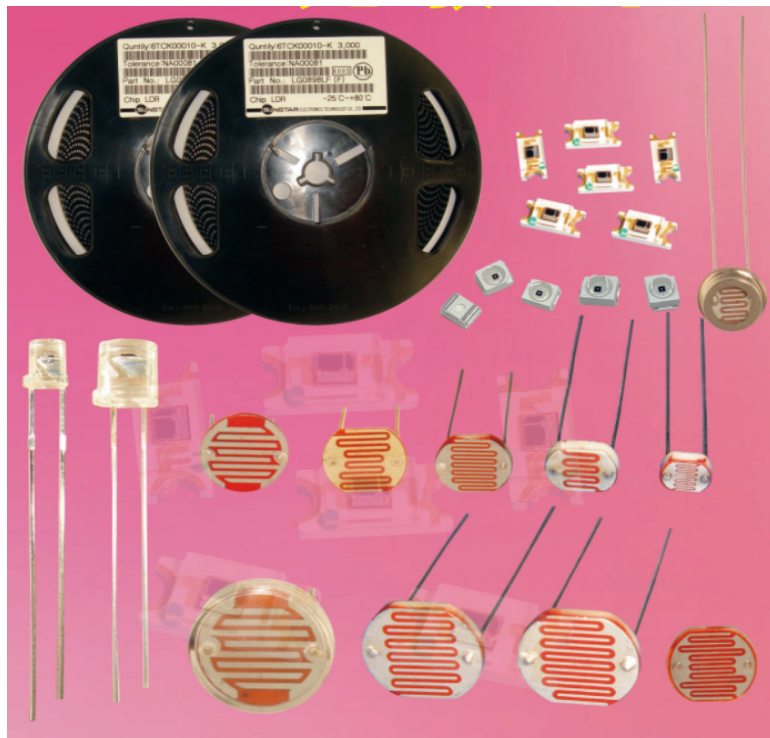


CdS 光敏电阻

CdS PHOTORESISTOR



优良品质 · 诚信经营

一起携手 · 共创辉煌

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- Due to space limitations, the product specifications recorded in this PDF catalog only provide the main product information. Before you place an order, you must confirm the content of the specification sheet, or exchange the negotiated and finalized drawings.

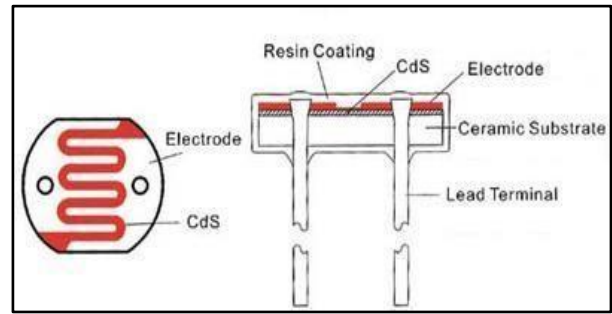
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- 欧盟 ROHS 指令，依照欧盟指令 2002/95/EC 检验，产品不包含铅、镉、汞、六价铬、PBB 及 PBDE；欧盟指令 2002/95/EC 附录中所示豁免成分及天然杂质不在此例。
- 本声明不保证所列部件符合任何欧盟成员国关于 ROHS 指令之法规

产品介绍

VDK 系列 CdS 光敏电阻，属于硫化镉光敏电阻 (CdS Photoconductive Cell)，通常都制成薄片结构，以便吸收更多的光能。它的电阻和光线的强弱有直接关系。当光线照射时，半导体片 (光敏层) 内原本处于稳定状态的电子受到激发，成为自由电子。则光线越强，产生的自由电子也就越多，电阻就会越小。简单地说，光强度增加，电阻减小；光强度减小，则电阻增大。



The VDK series of CdS photoresistors are cadmium sulfide photoconductive cells (CdS Photoconductive Cell), which are usually made into a sheet structure to absorb more light energy. Its resistance is directly related to the intensity of light. When light is irradiated, the electrons that are originally in a stable state in the semiconductor chip (photosensitive layer) are excited and become free electrons. The stronger the light, the more free electrons are produced, and the smaller the resistance. Simply put, the light intensity increases, the resistance decreases: the light intensity decreases, the resistance increases.

众所周知，光敏电阻有许多名称，包括光电阻器 (**LDR**)，光照电阻器 (**Photoresistor**)，光半导体，光电导体单元，光导管，或简单称为光单元 (**Photocell**)。

As we all know, photoresistors have many names, including photoresistors (LDR), photoresistors, optical semiconductors, photoconductor units, light pipes, or simply called photocells.

我们可提供的 **VDK** 系列 **CdS** 光敏电阻采用环氧树脂封装，分为 9 款外径尺寸：

The VDK series of CdS photoresistors we can provide are encapsulated in epoxy resin and are divided into 9 outer diameter sizes:

系列 series	直径 (mm) Diameter (mm)	部件尺寸(单位: 毫米) Part size (unit: mm)		
		陶瓷基板(长 X 宽 X 高) Ceramic substrate (length X width X height)	引线 Lead	
			长 Long	直径 Diameter
VDK35	φ3	L3.3mm±0.2mm×W3.0mm±0.1mm×H1.8mm	36mm±2mm	0.4mm
VDK45	φ4	L4.1mm±0.2mm×W3.4mm±0.1mm×H1.8mm		
VDK55	φ5	L5.1mm±0.2mm×W4.3mm±0.2mm×H2.4mm		
VDK56				
VDK55XX-F				
VDK75	φ7	L7.0mm±0.2mm×W5.9mm±0.1mm×H2.4mm		0.6mm
VDK115	φ11	L11mm±0.2mm×W9.0mm±0.2mm×H2.4mm		
VDK125	φ12	L12mm±0.3mm×W10.5mm±0.2mm×H2.5mm		
VDK205	φ20	L20mm±0.4mm×H2.5mm	25mm±2mm	1.0mm
VDK255	φ25	L25.5mm±1.5mm×W3.0mm±0.1mm×H2.8mm	30mm±2mm	

无论是对可见光的光线的感应还是对可见光光线的测量，VDK 系列 CdS 光敏电阻都可以提供许多非常优秀的解决方案。并且是一款成本非常经济的产品，他的特点和功能可以概括如下：

Whether it is the sensing of visible light or the measurement of visible light, the VDK series of CdS photoresistors can provide many excellent solutions. And it is a very economical product. Its features and functions can be summarized as follows:

1. 它是一款低成本的近红外可见光探测的光电元件。
2. 封装形式多样化，有环氧树脂封装、金属壳玻璃封装（真空封装）
3. 在非常低的照度（全暗 0Lux）和瞬时强光（照明灯光强度）的切换时，具有非常高的反应速度。
4. 体积小，最小体直径可达 $\phi 3\text{mm}$ ，最大体积也只有 $\phi 25\text{mm}$ 。
5. 可提供最大工作电压在 150 至 400V 的产品，并适用于 120/240V 交流电路上操作。
6. 易于使用在 DC 和 AC 电路-光敏电阻随光的变化而变化。
7. 对光的可见光感应的种类很多，例如 LED 光源、霓虹灯、白炽灯、日光灯、激光器、光源、阳光等。
8. 产品技术指标可根据客户要求提供相应的解决方案。

1. It is a low-cost photoelectric element for near-infrared visible light detection.
2. Diversified packaging forms, including epoxy resin packaging, metal shell glass packaging (vacuum packaging)
3. It has a very high response speed when switching between very low illuminance (full darkness 0 Lux) and instantaneous strong light (illumination light intensity).
4. Small size, the smallest body diameter can reach $\phi 3\text{mm}$, and the maximum volume is only $\phi 25\text{mm}$.
5. It can provide products with a maximum operating voltage of 150 to 400V, and is suitable for operation on 120/240V AC circuits.
6. Easy to use in DC and AC circuits-the photoresistor changes with the change of light.
7. There are many types of visible light sensing to light, such as LED light sources, neon lights, incandescent lights, fluorescent lights, lasers, fire sources, sunlight, etc.
8. Product technical indicators can provide corresponding solutions according to customer requirements

选择光敏电阻 CHOOSE PHOTORESISTOR

如何选择符合您应用程序的光敏电阻需要对光敏电阻的运行和基本工作原理有所了解。这一部分我们来了解光敏电阻的基本工作原理, 来帮助您得到符合应用程序的最佳参数设置。

在选择光导管的时候, 设计工程师一定会考虑两个问题。

- 1、我们最终需要什么性能的光导管 (光敏电阻)
- 2、光导管 (光敏电阻) 必须在何种工作环境下运行。

How to choose a photoresistor that fits your application requires an understanding of the operation and basic working principles of photoresistors. In this part, let's understand the basic working principle of photoresistor to help you get the best parameter settings in line with the application.

When choosing a light pipe, the design engineer will definitely consider two questions.

1. What performance light pipe (photoresistor) do we need?
2. What working environment must the light pipe (photoresistor) operate under?

性能标准 PERFORMANCE STANDARD

相对灵敏度 Relative sensitivity

光敏电阻的相对灵敏度是指光入射到光敏电阻基板表面 (光敏探测部位) 与其之间发出的信号关系。对于光敏电阻来说, 是指入射光与电阻之间产生相对应阻值之间的关系。

The relative sensitivity of a photoresistor refers to the relationship between light incident on the surface of the photoresistor substrate (photosensitive detection part) and the signal sent between it. For photoresistors, it refers to the relationship between the incident light and the resistance between the corresponding resistance values.

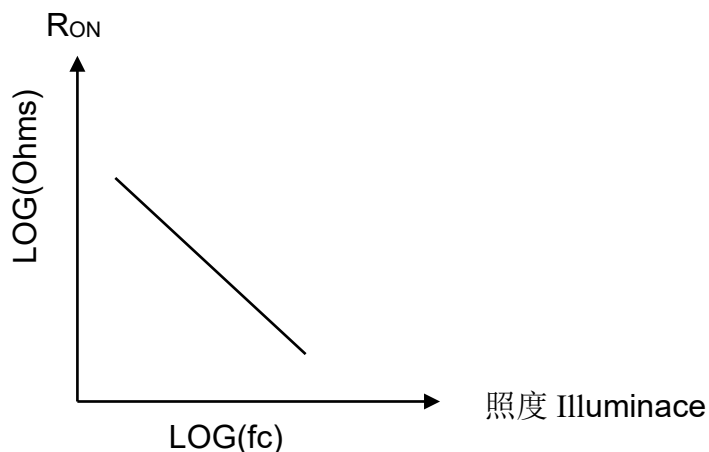


图 1

定义光敏电阻的相对灵敏度需要一种特殊的应用程序，这是选择光敏电阻最难的部分，为了确定其相对灵敏度，必须在一定程度上根据光源的强度和光谱目录描述出光源特征。

在这本产品手册中，你能看到很多关于龙信达科技不同于同参数的光敏电阻曲线图，这些曲线图描述了阻值和光照度之间的对比关系。在这些曲线图中，光的照度单位是 fc 和 lux，以白炽灯为光源，经过特别选定后，在一个黑暗的环境下用色温为 2850k 的白炽灯进行产品测试。通常这种光源我们称之为标准光源。

多年以来，深圳市龙信达科技有限公司通过修改光敏电阻感光部位的化学配方开发出了很多不同的光敏材料。对于一个特定的光敏材料而言，在一个特定的光源环境中，光敏电阻的光电导薄膜会产生特定的表面电阻率，这种电阻是由电极几何原理决定的。

Defining the relative sensitivity of a photoresistor requires a special application. This is the most difficult part of choosing a photoresistor. In order to determine its relative sensitivity, the characteristics of the light source must be described to a certain extent based on the intensity of the light source and the spectral catalog.

In this product manual, you can see many graphs about the photoresistor of Longxinda Technology that are different from the same parameters. These graphs describe the comparative relationship between resistance and illuminance. In these graphs, the illuminance units of light are fc and lux, and incandescent lamps are used as light sources. After special selection, an incandescent lamp with a color temperature of 2850k is used in a dark environment. Line product testing. Usually this kind of light source is called standard light source.

Over the years, Shenzhen Longxinda Technology Co., Ltd. has developed many different photosensitive materials by modifying the chemical formula of the photosensitive part of the photoresistor. For a specific photosensitive material, in a specific light source environment, the photoconductive film of the photosensitive resistor will produce a specific surface resistivity, which is determined by the principle of electrode geometry.

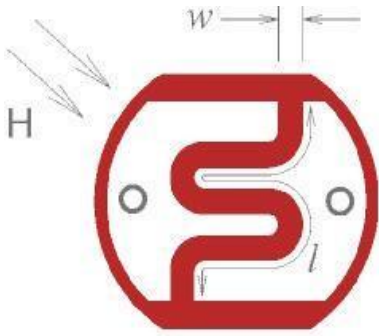


图 2

$$R_H = \rho_H(W/l)$$

R_H : 光照强度为 H 值时, 所产生的阻值.

ρ_H : 光照强度为 H 值时, 受光表面的电阻率

W: 电极宽度

l: 电极长度

$$R_H = \rho_H(W/l)$$

R_H : When the light intensity is H value, the resulting resistance

ρ_H : When the light intensity is H value, the resistivity of the light-receiving surface

W: Electrode width

l : Electrode length

我们可以根据电子工程师不同的需要, 定制不同规格以及技术指标的产品。

We can customize products with different specifications and technical indicators according to the different needs of electronic engineers.

光谱响应: (Spectral response)

光敏电阻的光谱响应特性类似于人眼, 它的灵敏度取决于入射光的波长, 每一种光电材料都有其特定的光谱响应曲线, 与光的波长相对应。

The spectral response characteristic of the photoresistor is similar to that of the human eye, and its sensitivity depends on the wavelength of the incident light. Each photoelectric material has its specific spectral response curve, which corresponds to the wavelength of light.

