



# NSL-33-007

## Photocell (CdS) Output Optocoupler

The NSL-33-007 is an optocoupler (optoisolator) with an LED input optically coupled to a CdS Light Dependent Resistor (LDR) photocell. It is an optoelectronic component that interconnects two separate electrical circuits by means of a light sensitive optical interface. The photoresistor resistance increases when the LED current is “off” and decreases when the LED current is “on”. The optocoupler is mounted on a lead spacer platform that facilitates mounting on a PCB.

### Applications

Industrial

AC/DC power control

Measuring Instruments

Factory Automation

Audio

### Features

Compact Moisture Resistant Package

Low LED Current

Passive Resistance Output

## Absolute Maximum Ratings

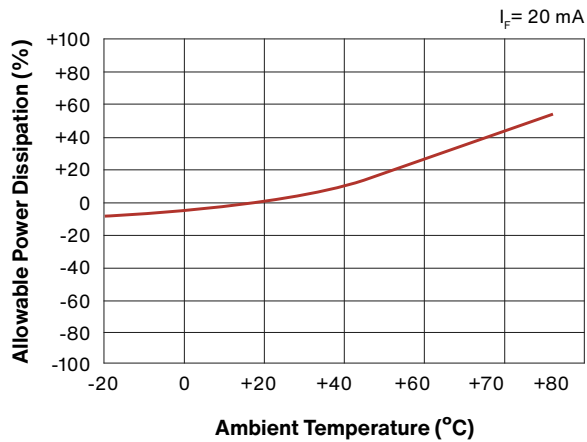
Parameter	Symbol	Min	Max	Unit
Isolation Voltage	$V_R$	-	2000	V
Power Dissipation <sup>1</sup>	-	-	50	mW
Operating Temperature	$T_{OP}$	-40	+75	°C
Storage Temperature	$T_{STG}$	-40	+75	°C

<sup>1</sup>Derate linearly to 0 at 75°C

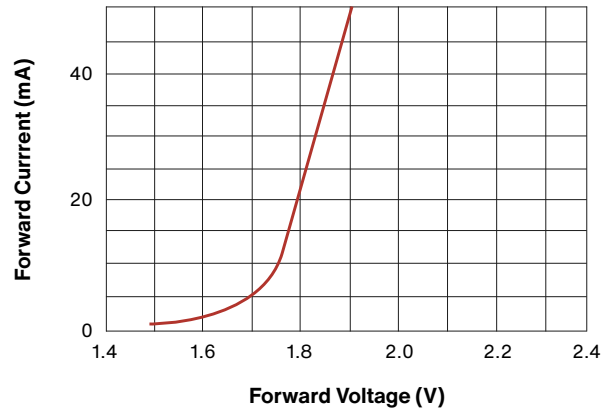
## Typical Electro-Optical Specifications at $T_A=23\text{ °C}$

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
<b>LED</b>						
Forward Current	-	$I_F$	-	-	20	mA
Forward Voltage	$I_f=20\text{mA}$	$V_F$	-	2.1	-	V
Reverse Current	$V_R=4\text{V}$	$I_R$	-	-	10	μA
<b>CELL</b>						
Max. Cell Voltage	Peak AC or DC	$V_{MAX}$	-	-	100	V
<b>COUPLED</b>						
On Resistance	$I_f=16\text{mA}^2$	$R_{on}$	-	-	700	Ω
Off Resistance	10 sec after $I_f=0\text{mA}$ , 5VDC on cell	$R_{off}$	25	-	-	KΩ
Rise Time	Time to 63% of final conductance @ $I_f=4.6\text{mA}$	$T_R$	-	1.2	-	msec
Decay Time	Time to 37% of final conductance after removal of $I_f=4.6\text{mA}$	$T_D$	-	10	-	msec
Cell Temp. Coefficient	$I_f \geq 5\text{mA}$	$T_{coef}$	-	0.7	-	% / °C
Light Resistance Matching	-	$M_L$	-	-	20	%

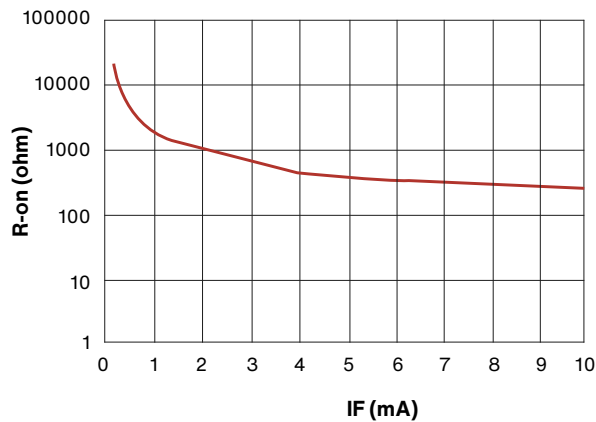
### Output Resistance vs Temperature



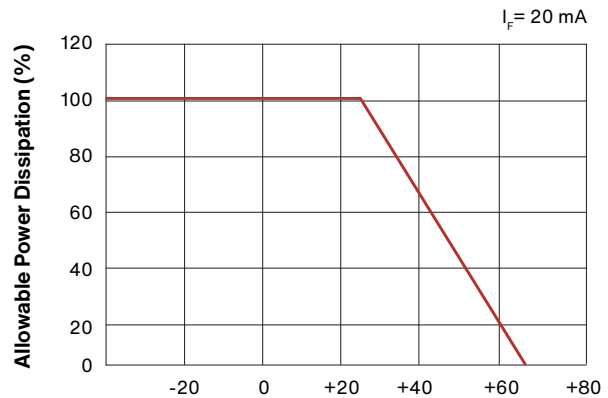
### LED Forward Current vs Forward Voltage



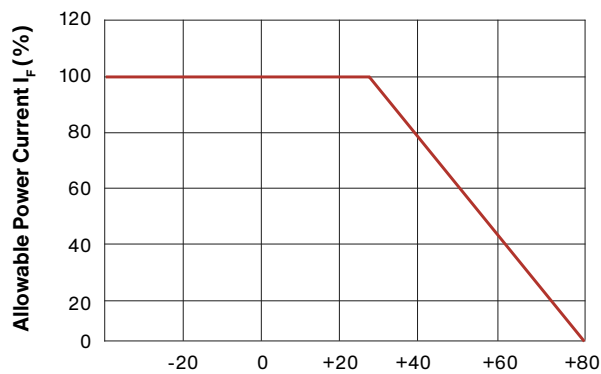
### Typical Resistance vs Forward Current (Single Photocell)



### Photocell Allowable Power Dissipation vs Temperature



### Output Resistance BS Temperature



## Mechanical Specifications

Units are in inches [mm]

