



NSL-37V5C9

630Ω ON-Resistance Photocell (CdS) Output Optocoupler

The NSL-37V5C9 is an optocoupler that has an OFF-resistance of 50MΩ.

Advanced Photonix CdS photocell output optocouplers optically couple an LED to a CdS Light Dependent Resistor (LDR). The LDR resistance increases when the LED current is OFF and decreases when LED current is ON. The device showcases a large dynamic range with a response time that efficiently mimics the human eye's sensitivity to light changes. Engineered with High, Medium, and Low dark resistances, the optocouplers are available with diverse resistance values to suit various applications. The photocells are encased in an optically-isolated structures.

Applications

Industrial Automation

Lighting Control Systems

Audio Equipment

Features

Medium Dark Resistance

Very High Temperature Coefficient

Very Fast Response Time

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Isolation Voltage at T _A 23°C, 70% RH	V _R	-	2500	VRMS
Power Dissipation at 25°C*	-	-	175	mW
Operating Temperature	T _{OP}	-40	+75	°C
Storage Temperature	T _{STG}	-40	+75	°C

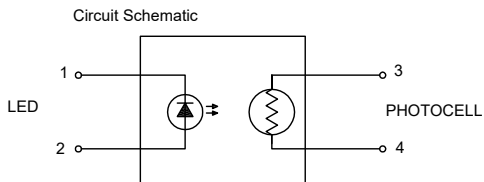
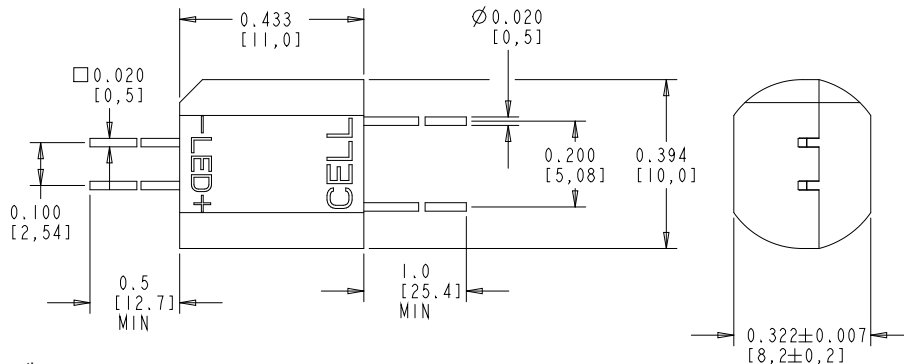
*For temperatures above 30°C, the power dissipation decreases by 3.9mW for every 1°C increase in temperature.