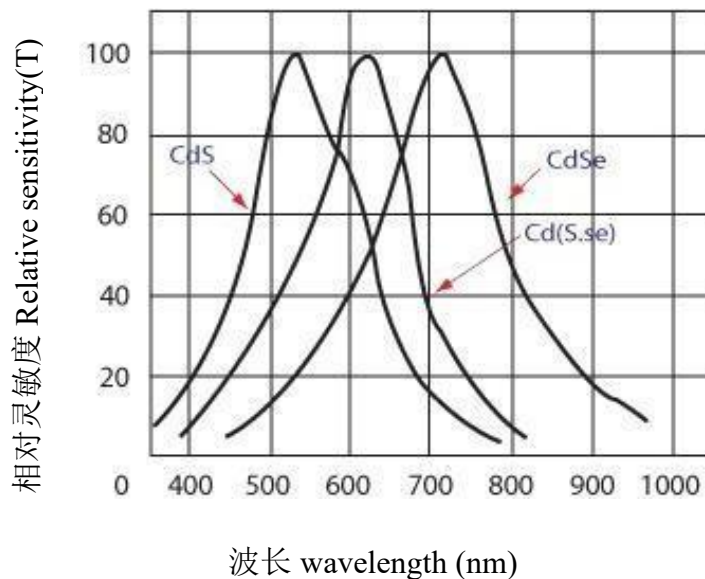


图 3

亮电阻 BRIGHT RESISTANCE

光敏电阻的亮电阻(RL), 简单的说是指当光线照射时, 光敏电阻的电阻值大小。在日常测试中, 影响光敏电阻测试结果误差的因素有很多种, 例如:

1. 光源性质 (自然光、人造光源、白炽灯、日光灯、不同颜色的 LED 光谱均不相同), 可能造成亮电阻阻值参数变化。
2. 电源电压 Vdd 不同。可能影响其亮电阻不同。
3. 光敏电阻接收光源角度不同, 可能导致其亮电阻不同。

为了满足客户需要, 深圳市龙信达科技有限公司的标准光源, 规定在 A 光源下, 色温 $2854\text{k}\pm 50\text{k}$, 照度在 10Lux 下进行测试。根据客户的需要, 可按照客户指定的光源性质和光源强度进行生产作业。

The light resistance (RL) of the photoresistor simply refers to the resistance value of the photoresistor when light is irradiated. In daily tests, there are many factors that affect the error of the photoresistor test results, such as:

1. The nature of the light source (natural light, artificial light source, incandescent lamp, fluorescent lamp, and LEDs of different colors have different spectra), which may cause changes in brightness resistance parameters.
2. The power supply voltage Vdd is different. It may affect the different light resistance
3. The angle of the light-sensitive resistor receiving the light source is different, which may cause its brightness resistance to be different.

In order to meet the needs of customers, the standard light source of Shenzhen Longxinda Technology Co., Ltd. is specified under A light source, the color temperature is $2854\text{k}\pm 50\text{k}$, and the illuminance is tested under 10Lux. According to the needs of customers, production operations can be carried out according to the nature of the light source and the intensity of the light source specified by the customer.

暗电阻 DARK RESISTANCE

顾名思义, 光敏电阻的暗电阻是在 0Lux 照度下的光敏电阻的阻值。在某些应用中非常重要, 我们的暗电阻测试规定, 在关闭 10Lux 光照后第 10 秒的电阻值。

As the name implies, the dark resistance of the photoresistor is the resistance of the photoresistor under 0 Lux illumination. It is very important in some applications. Our dark resistance test stipulates that when the 10Lux is turned off Resistance value at 10 seconds after light exposure.

伽马值 **GAMMA VALUE**

是指 10Lux 和 100Lux 照度下的标准值 $\gamma = \frac{\text{Lon}(R10 / R100)}{\log(100 / 10)} = \log(R10 / R100)$

R10、R100 分别为 10Lux、100Lux 照度下的电阻值 (γ 值的公差为 ± 0.1)

Refers to the standard value under 10Lux and 100Lux illuminance

$$\gamma = \frac{\text{Lon}(R10 / R100)}{\log(100 / 10)} = \log(R10 / R100)$$

R10 and R100 are the resistance values under 10Lux and 100Lux respectively (the tolerance of γ value is ± 0.1)

最大工作电压 **MAXIMUM WORKING VOLTAGE**

最大外加电压在黑暗中可连续实加给元件的最大电压，在任何时我们要考虑光敏电阻的额定电压并在正常工作条件下运行时的那部分所能承受的最大电压。

Maximum applied voltage The maximum voltage that can be continuously applied to the component in the dark. At any time, we must consider the rated voltage of the photoresistor and the maximum voltage that the part can withstand when operating under normal operating conditions.

最大功率损耗 **MAXIMUM POWER LOSS**

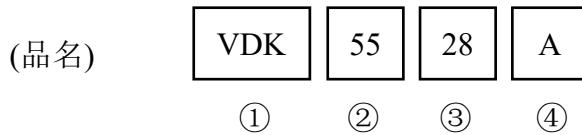
是指环境温度为 25°C 时的最大功率

Refers to the maximum power when the ambient temperature is 25°C

品名表示法

品名表示法

CdS 光敏电阻 (硫化镉光敏电阻) CdS photoresistor (cadmium sulfide photoresistor)



① 公司名称缩写(科森/ Ke Miao) Abbreviation of company name (Ke Miao/ Ke Miao)

② 产品尺寸/系列 Product size / series

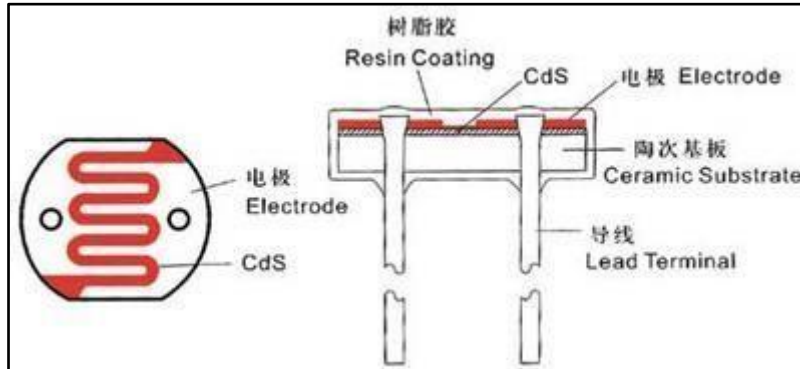
代号(Code)	产品系列	Product Series
35	VDK-3mm 尺寸光敏电阻系列	VDK-3mm size photoresistor series
45	VDK-4mm 尺寸光敏电阻系列	VDK-4mm size photoresistor series
55	VDK-5mm 尺寸光敏电阻系列	VDK-5mm size photoresistor series
56		
75	VDK-7mm 尺寸光敏电阻系列	VDK-7mm size photoresistor series
115	VDK-11mm 尺寸光敏电阻系列	VDK-11mm size photoresistor series
125	VDK-12mm 尺寸光敏电阻系列	VDK-12mm size photoresistor series
205	VDK-20mm 尺寸光敏电阻系列	VDK-20mm size photoresistor series
255	VDK-25mm 尺寸光敏电阻系列	VDK-25mm size photoresistor series

③ 物料编号 Item number

④ 个别规格 Individual specifications

代号(Code)	产品系列	Product Series
无/null	标准型	Standard
A	较高特性品	Higher characteristic products
B		
D	高阻值	High resistance
F	复合型光敏电阻(DIP-3)	Composite photoresistor (DIP-3)

产品结构分析

结构示意图
SCHEMATIC

产品构件信息
PRODUCT COMPONENT INFORMATION

构件名称 Component name	是否符合 ROHS 指令 Whether it complies with the ROHS directive	声明 statement
树脂胶 Resin glue	是 /YES	-
CdS	否 /NO	“镉”成分含量超标 “Cadmium” content exceeds the standard
电极 electrode	否 /NO	-
陶瓷基板 Ceramic substrate	是 /YES	-
引线 lead	否 /NO	-

注:由于 CDS 光敏电阻含有重金属“镉”,因此根据欧盟议会和欧盟理事会通过了 2002/95/EC 指令,即“在电子电气设备中限制使用些有害物质指令”此产品非环保类产品。

Note: Since CDS photoresistors contain heavy metal "cadmium", according to the European Parliament and the Council of the European Union passed the 2002/95/EC Directive, that is, the "Directive on Restricting the Use of Certain Hazardous Substances in Electrical and Electronic Equipment", this product is not an environmentally friendly product.

VDK35 系列

产品特点

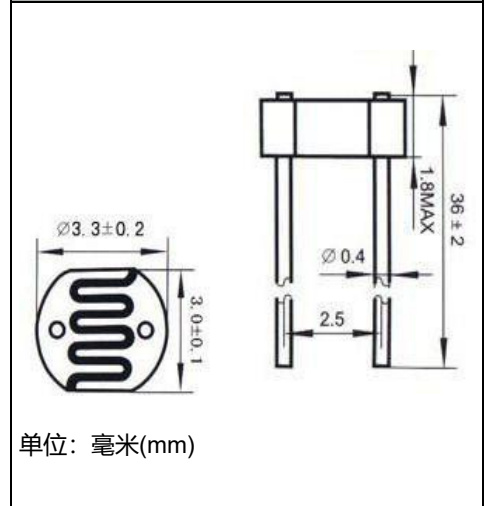
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/Substrate:L3. 3mm±0.2mmxW3.0mm±0.1mmx H2.4mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.4mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- | | |
|-----------------------------|--------------------------|
| • 照相机自动测光 | • 光电控制 |
| • 室内光线控制 | • 光控音乐 IC |
| • 工业控制 | • 光控开关 |
| • 光控灯 | • 电子玩具 |
| • Camera automatic metering | • Photoelectric control |
| • Indoor light control | • Light control Music IC |
| • industrial control | • Light control switch |
| • Light control lamp | • electronic toy |



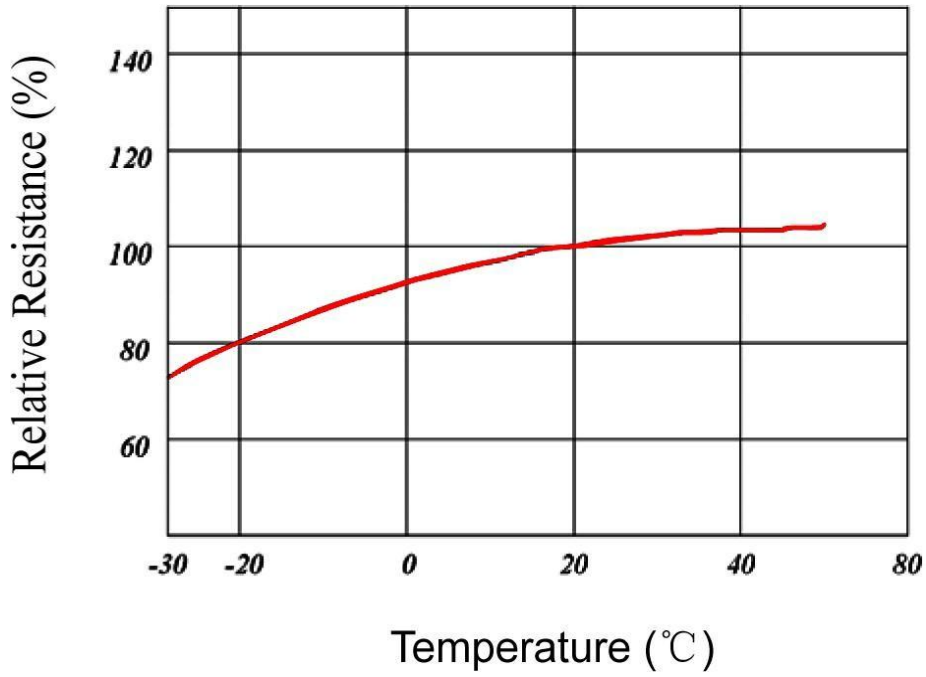
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度 (°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KΩ)	暗电阻 (0 Lux/最小值) (MΩ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KΩ)	Dark resistance (0 Lux/minimum) (MΩ)		rise	decline	Illumination characteristic graph Fig. No.
VDK3516	100	50	30~70	540	5-10	0.6	0.5	30	30	1
VDK3526					10-20	1	0.6			2
VDK3537A					20-30	2	0.6			3
VDK3537B					30-50	3	0.7			3
VDK3548A					50-100	5	0.8			4
VDK3548B					100-200	10	0.9			5

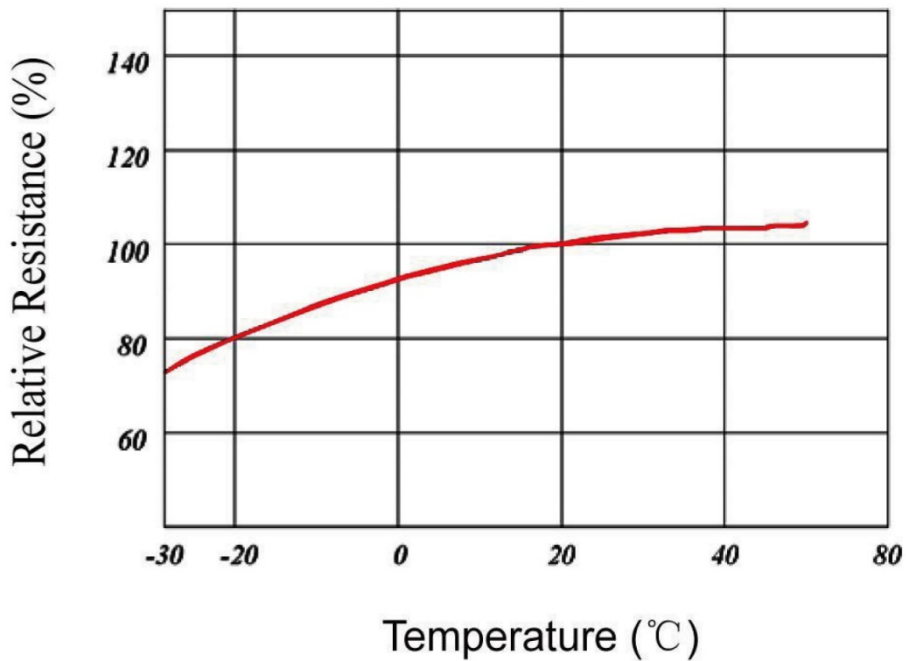
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS

