

NSL-RHS99 Series

RoHS Compliant Light Dependent Resistor (LDR) CdS Photocell

The NSL-RHS99 series are RoHS compliant high performance, compact CdS photocell with a minimum of 1M Ω to 5M Ω dark resistance, packaged in a two leaded header.

The NSL-RHS99 series CdS Photocells by Advanced Photonix comply with the RoHS Directive.

These photoresistors are manufactured to detect light within the visible light spectrum's 400 to 700nm range. Their resistance decreases as the light intensity increases, showcasing efficiency characteristics akin to the human eye. These Light-Dependent Resistors (LDR) are highly versatile and available in a wide array of resistance values. They are available in a two-leaded plastic-coated ceramic header or hermetically sealed TO metal cans, catering to diverse application needs.

Applications

Industrial

Audio Compressors

Night Lights

Photography Light Meters

Solar Street Lights

Flame Detection

Features

RoHS Compliant

Compact Size

Reliable Performance

High Sensitivity

Absolute Maximum Ratings at $T_A=25^\circ\text{C}$

Parameter	Symbol	NSL-RHS9911			NSL-RHS9912			NSL-RHS9913			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Voltage (peak AC or DC)	V_{Peak}	-	-	60	-	-	100	-	-	100	V
Power Dissipation	P_O	-	-	50	-	-	50	-	-	50	mW
Operating Temperature	T_{OP}	-30	-	70	-30	-	70	-30	-	70	$^\circ\text{C}$
Storage Temperature	T_{STG}	-30	-	70	-30	-	70	-30	-	70	$^\circ\text{C}$
Package	2-pin Substrate										

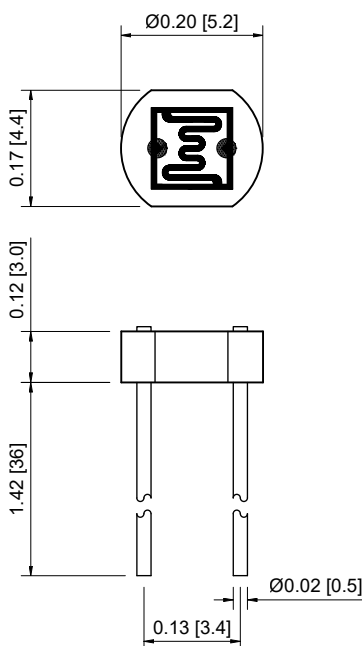
Typical Electro-Optical Specifications at $T_A=25^\circ\text{C}$

Parameter	Test Conditions	Symbol	NSL-RHS9911			NSL-RHS9912			NSL-RHS9913			Unit
			Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Light Resistance	10 Lux, 2856K	R_L	8	-	20	18	-	50	45	-	150	$\text{K}\Omega$
Dark Resistance	10 Sec. after 10 Lux	R_D	1	-	-	2	-	-	5	-	-	$\text{M}\Omega$
Gamma	10-100 Lux	γ	-	0.65	-	-	0.65	-	-	0.75	-	-
Spectral Peak	$\lambda=\text{Peak}$	λ_{Peak}	-	560	-	-	560	-	-	560	-	nm

²Cells light adapted to 400 to 600 Lux for 60-90 minutes prior to electrical tests.

Mechanical Specification

Units are in inches [mm]



Note: Lead soldering temperature
(1/16 inches away from body) 260 $^\circ\text{C}$ for 3 sec.

General Care and Handling Instructions

Photodiodes:

Handling and Storage

- Handle Photodiodes gently to prevent damage.
- Avoid exposing Photodiodes to temperatures exceeding the storage temperature rating of the device.
- Maintain a non-condensing environment for optimum performance and lifetime.

Cleaning

- Gently clean the glass (borosilicate or quartz window) using a 50/50 mixture of Methanol and isopropyl alcohol and a soft, optical-grade pad.

Special Considerations for Plastic or Epoxy Encapsulated Photodiodes

- Protect from intense light sources such as direct sunlight.
- Avoid exposure to harsh chemicals like THINNERS, ACETONE, and TRICHLOROETHYLENE.
- Cleaning with a 50/50 mixture of Methanol and isopropyl alcohol (IPA) is recommended. Cleaning in an ultrasonic bath is generally not recommended.

CdS Photocells:

Handling and Storage

- Handle CdS Photocells gently to prevent damage.
- Avoid exposing CdS Photocells to temperatures exceeding the storage temperature rating of the device.
- Maintain a non-condensing environment for optimum performance and lifetime.

Cleaning

- Gently clean the glass or plastic covering using a 50/50 mixture of Methanol and isopropyl alcohol and a soft, optical-grade pad.

Special Considerations

- DO NOT use Vapor Phase Soldering or Reflow Soldering for CdS components.

Optocouplers and LEDs:

Handling and Storage

- Handle Optocouplers and LEDs gently to prevent damage.
- Avoid exposing the devices to temperatures exceeding the storage temperature rating of the device.
- Maintain a non-condensing environment for optimum performance and lifetime.

Cleaning

- For plastic molded devices, cleaning with a 50/50 mixture of Methanol and isopropyl alcohol is recommended. Cleaning in an ultrasonic bath is generally not recommended.

Special Considerations

- Avoid exposing plastic molded devices or epoxy glob top devices to harsh chemicals like THINNERS, ACETONE, and TRICHLOROETHYLENE.

Electrostatic Discharge (ESD) Sensitivity:

- All devices are considered ESD-sensitive. They are shipped in ESD protective packaging. When unpacking and using these products, anti-ESD precautions should be observed.

Lead Trimming and Bending:

- Standard lead trimming after soldering is an acceptable practice; however, do not attempt to bend or modify the leads incorrectly, as it can damage the glass feed-through or the plastic encapsulant.

Soldering Instructions:

- Use a soldering iron with a tip temperature of 300°C max.
- Consult with your preferred solder manufacturer to determine a solder alloy and flux combination, as well as the reflow profile appropriate for your application.

General Precautions for all Devices

1. Moisture Prevention:

Ensure devices are stored in a dry environment to prevent moisture ingress, which can cause damage during soldering. Refer to J-STD-20 for guidance on proper baking procedures to prevent moisture related damage.

2. Lead Splaying:

If required, carefully splay the leads of the devices according to the specific application needs. Be cautious when splaying leads, as improper techniques may damage the device. Consult technical support or device datasheets for guidance on lead splaying.

3. Mechanical Stress:

Handle devices with care throughout the installation process to prevent damage.

4. Circuit Protection and Layout:

Optimize the circuit design and layout to ensure proper functioning and prevent damage to the devices. Include appropriate protection measures like ESD protection diodes, current-limiting resistors, and voltage regulation.

5. After-Sale Support:

For troubleshooting and device-specific inquiries, please consult with our technical support team. They can offer valuable guidance and suggestions on handling, operation, and application-related questions. To reach them, please contact the Advanced Photonix Applications group at Techsupport@advancedphotonix.com.

Legal Disclaimer

Information in this data sheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject to change without notice.