Typical Electro-Optical Specifications at T_A = 23 °C

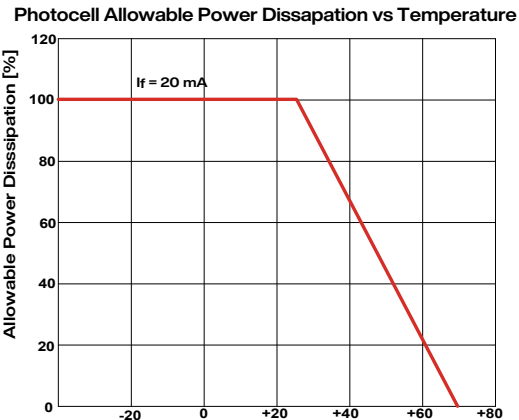
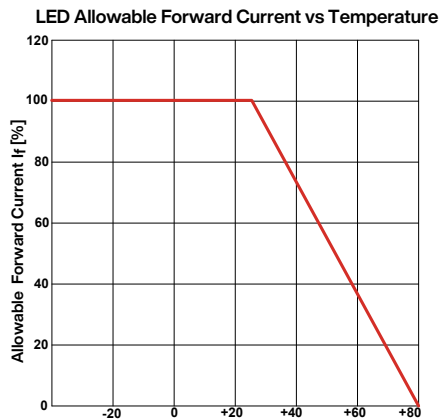
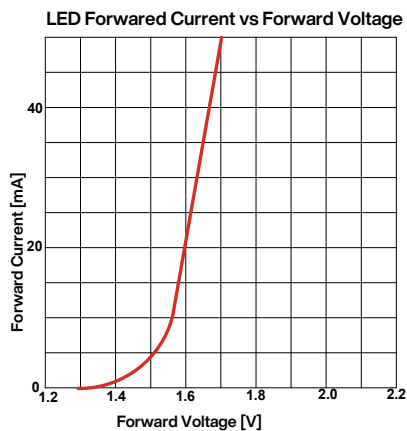
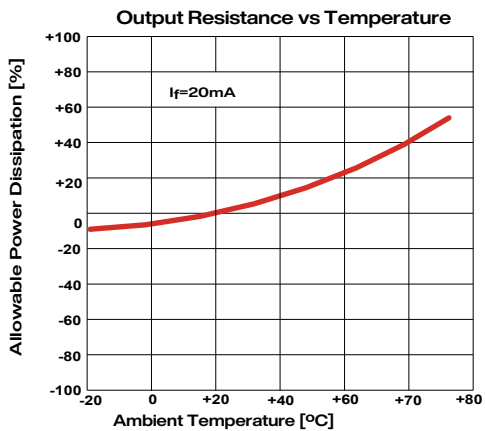
Parameter	Test Conditions	Symbols	Min	Typ	Max	Unit
LED						
Forward Current	-	I _F	-	-	40	mA
Forward Voltage	I _F =20mA	V _F	-	2.2	2.8	V
Reverse Current	V _R =5V	I _R	-	-	10	µA
CELL						
Max. Cell Voltage	Peak AC or DC	V _{MAX}	-	-	100	V
COUPLED						
On Resistance	I _F =2mA	R _{ON}	-	630	-	Ω
Off Resistance	10 sec after I _F =0mA	R _{OFF}	50	-	-	MΩ
Slope	@0.5mA / R @5mA	m _{slope}	-	5	-	m
Dynamic Range	R @20mA	dB _{DR}	-	7.3	-	dB
Rise Time	Time for the dark to light change in conductance to reach 63% of its final value	T _R	-	4	-	ms
Decay Time	Time for the light to dark change in conductance to reach 37% of its final value 100KΩ after the removal of the light source	T _D	-	-	50	ms

Mechanical Specifications

Units are in inches [mm]



DIMENSIONS IN INCH [MM]
TOLERANCE ± 0.004 " [± 0.1 mm]



General Care and Handling Instructions

Photodiodes, CdS Photocells, Optocouplers, and LEDs, where applicable

Handling and Storage

Handle photodiodes and LEDs gently to prevent damage. Avoid dropping or jarring, as the internal wire bonds can easily separate from their pads, rendering the device inoperable.

Handle and store photodiodes away from intense light sources such as direct sunlight or tungsten lamps.

Protecting the devices during installation, maintenance, or storage helps ensure optimal performance.

Avoid exposing the photodiodes and LEDs to excessively high or low storage temperatures. Maintain a non-condensing environment for optimum performance and lifetime.

Cleaning

Photodiodes and LEDs may have borosilicate or quartz window glass covering. Gently clean the glass using isopropyl alcohol and a soft, optical-grade pad. For plastic molded devices, cleaning with a cleansing isopropyl alcohol (IPA) is recommended. Cleaning in an ultrasonic bath is generally not recommended. Avoid exposure to harsh chemicals like CHLOROETHENE, THINNER, ACETONE, and TRICHLOROETHYLENE, as these can impair device packages and their operation.

Electrostatic Discharge (ESD) Sensitivity

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

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.

Special Considerations for Plastic Molded Packages and Surface Mount Devices

Optoelectronic devices in plastic packaging are susceptible to environmental stress and need extra care. High humidity storage can cause soldering problems. The rapid heating during soldering stresses the wire bonds and can cause separation between the wire and the bonding pad. We recommend baking the devices for 24 hours at 85°C.

Modifying Device Leads

DO NOT attempt to form or modify the leads on the devices. Please contact the Advanced Photonix Applications group at Techsupport@advancedphotonix.com if your application requires lead spacing modification. Unauthorized modifications may void the warranty.

Soldering Instructions

The devices are typically provided with wire or pin leads for circuit boards or sockets installation. Unless otherwise explicitly noted, follow these soldering guidelines:

- Use a soldering iron of 30W or less, with the temperature at the iron tip 300°C or lower.
- For dip soldering, maintain a bath temperature of 260±5°C, with immersion time within 5 seconds.
- Soldering time shall be within 3 seconds.
- DO NOT use Vapor Phase Soldering or Reflow Soldering