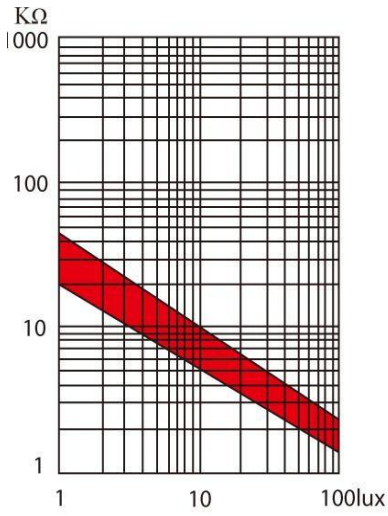


Fig. 1

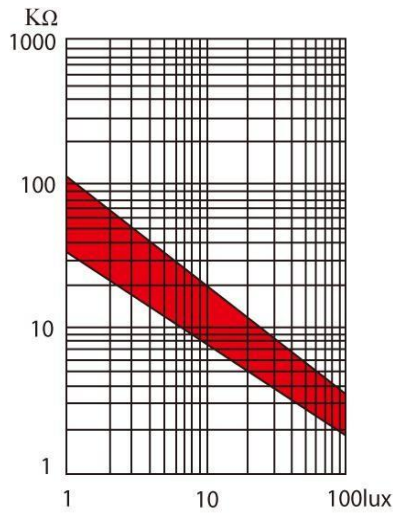


Fig. 2

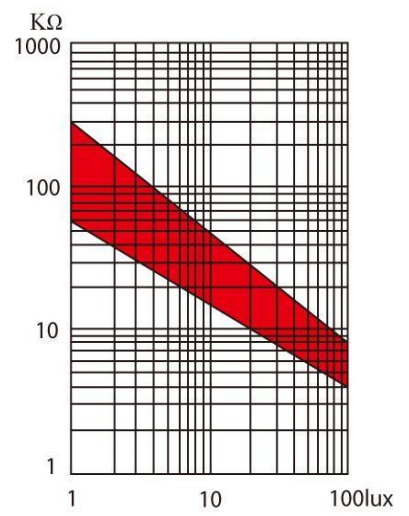


Fig. 3

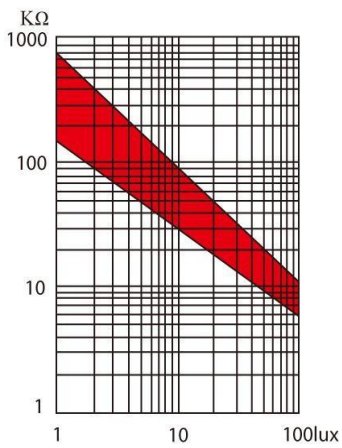


Fig. 4

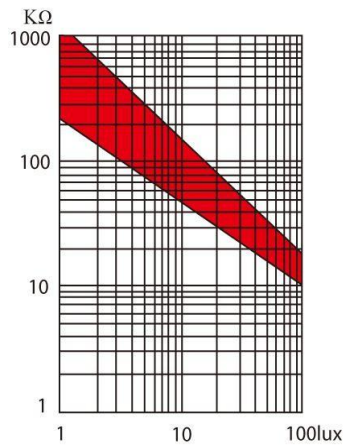


Fig. 5

VDK45 系列

产品特点

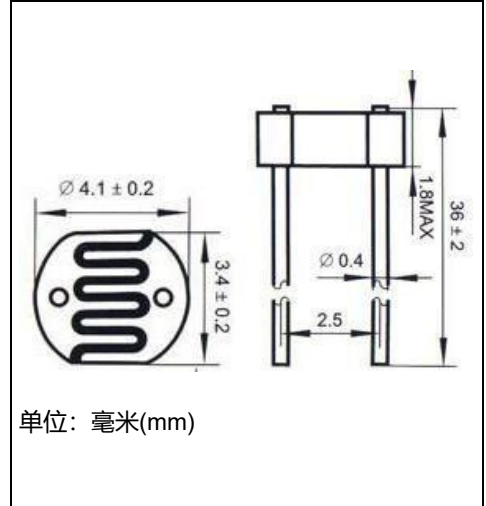
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L4.1mm±0.2mmxW3.4mm±0.2mmx
H1.8mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.4mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- | | |
|-----------------------------|--------------------------|
| • 照相机自动测光 | • 光电控制 |
| • 室内光线控制 | • 光控音乐 IC |
| • 工业控制 | • 光控开关 |
| • 光控灯 | • 电子玩具 |
| • Camera automatic metering | • Photoelectric control |
| • Indoor light control | • Light control Music IC |
| • industrial control | • Light control switch |
| • Light control lamp | • electronic toy |



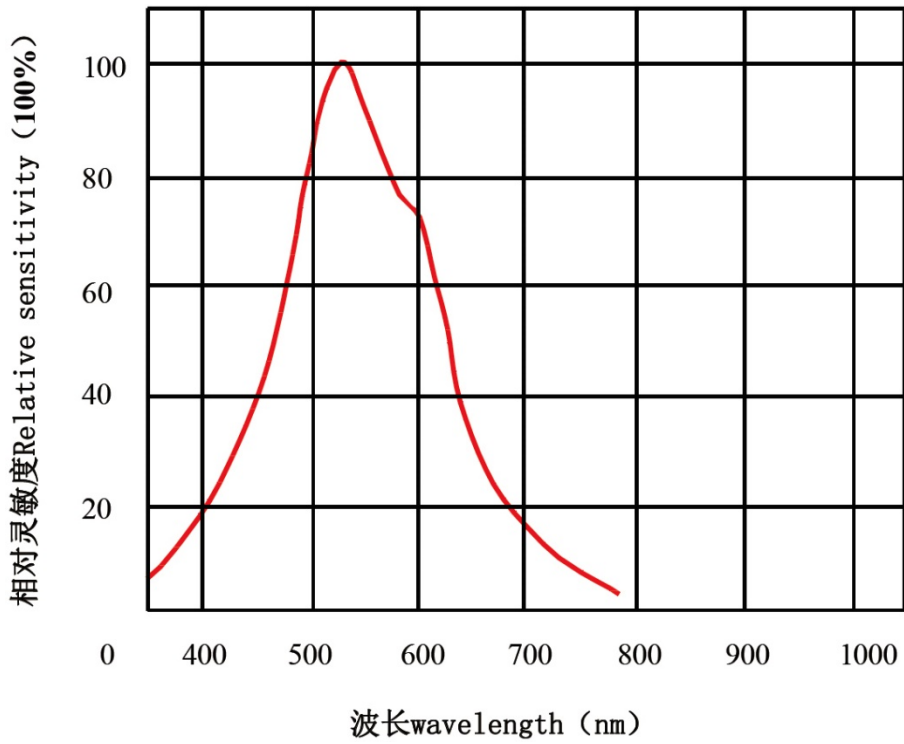
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度(°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK4506	100	50	-30~70	540	2-8	0.2	0.5	30	30	1
VDK4516					5-10	0.2	0.5			1
VDK4526					10-20	1	0.6			2
VDK4537A					20-30	2	0.6			3
VDK4537B					30-50	3	0.7			3
VDK4548A					50-100	5	0.8			4
VDK4548B					100-200	10	0.8			5

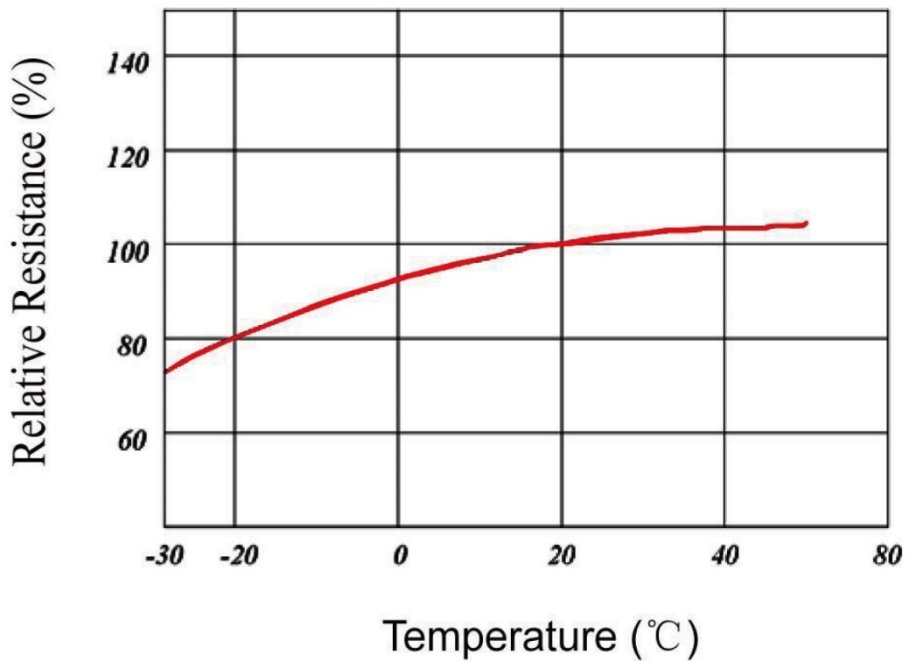
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS

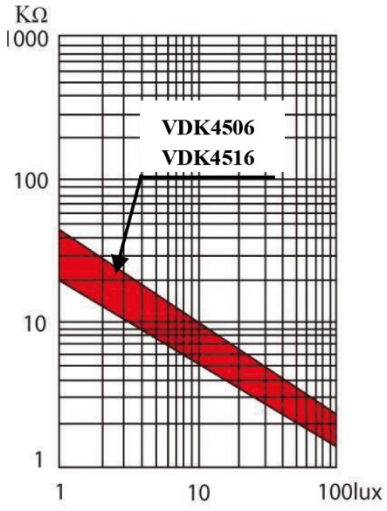


Fig. 1

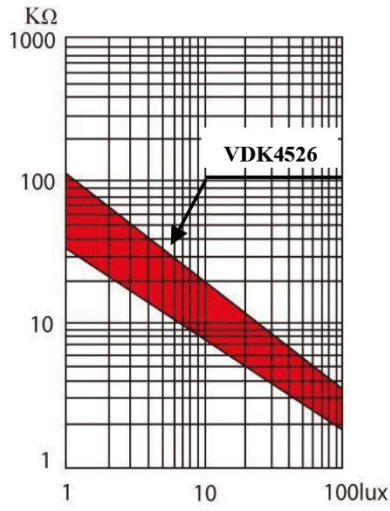


Fig. 2

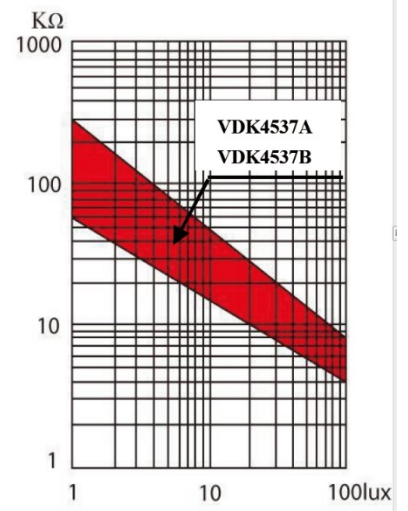


Fig. 3

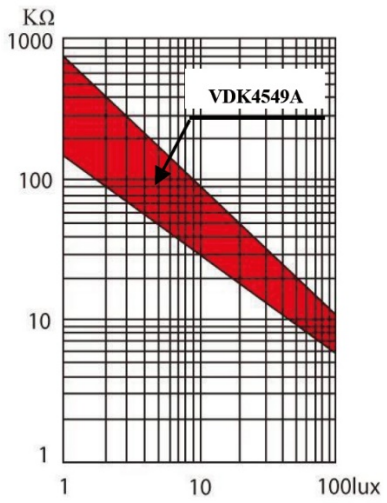


Fig. 4

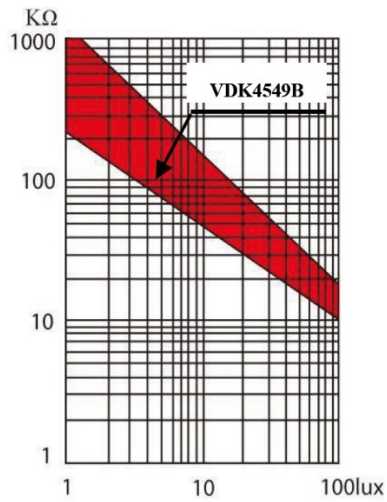


Fig. 5

VDK55 系列/ VDK56 系列

产品特点

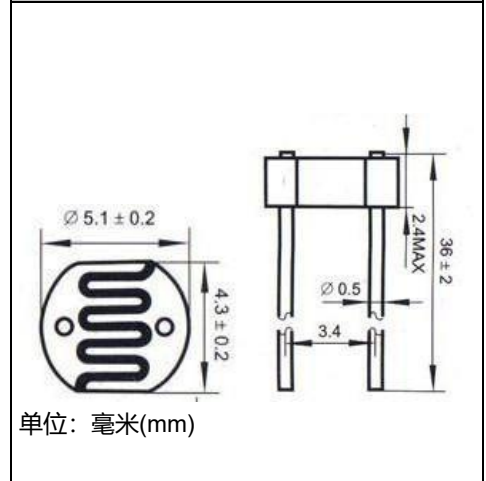
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L5.1mm±0.2mmxW3.4mm±0.2mmx
H2.4mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: ϕ 0.5mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- | | |
|-----------------------------|--------------------------|
| • 照相机自动测光 | • 光电控制 |
| • 室内光线控制 | • 光控音乐 IC |
| • 工业控制 | • 光控开关 |
| • 光控灯 | • 电子玩具 |
| • Camera automatic metering | • Photoelectric control |
| • Indoor light control | • Light control Music IC |
| • industrial control | • Light control switch |
| • Light control lamp | • electronic toy |



