

# PHOTORESISTORS

## 5mm, 12mm, & 20mm LDR Radial Lead Types

### Description

Photoconductive cells are sensors that allow you to detect light. They are small, inexpensive, low-power, easy to use, and don't wear out. NTE's light-dependent resistors (LDR) are photoresistors whose resistance decreases with increasing incident light intensity. In other words, when it is dark, they have a high electrical resistance and when it is light, their electrical resistance is low.

### Features

- Epoxy Encapsulated
- Small Size
- Reliable Performance
- Quick Response
- High Sensitivity
- Good Characteristic of Spectrum

### Typical Applications

#### Digital Applications

- Automatic Headlight Dimmer
- Night/Streetlight Control
- Photoelectric Control
- Industrial Control
- Security System

#### Analog Applications

- Camera Exposure Control
- Automatic Gain Control

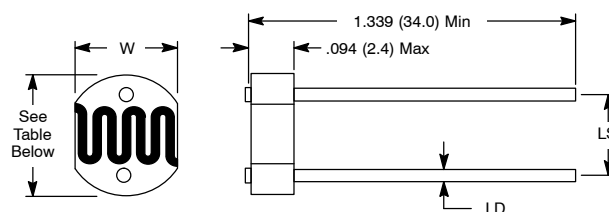
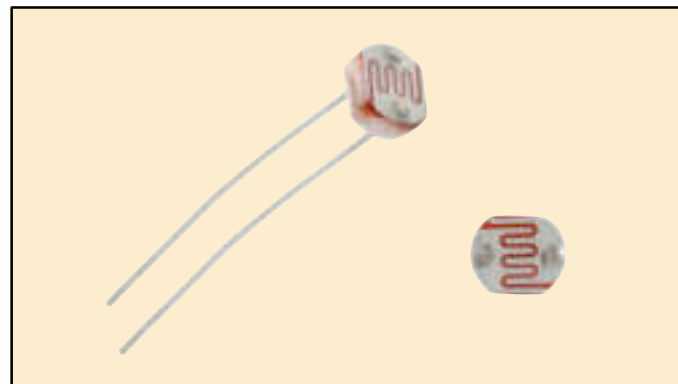
## Specifications

### Spectral Response Peak:

5mm Types: 540nm

12mm & 20mm Types: 560nm

Ambient Temperature Range: -30° to +70°C



Lead Diameter (LD)	
5mm	.020 (0.5)
12mm	.026 (0.7)
20mm	.036 (0.9)

NTE Type	Dimensions			Max. DC Voltage	Power Dissipation (mW)	Light Resistance (10Lux)(KΩ)	Dark Resistance (MΩ)	$\gamma \frac{100}{10}$	Response Times (ms)	
	Diameter	W	LS						Increase	Decrease
02-LDR1	.201 (5.0)	.169 (4.3)	.134 (3.4)	150	100	50 – 100	5.0	0.8	20	30
02-LDR2	.201 (5.0)	.169 (4.3)	.134 (3.4)	150	90	5 – 10	0.2	0.5	30	30
02-LDR3	.201 (5.0)	.169 (4.3)	.134 (3.4)	150	100	100 – 200	10.0	0.9	20	30
02-LDR4	.201 (5.0)	.169 (4.3)	.134 (3.4)	150	100	30 – 50	3.0	0.7	20	30
02-LDR12	.472 (12.0)	.405 (10.3)	.353 (9.0)	250	200	5 – 10	1.0	0.6	30	30
02-LDR13	.472 (12.0)	.405 (10.3)	.353 (9.0)	250	200	10 – 20	2.0	0.6	30	30
02-LDR14	.472 (12.0)	.405 (10.3)	.353 (9.0)	250	200	30 – 50	5.0	0.7	30	30
02-LDR15	.472 (12.0)	.405 (10.3)	.353 (9.0)	250	200	50 – 100	8.0	0.8	30	30
02-LDR20	.787 (20.0)	.787 (20.0)	.593 (15.1)	500	500	5 – 10	1.0	0.6	30	30
02-LDR21	.787 (20.0)	.787 (20.0)	.593 (15.1)	500	500	10 – 20	2.0	0.6	30	30
02-LDR22	.787 (20.0)	.787 (20.0)	.593 (15.1)	500	500	30 – 50	5.0	0.7	30	30
02-LDR23	.787 (20.0)	.787 (20.0)	.593 (15.1)	500	500	50 – 100	8.0	0.8	30	30

### Soldering Notes:

1. Soldering times should be kept as short as possible.
2. The soldering iron should be positioned at least 4mm from the ceramic base.

## Terms

- Light Resistance:  
Measured at 10Lux with standard light A (2854K color temperature) and 2H pre-illumination at 400–600Lux prior to testing.
- Dark Resistance:  
Measured 10 seconds after pulsed 10Lux.
- Gamma Characteristic:  
Between 10Lux and 100Lux and given by:  $T = \frac{\log(R_{10} / R_{100})}{\log(100 / 10)} = \log(R_{10} / R_{100})$   
R10, R100 cell resistance at 10Lux and 100Lux. The error of T is +0.1.