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(PGM)
Light Dependent Resistors

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Product Introduction

Light-Dependent Photoresistors for Sensor Applications.

Features :

- Quick Response
- Reliable Performance
- Epoxy or hermetical package
- Good Characteristic of Spectrum

Applications :

- Photoswitch
- Photoelectric Control
- Auto Flash for Camera
- Electronic Toys, Industrial Control

The cadmium sulfide (CdS) or light dependent resistor (LDR) whose resistance is inversely dependent on the amount of light falling on it is known by many names including the photo resistor, photoresistor, photoconductor, photoconductive cell, or simply the photocell.

A typical structure for a photoresistor uses an active semiconductor layer that is deposited on an insulating substrate. The semiconductor is normally lightly doped to enable it to have the required level of conductivity. Contacts are then placed either side of the exposed area.

The photo-resistor, CdS, or LDR finds many uses as a low cost photo sensitive element and was used for many years in photographic light meters as well as in other applications such as smoke, flame and burglar detectors, card readers and lighting controls for street lamps.

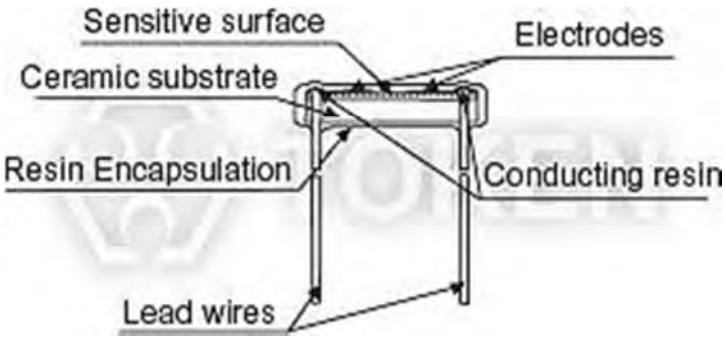
Providing design engineers with an economical CdS or LDR with high quality performance, Token Electronics now offers commercial grade PGM photoresistor. Designated the PGM Series, the photoresistors are available in 5mm, 12mm and 20mm sizes, the conformal epoxy or hermetical package offer high quality performance for applications that require quick response and good characteristic of spectrum.

Token has been designing and manufacturing high performance light dependent resistors for decades. Our product offerings are extensive and our experience with custom photoresistor is equally extensive. Contact us with your specific needs. For more information, please link to Token official website "General Purpose Resistors".

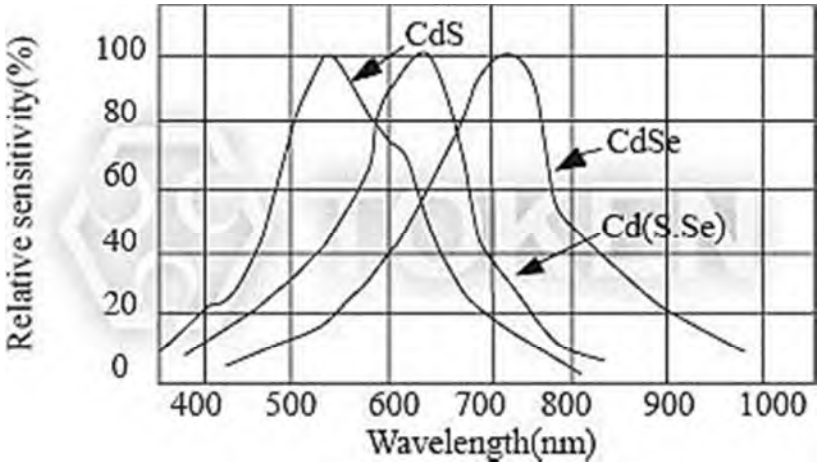
Terminology

Terminology (PGM)

- **Light Resistance** :
  Measured at 10 lux with standard light A (2854K-color temperature) and 2hr. preillumination at 400-600 lux prior testing.
- **Dark Resistance** :
  Measured at 10th seconds after closing 10 lux.
- **Gamma characteristic** :
  Under 10 lux and 100 lux and given by
  $\gamma = \log(R10/R100) / \log(100/10) = \log(R10/R100)$
  R10, R100: resistance at 10 lux and 100 lux.
  The tolerance of γ is ±0.1.
- **Pmax** :
  Max. power dissipation at ambient temperature of 25℃.At higher ambient temperature,the maximum power permissible may be lowered.
- **Vmax** :
  Max. voltage in darkness that may be applied to the device continuously.
- **Spectral peak** :
  Spectral sensitivity of photoresistors depends on the wavelength of light they are exposed to and in accordance with figure 'Spectral Response'. The tolerance of spectral peak is ±50nm.