技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度(°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.		
								上升	下降			
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.		
VDK5506	150	90	-30~+70	540	2-6	0.2	0.6	30	30	1		
VDK5516					5-10	0.2	0.6					
VDK5528	150	100			-30~+70	540	8-20	1.0	0.7	20	30	2
VDK5537							18-50	2.0	0.7			
VDK5539							30-90	2.0	0.8			
VDK5549							45-140	10.0	0.8			
VDK5516D	150	100			-30~+70	540	5-10	1.0	0.6	20	30	1
VDK5626D							8-20	2.0	0.6			
VDK5637D							18-50	5.0	0.7			
VDK5639D							30-90	5.0	0.8			
VDK5649D			45-160	20.0			0.8					

VDK55-F 系列

产品特点

PRODUCT FEATURES

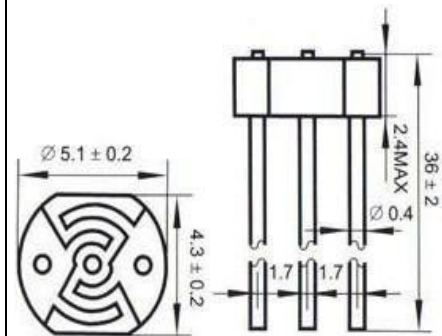
- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L5.1mm±0.2mmxW4.3mm±0.2mmx
H2.4mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.5mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics



典型应用

TYPICAL APPLICATION

- | | |
|-----------------------------|--------------------------|
| • 照相机自动测光 | • 光电控制 |
| • 室内光线控制 | • 光控音乐 IC |
| • 工业控制 | • 光控开关 |
| • 光控灯 | • 电子玩具 |
| • Camera automatic metering | • Photoelectric control |
| • Indoor light control | • Light control Music IC |
| • industrial control | • Light control switch |
| • Light control lamp | • electronic toy |



单位: 毫米(mm)

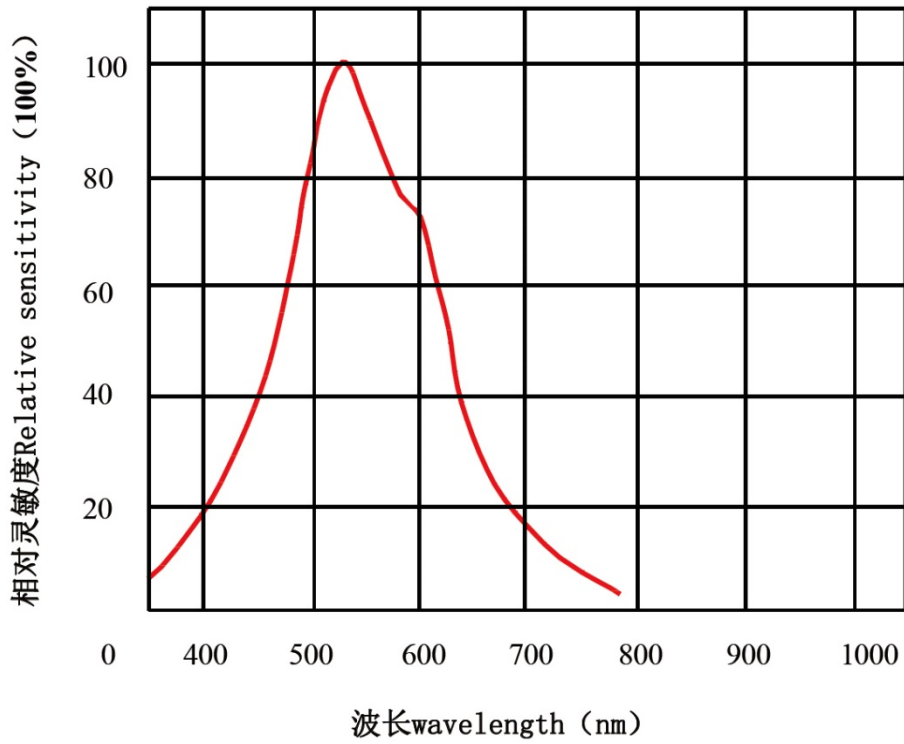
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温 度(°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms) Response time (ms)		照度特性 图 Fig. No.
								上升 rise	下降 decline	
Product number	Maximum voltage (VDC)	Maximum power consumptio n (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)				Illumination characterist ic graph Fig. No.
VDK5526F	150	100	-30~+70	540	8-20	0.5	0.6	30	30	2
VDK5537F					18-50	1.0	0.7			3
VDK5549F					45-140	5.0	0.8			5

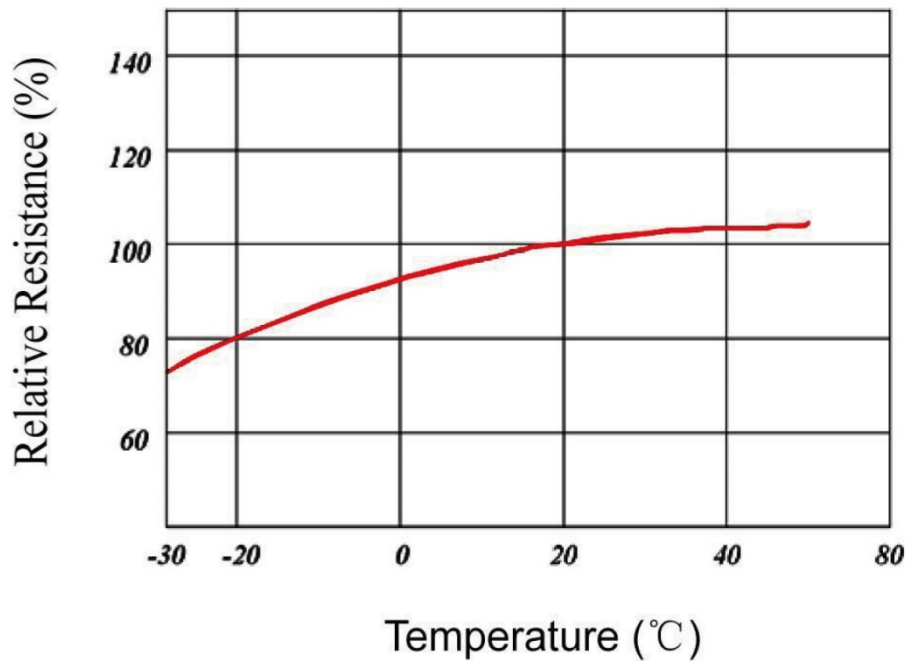
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



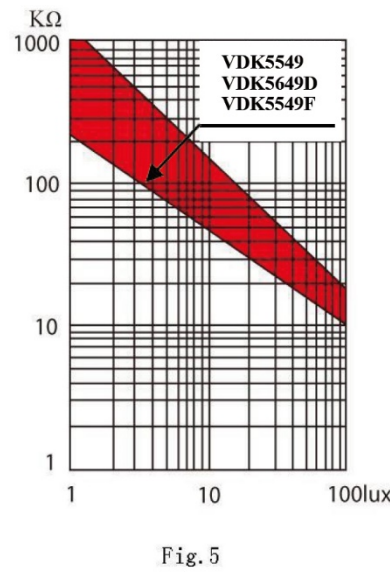
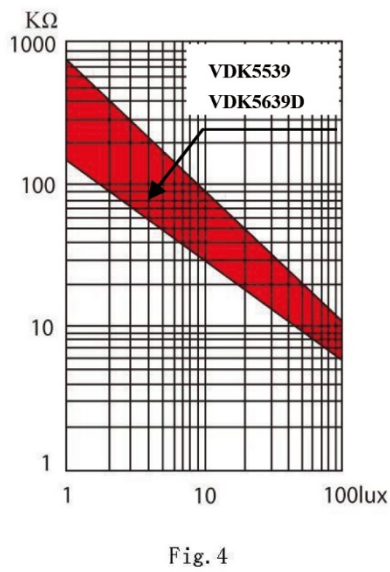
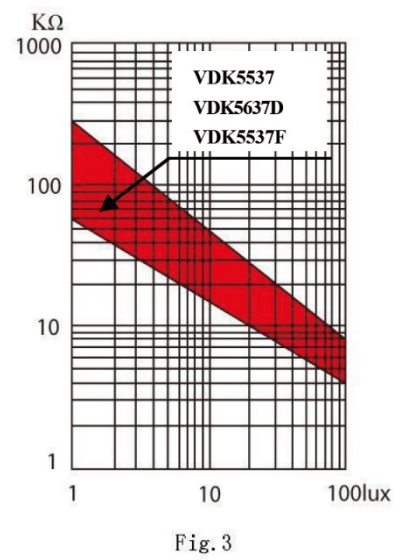
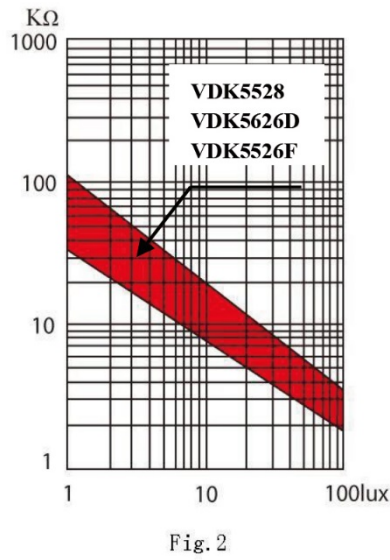
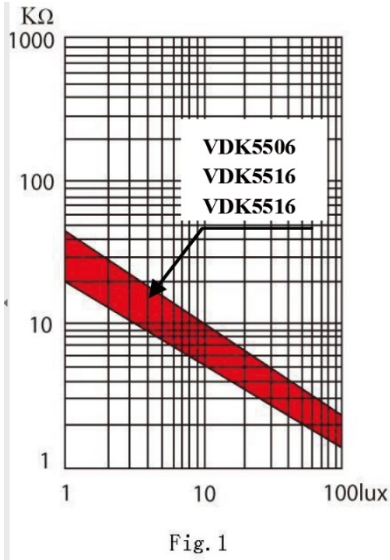
温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS



VDK75 系列

产品特点

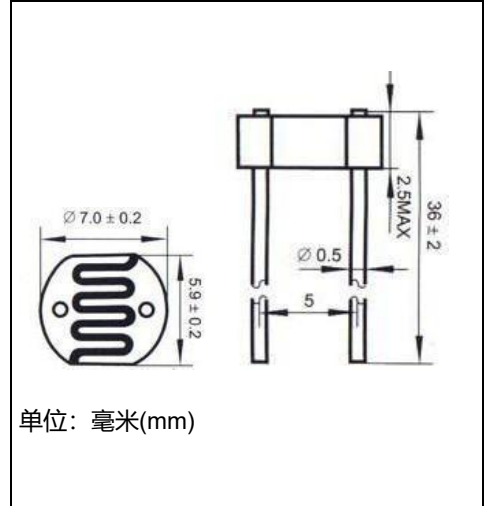
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L7.0mm±0.2mmxW5.9mm±0.2mmx
H2.5mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.5mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- 照相机自动测光
- 室内光线控制
- 工业控制
- 光控灯
- Camera automatic metering
- Indoor light control
- industrial control
- Light control lamp
- 光电控制
- 光控音乐 IC
- 光控开关
- 电子玩具
- Photoelectric control
- Light control Music IC
- Light control switch
- electronic toy



