$I_{mon}$	$P_o = 5\text{mW}, V_R = 5\text{V}$	0.05	0.1	0.25	mA	

**Handling Precautions**

(1) Eye protection against laser beams

The optical output of laser diodes ranges from several mW to 4W. However the optical power density of the laser beam at the diode chip reaches  $1\text{MW}/\text{cm}^2$ . Unlike gas lasers, since laser diode beams are divergent, uncollimated laser diode beams are fairly safe at a laser diode. For observing laser beams, ALWAYS use safety goggles that block infrared rays. Usage of IR scopes, IR cameras and fluorescent plates is also recommended for monitoring laser beams safely.

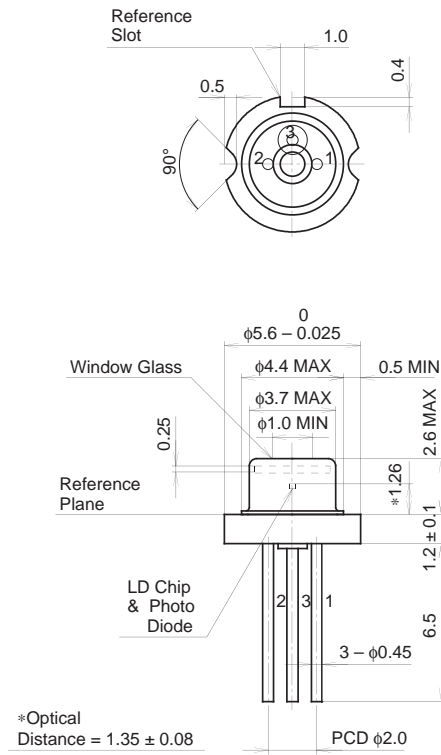


(2) Prevention of surge current and electrostatic discharge

Laser diode is most sensitive to electrostatic discharge among semiconductors. When a large current is passed through the laser diode even for an extremely short time (in the order of nanosecond), the strong light emitted from the laser diode promotes deterioration and then laser diodes are destroyed. Therefore, note that the surge current should not flow the laser diode driving circuit from switches and others. Also, if the laser diode is handled carelessly, it may be destructed instantly because electrostatic discharge is easily applied by a human body. Be great careful about excess current and electrostatic discharge.

Package Outline Unit: mm

M-294



SONY CODE	M-294
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.3g
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