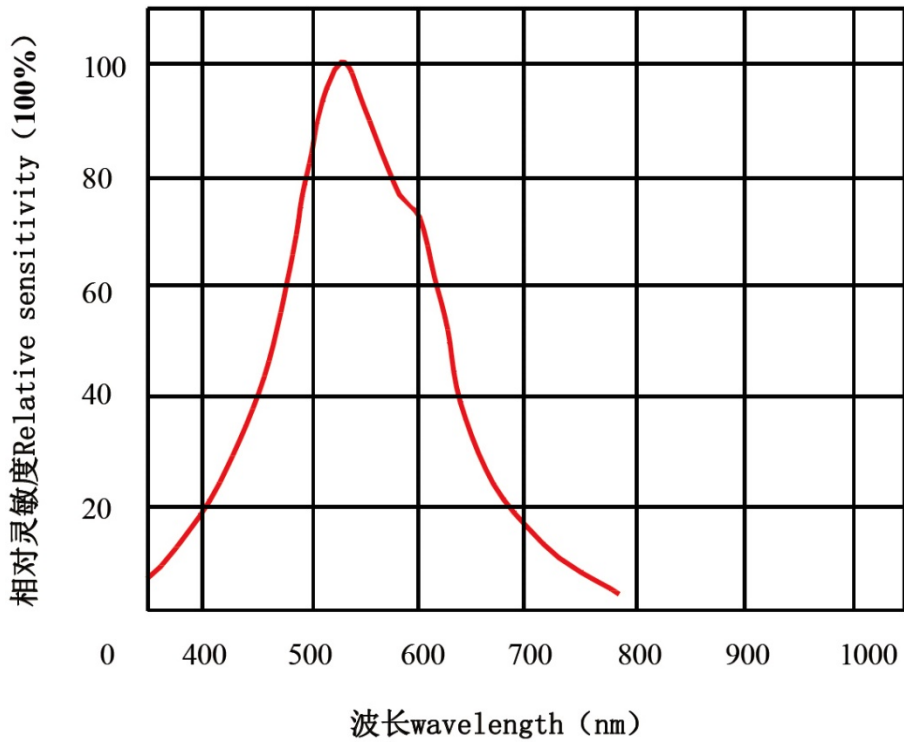
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度(°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK7516	150	150	-30~+70	540	5-10	0.6	0.5	30	30	1
VDK7528					10-20	1	0.6			2
VDK7537A					20-30	2	0.6			3
VDK7537B					30-50	3	0.7			3
VDK7548A					50-100	5	0.8			4
VDK7548B					100-200	10	0.9	5		
VDK7638					18-50	2	0.6	20	30	3
VDK7649					45-140	10	0.9	20	30	5

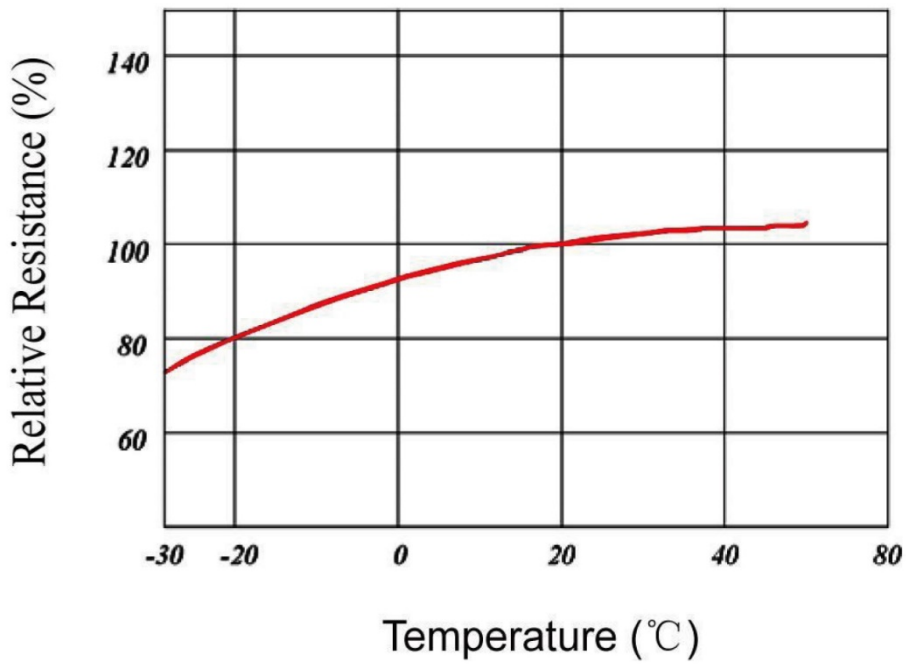
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



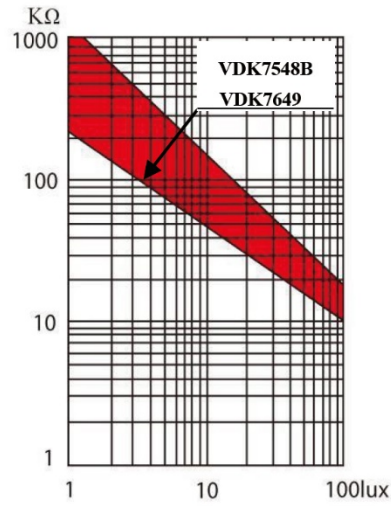
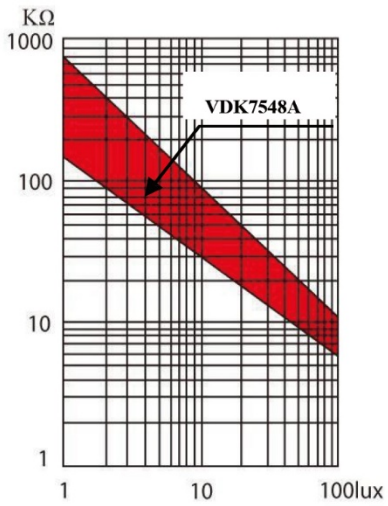
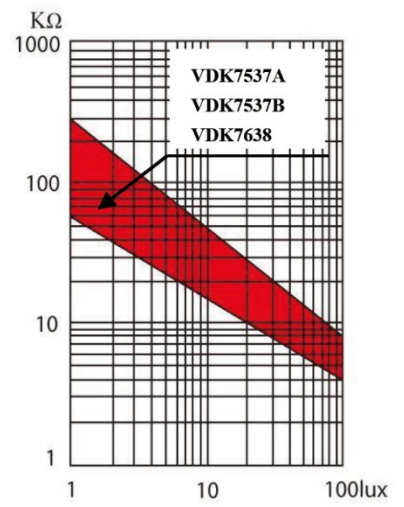
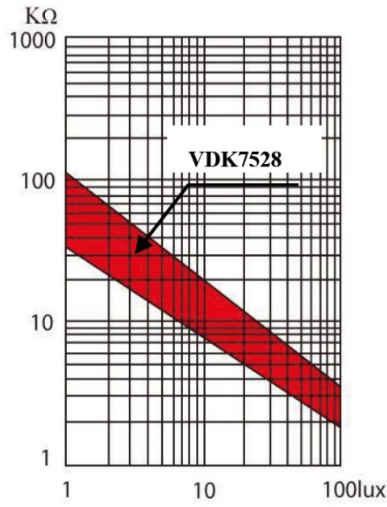
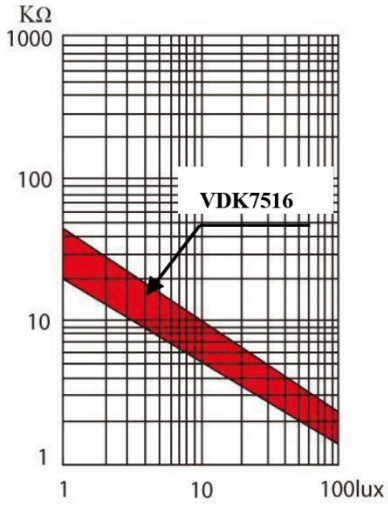
温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS



VDK115 系列

产品特点

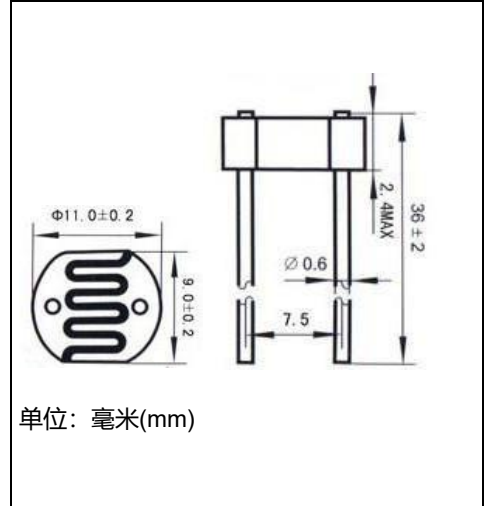
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L11.0mm±0.2mmxW9.0mm±0.2mmx
H2.4mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.6mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- 照相机自动测光
- 室内光线控制
- 工业控制
- 光控灯
- Camera automatic metering
- Indoor light control
- industrial control
- Light control lamp
- 光电控制
- 光控音乐 IC
- 光控开关
- 电子玩具
- Photoelectric control
- Light control Music IC
- Light control switch
- electronic toy



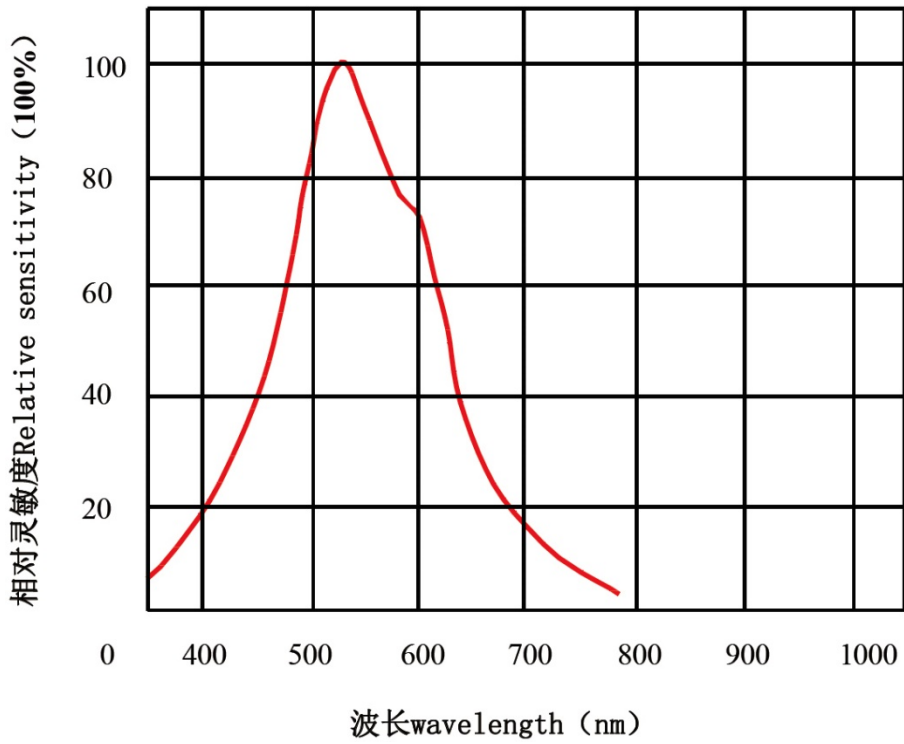
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度 (°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK11516	250	200	-30~+70	560	5-10	0.6	0.5	30	30	1
VDK11528					10-20	1	0.6			2
VDK11537A					20-30	2	0.6			3
VDK11537B					30-50	3	0.7			3
VDK11548A					50-100	5	0.8			4
VDK11548B					100-200	10	0.9			5

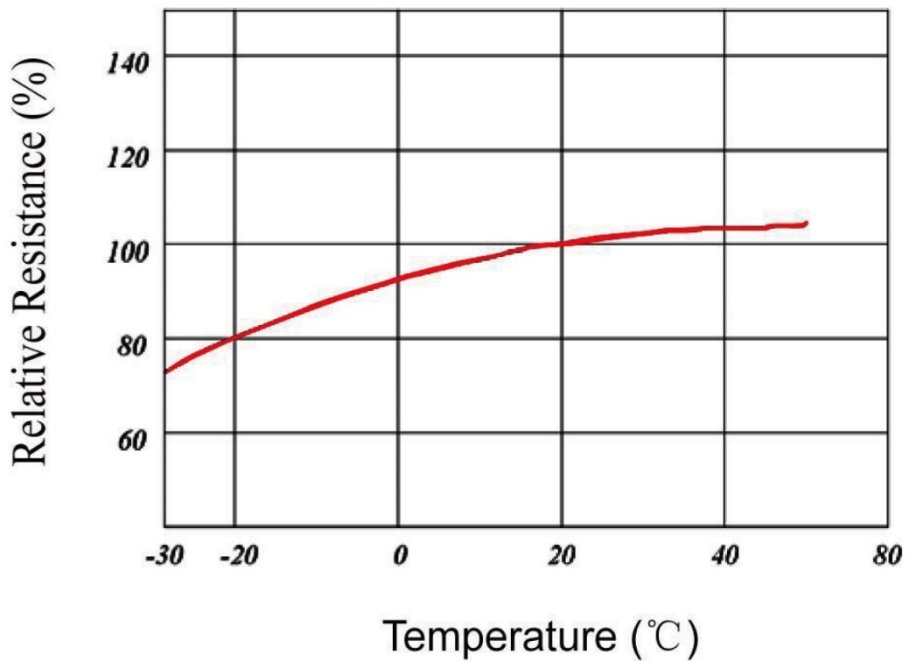
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS

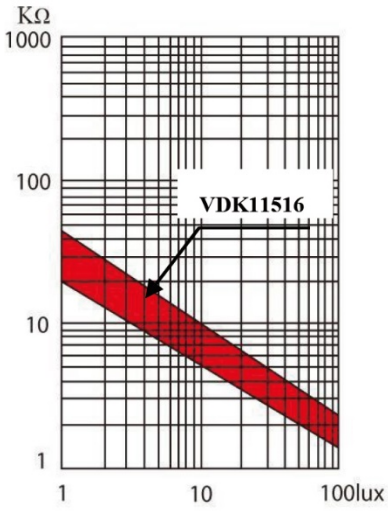


Fig. 1

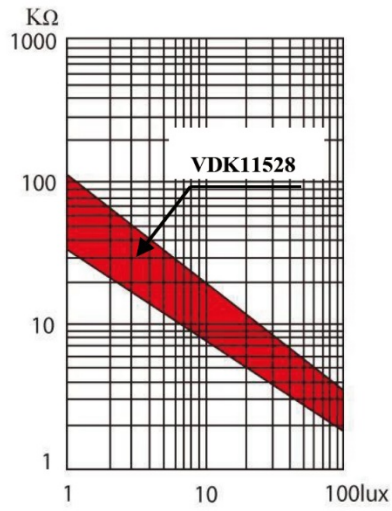


Fig. 2

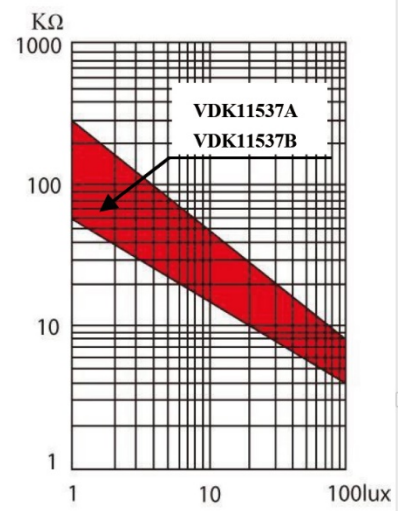


Fig. 3

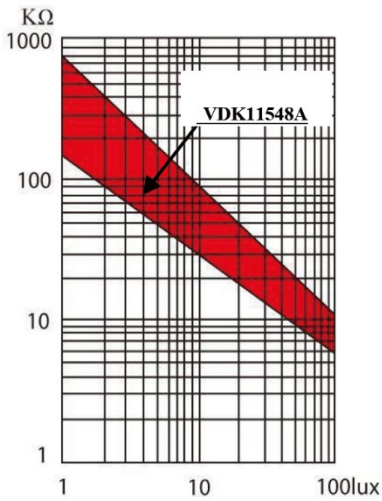


Fig. 4

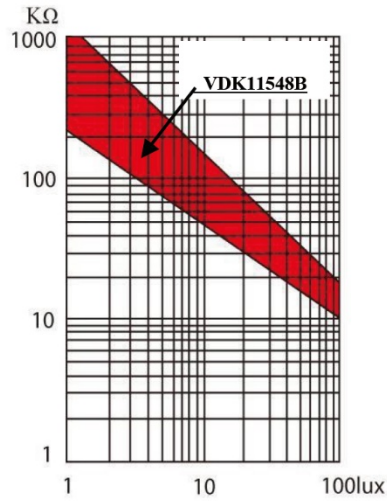


Fig. 5

VDK125 系列

产品特点

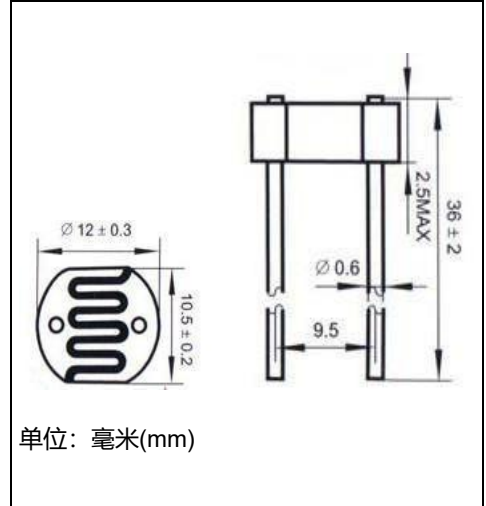
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L12.0mm±0.2mmxW10.0mm±0.2mmx
H2.5mm
引线长/Lead length:L36mm±2mm
引线直径/Lead diameter: φ0.6mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- 照相机自动测光
- 室内光线控制
- 工业控制
- 光控灯
- Camera automatic metering
- Indoor light control
- industrial control
- Light control lamp
- 光电控制
- 光控音乐 IC
- 光控开关
- 电子玩具
- Photoelectric control
- Light control Music IC
- Light control switch
- electronic toy



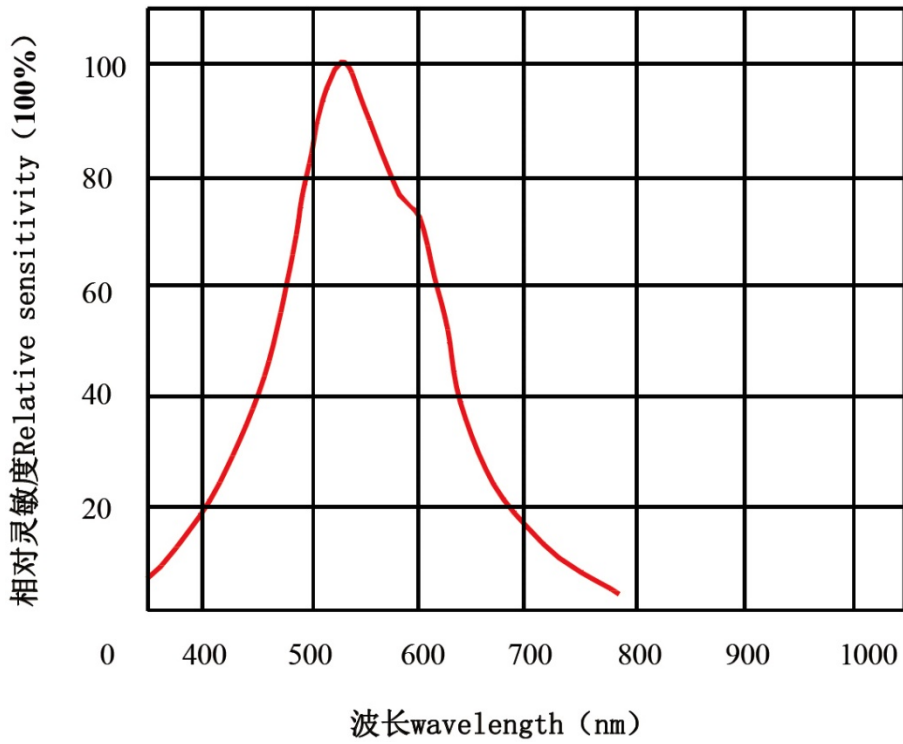
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度 (°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK12516	250	200	-30~+70	560	5-10	0.6	0.5	30	30	1
VDK12528					10-20	1.0	0.6			2
VDK12537A					20-30	2.0	0.6			3
VDK12537B					30-50	3.0	0.7			3
VDK12548A					50-100	5.0	0.8			4
VDK12548B					100-200	10.0	0.9			5

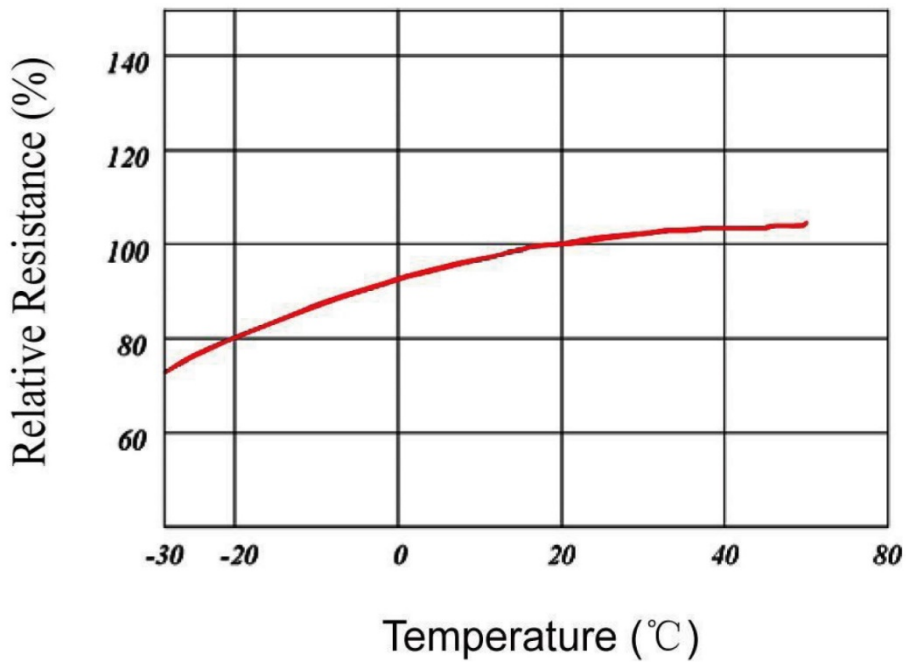
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



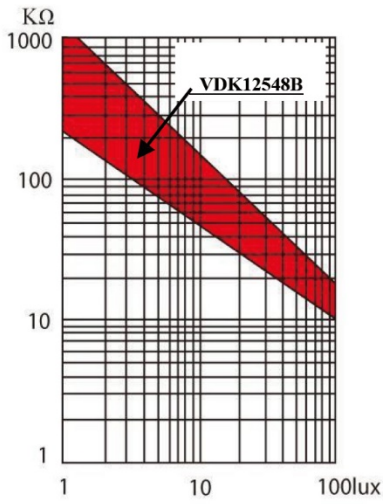
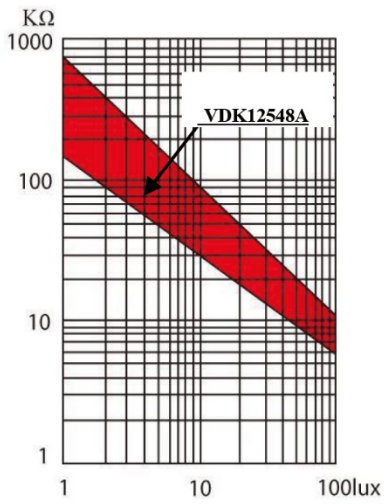
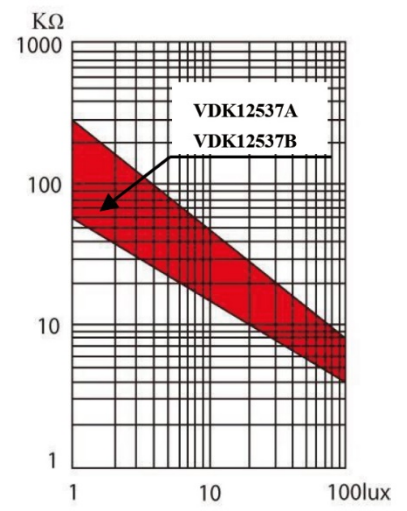
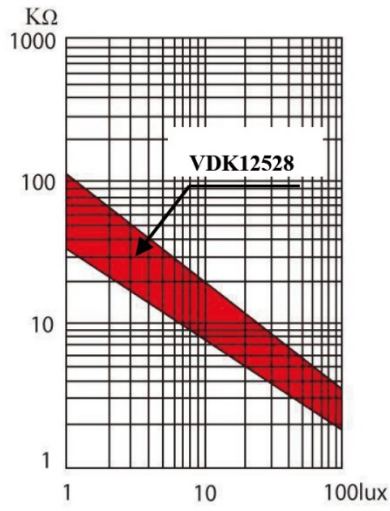
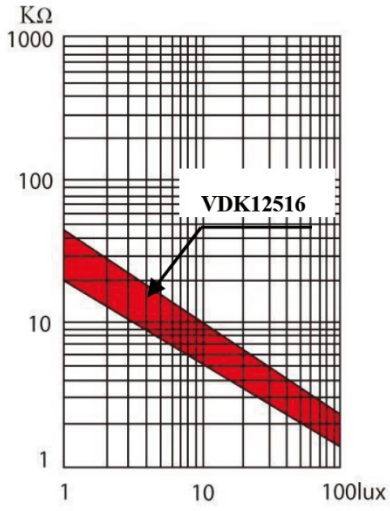
温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS



VDK205 系列

产品特点

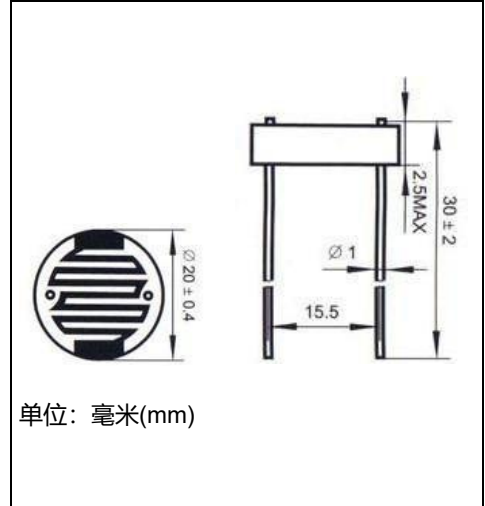
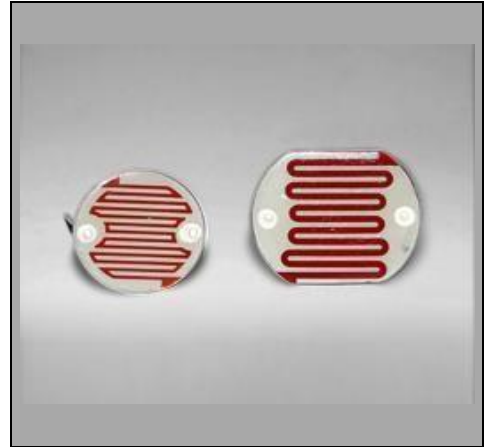
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L20.0mm±0.4mmx H2.5mm
引线长/Lead length:L30mm±2mm
引线直径/Lead diameter: ϕ 1.0mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- | | |
|-----------------------------|--------------------------|
| • 照相机自动测光 | • 光电控制 |
| • 室内光线控制 | • 光控音乐 IC |
| • 工业控制 | • 光控开关 |
| • 光控灯 | • 电子玩具 |
| • Camera automatic metering | • Photoelectric control |
| • Indoor light control | • Light control Music IC |
| • industrial control | • Light control switch |
| • Light control lamp | • electronic toy |



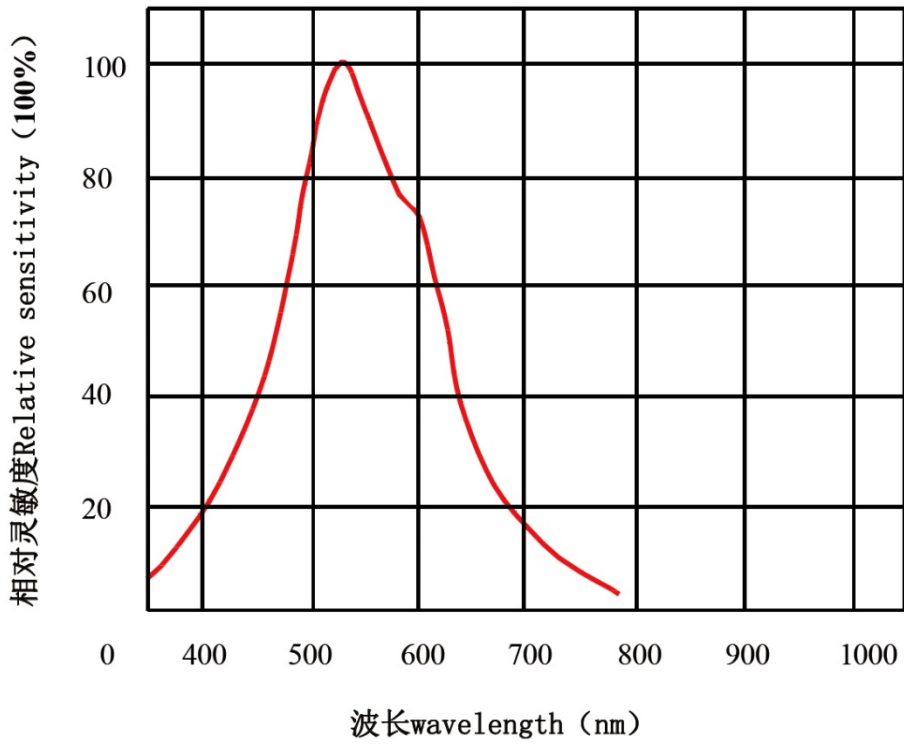
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度 (°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	$\gamma \frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK20516	500	500	-30~+70	560	5-10	0.6	0.5	30	30	1
VDK20528					10-20	1.0	0.6			2
VDK20537A					20-30	2.0	0.6			3
VDK20537B					30-50	3.0	0.7			3
VDK20548A					50-100	5.0	0.8			4
VDK20548B					100-200	10.0	0.9			5

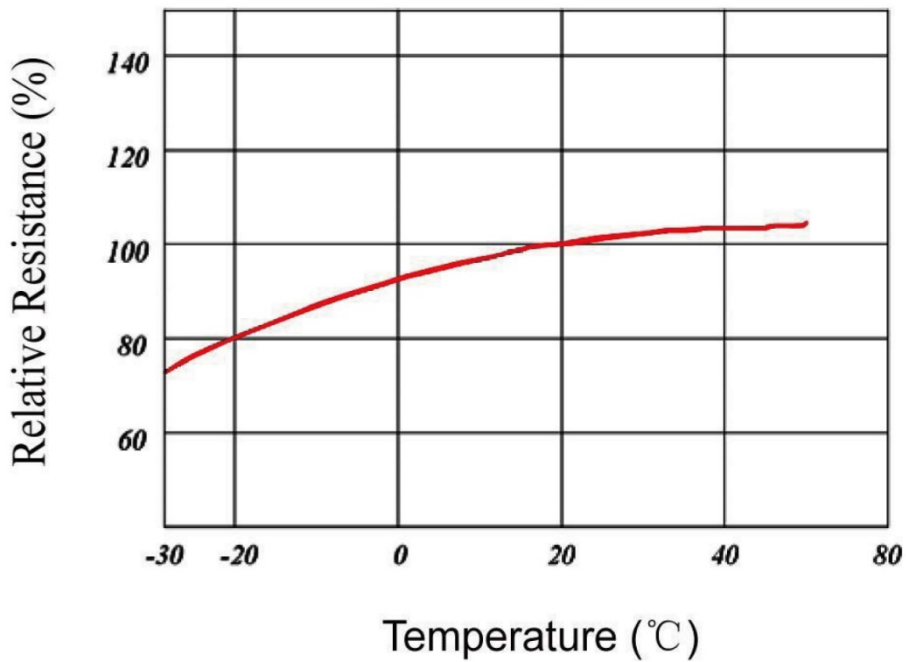
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



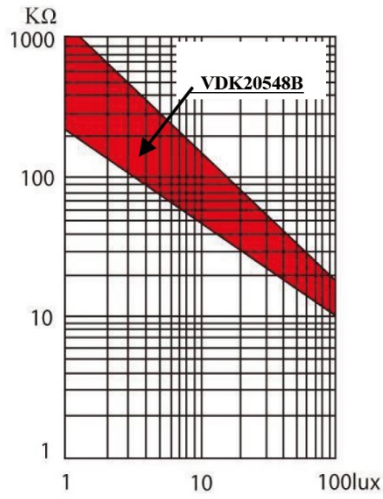
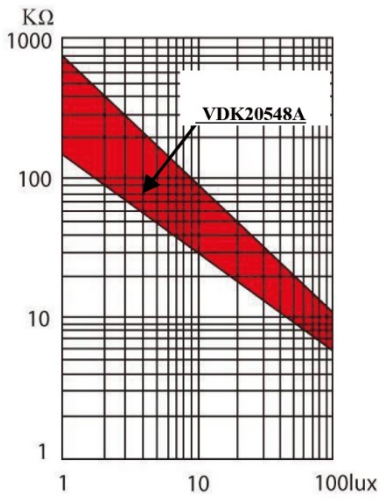
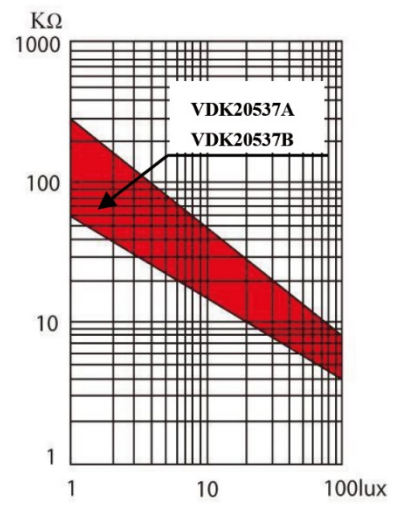
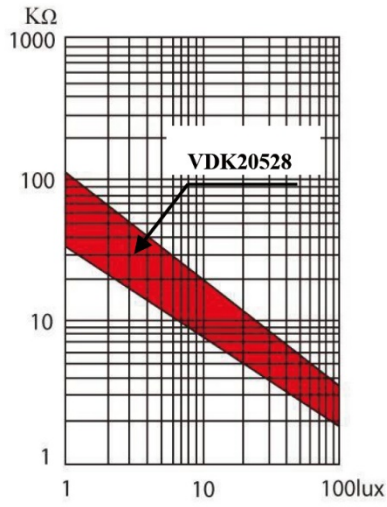
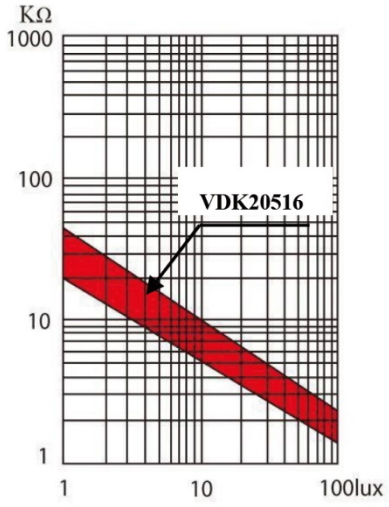
温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE



照度—电阻特性

ILLUMINANCE—RESISTANCE CHARACTERISTICS



VDK255 系列

产品特点

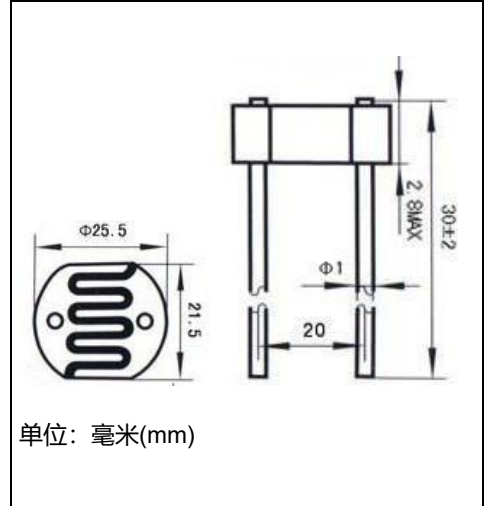
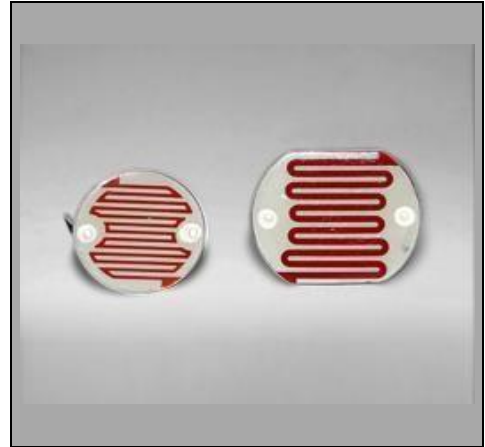
PRODUCT FEATURES

- 环氧树脂封装/Epoxy encapsulation
- 反应速度快/Fast response
- 体积小, 最大外形尺寸为/Small size, the maximum size is
基板/ Base plate:L25.5mmxW21.5mmxH2.8mm
引线长/Lead length:L30mm±2mm
引线直径/Lead diameter: ϕ 1.0mm
- 灵敏度高/high sensitivity
- 可靠性好/Good reliability
- 光谱特性好/Good spectral characteristics

典型应用

TYPICAL APPLICATION

- 照相机自动测光
- 室内光线控制
- 工业控制
- 光控灯
- Camera automatic metering
- Indoor light control
- industrial control
- Light control lamp
- 光电控制
- 光控音乐 IC
- 光控开关
- 电子玩具
- Photoelectric control
- Light control Music IC
- Light control switch
- electronic toy



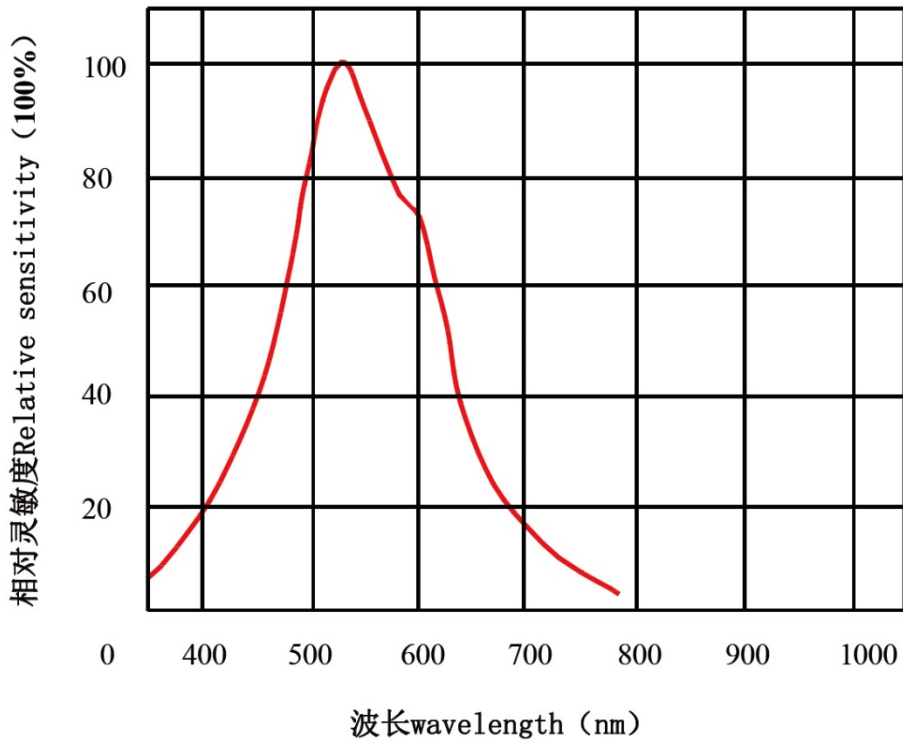
技术参数

TECHNICAL PARAMETER

产品型号	最大电压 (VDC)	最大功耗 (mW)	环境工作温度 (°C)	峰值波长 (nm)	亮电阻 (10Lux 光源下) (KQ)	暗电阻 (0 Lux/最小值) (MQ)	γ $\frac{100}{10}$	响应时间 (ms)		照度特性图 Fig. No.
								上升	下降	
Product number	Maximum voltage (VDC)	Maximum power consumption (mW)	Environmental working temperature (°C)	Peak wavelength (nm)	Bright resistance (Under 10Lux light source) (KQ)	Dark resistance (0 Lux/minimum) (MQ)		rise	decline	Illumination characteristic graph Fig. No.
VDK25516	500	500	-30~+70	560	5-10	0.6	0.5	30	30	1
VDK25528					10-20	1.0	0.6			2
VDK25537A					20-30	2.0	0.6			3
VDK25537B					30-50	3.0	0.7			3
VDK25548A					50-100	5.0	0.8			4
VDK25548B					100-200	10.0	0.9			5

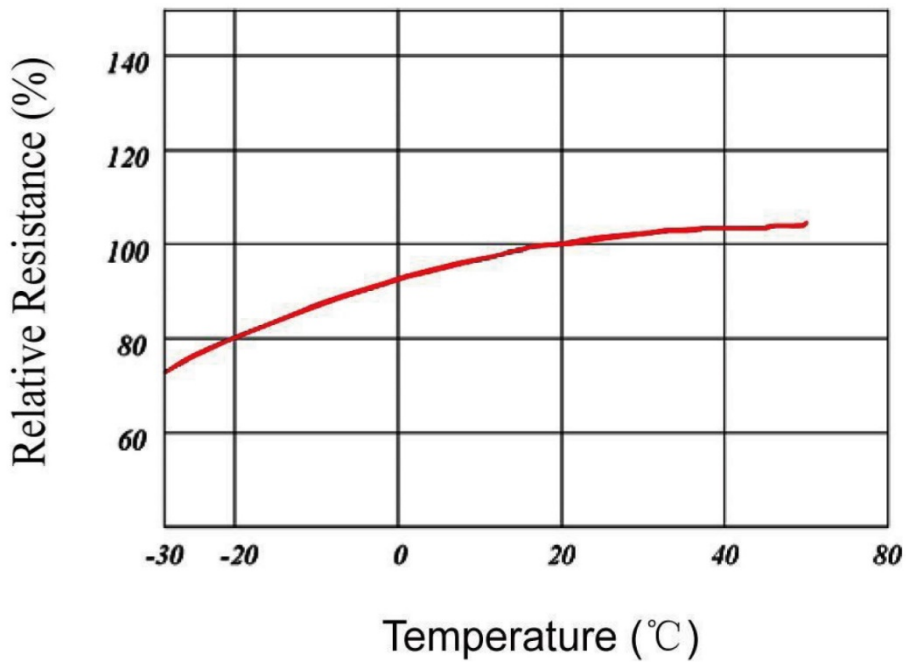
光谱响应特性曲线

SPECTRAL RESPONSE CHARACTERISTIC CURVE



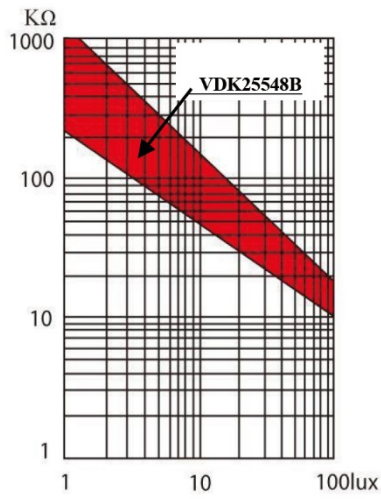
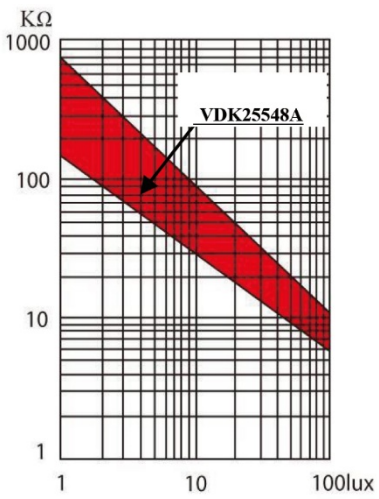
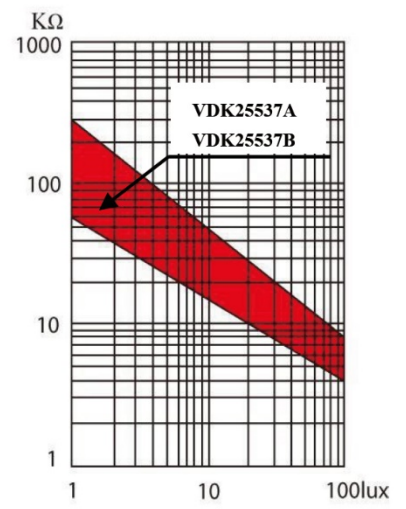
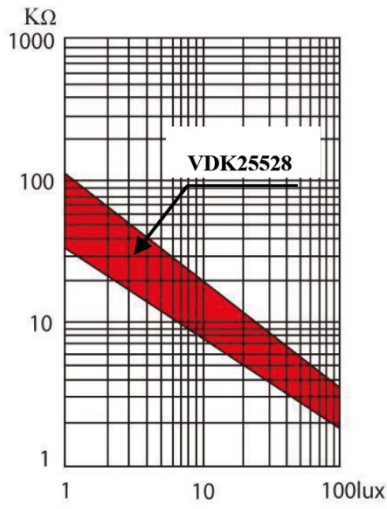
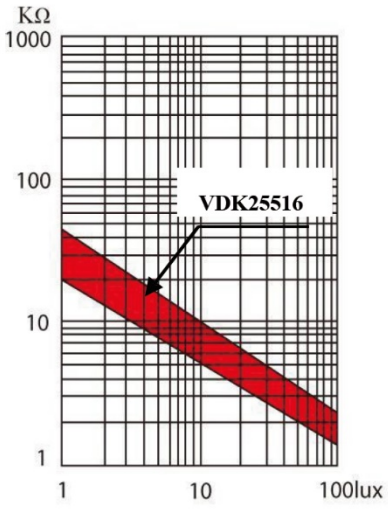
温度—电阻特性曲线

TEMPERATURE-RESISTANCE CHARACTERISTIC CURVE

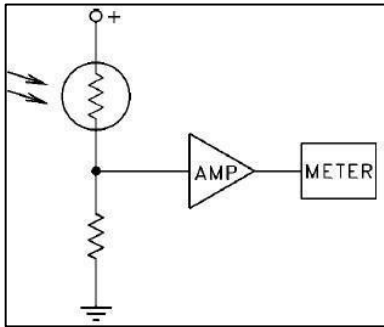


照度—电阻特性

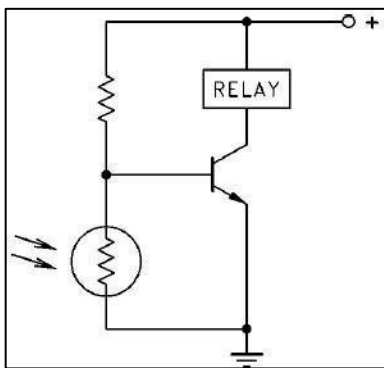
ILLUMINANCE—RESISTANCE CHARACTERISTICS



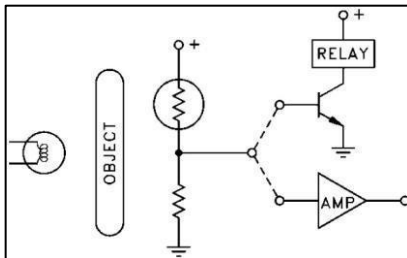
Cds 光敏电阻 - 典型应用电路



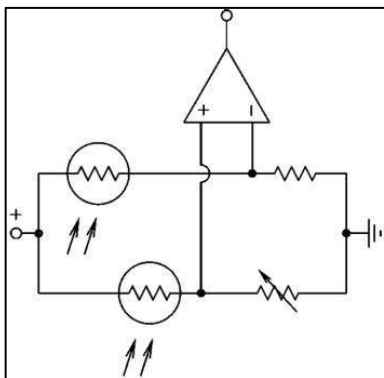
适用于环境光探测照相机自动曝光，亮度控制等。
Suitable for automatic exposure and brightness control of ambient light detection cameras.



适用于背光控制，光调节器等。
Suitable for backlight control, light regulator, etc.



适用于光控小夜灯，路灯控制，火焰探测器，物体感应/测量，安防系统，色度检测设备，密度计等。
It is suitable for light control night light, street light control, flame detector, object sensing/measurement, security system, color detection equipment, density meter, etc.



亮度控制，自动对焦，电子秤，光控系统等。
Brightness control, auto focus, electronic scale, light control system, etc.

CdS 光敏电阻 - VDK 系列物理和环境特性测试方法

物理和环境特性测试方法

PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS TEST METHODS

测试项目 Test items	测试条件 Test Conditions		判定结果 judgement result
亮电阻 暗电阻 Bright resistance Dark resistance	亮电阻: A 光源(2856K) 10Lux 的值 暗电阻: 关闭 10Lux 光照 10 秒的电阻值 $r=Lg (R10/R100)$	Bright resistance: A light source (2856K) 10Lux value Dark resistance: turn off 10Lux light Resistance value for 10 seconds $r=Lg (R10/R100)$	功能保证 Function guarantee
温度化试验 Temperature change test	高温: $70^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 时间:30 分钟 照射光:黑暗放置 试验时间:24 小时 低温: $-30^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 时间:30 分钟 照射光:黑暗放置以上为一个循环试验时间 24 小时	High temperature: $70^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Time: 30 minutes Irradiation light: placed in the dark Test time: 24 hours Low temperature: $-30^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Time: 30 minutes Irradiation light: placed in the dark above is a cycle test time of 24 hours	功能保证 Function guarantee
恒定温热试验 Constant temperature test	温湿度: $40\pm 5^{\circ}\text{C}$ 90 - 95% 照射光:黑暗放置 试验时间:48 小时	Temperature and humidit : $40\pm 5^{\circ}\text{C}$ 90-95% Irradiation light: dark place Test time: 48 hours	功能保证 Function guarantee
引线高温试验 Lead high temperature test	在引线根部作 90 度弯曲从离根部 5mm 处 负载 100g 的负荷 烙铁温度: 260°C 加热时间: 不大于 35, 焊点离基数: 5mm 以外	Make a 90-degree bend at the root of the lead 5mm away from the root Load of 100g Soldering iron temperature: 260°C Heating time: no more than 35, the solder joint from the base: 5mm outside	功能保证 Function guarantee

Cds 光敏电阻 - VDK 系列产品包装

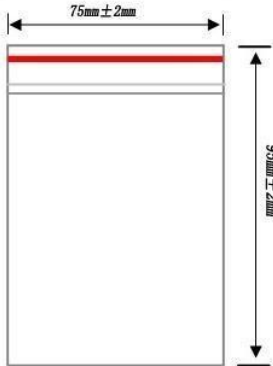
产品包装尺寸 (单位: 毫米)
PRODUCT PACKAGING SIZE (unit: mm) :


Image-01

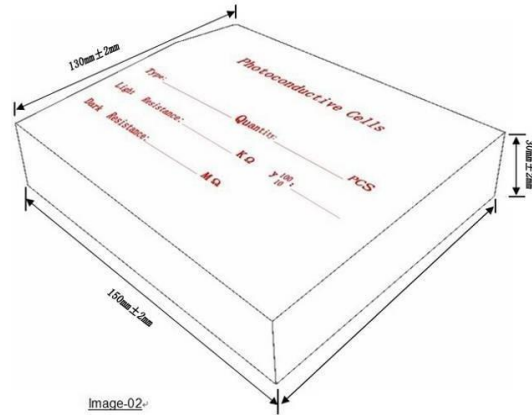


Image-02

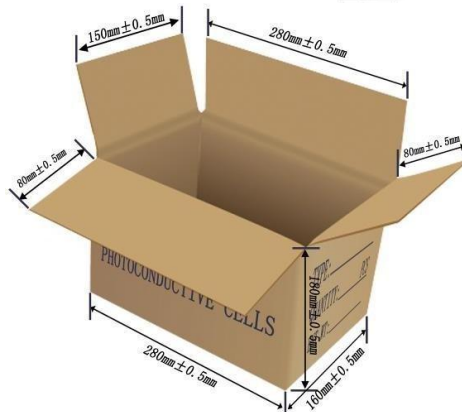


Image-03

图片编号/Picture ID	名称/name
图片-01/Picture-01	包/Bag
图片-02/Picture-02	盒/Bag
图片-03/Picture-03	箱/box

包装数量 (单位: 毫米)
PACKING QUANTITY (unit: mm) :

产品系 Product Series	包装类型(单位:支)/Packing type (unit: branch)		
	支 / 包 Branch/Pack	包 / 盒 Bag/box	盒 / 箱 Box/carton
VDK35	200	10	10
VDK45			
VDK55		5	
VDK56			
VDK55XX-F			
VDK75	100	10	
VDK115	30		
VDK125	5		
VDK205			
VDK255			

Cds 光敏电阻 - 产品使用注意事项

注意事项

- ◆不要在超出产品规格范围的情况下使用本产品。
- ◆在产品封样过程中，双方对承认书需书面确认。以便保证批量产品无误。
- ◆本说明书中提到的应用电路仅作为标准使用范例。请注意根据外围设施来设计电路并调整参数设置。
- ◆焊接温度 260°C，焊接时间小于 3s。应注意保证焊接温度不能超过额定范围。在焊接过程中或焊接完毕时应避免有外力作用于引脚，不可重复焊接。
- ◆产品表面的损伤和污染均会影响产品的使用效果。
- ◆本产品采用环氧树脂封装，避免在过于潮湿环境中使用。
- ◆注意引线位置应距离陶瓷基座 4mm 以上。

Precautions

- ◆ Do not use this product beyond the product specification range.
 - ◆ In the process of product sample sealing, both parties need to confirm in writing on the acknowledgment. In order to ensure that the batch products are correct.
 - ◆ The application circuit mentioned in this manual is only used as an example of standard use. Please pay attention to design the circuit and adjust the parameter settings according to the peripheral facilities.
 - ◆ The welding temperature is 260°C, and the welding time is less than 3s. Care should be taken to ensure that the welding temperature cannot exceed the rated range. During the welding process or
 - ◆ When the soldering is completed, avoid external force acting on the pins. Do not repeat soldering.
 - ◆ Damage and pollution on the surface of the product will affect the use of the product.
 - ◆ This product is encapsulated with epoxy resin to avoid using it in an excessively humid environment.
 - ◆ Note that the lead position should be more than 4mm away from the ceramic base.
-
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