CdS Photoresistor (Light Dependent Resistors) - PGM Series



CdS Photoresistors (PGM) Spectral Response

Physical and Environmental Characteristics

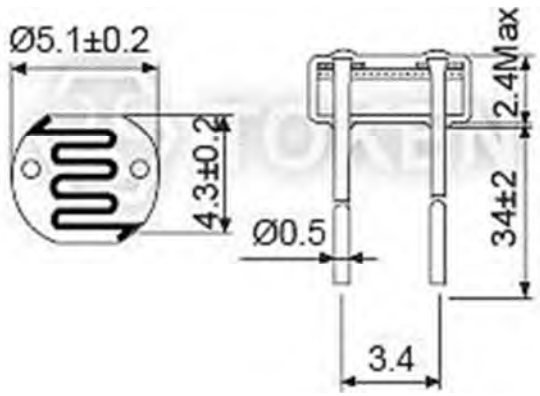
Physical and Environmental Characteristics (PGM)

ITEM	CONDITIONS	PERFORMANCE
Solderability	Put the terminals into welding tank at temp. 230±5℃ for 2±0.5s (terminal roots are 5mm away from the tin surface).	wetting>95%
Temperature Changing	Change of temperature in accordance with: TA: -40℃ TB: +60℃ Number of cycles: 5 Exposure duration: 30Min.	Drift of R10 = ± 20% No visible damage
Constant humidity and heat	1. Put the device in test box at Temperature: 60±5℃ Humidity: 90-95% Illumination: 0lux Duration: 100h 2. Take the device and measure after24h at normal temperature and humidity.	Drift of R10= ± 30% No visible damage
Constant load Temperature	At 25±5℃ Illumination: 150lux at rated power Duration: 600h	No visible damage
Wire Terminals Strength	Bend the wire terminal at its root to 90 degree, and then bend it to a opposite direction.	No visible damage
Vibration	Frequency: 50Hz Swing: 1.5mm with Directions: parallel to ceramic substrate normal to ceramic substrate. Duration:2h	No visible damage

Configurations & Dimensions

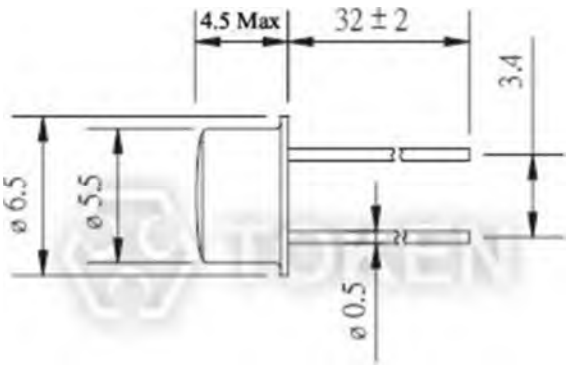
5mm CdS Photo Resistors (PGM) Configurations & Dimensions

Epoxy resin package
5mm CdS Photoresistors
Appearance PGM5** series**



Epoxy resin package
5mm PGM5** series**
Dimensions (Unit: mm)

Hermetical package
5mm CdS Photoresistors
Appearance PGM55-MP series**



Hermetical package
5mm PGM55-MP series**
Dimensions (Unit: mm)

- **Note: All dimensions are in mm and NTS.**

PGM5**** Electronics Characteristics

Epoxy resin package 5mm CdS (PGM5****) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM5506	100	90	-30 ~ +70	540	2 ~ 6	0.15	0.6	30	40
PGM5516	100	90	-30 ~ +70	540	5 ~ 10	0.2	0.6	30	40
PGM5526	150	100	-30 ~ +70	540	8 ~ 20	1.0	0.6	20	30
PGM5537	150	100	-30 ~ +70	540	16 ~ 50	2.0	0.7	20	30
PGM5539	150	100	-30 ~ +70	540	30 ~ 90	5.0	0.8	20	30
PGM5549	150	100	-30 ~ +70	540	45 ~ 140	10.0	0.8	20	30
PGM5616D	150	100	-30 ~ +70	560	5 ~ 10	1.0	0.6	20	30
PGM5626D	150	100	-30 ~ +70	560	8 ~ 20	2.0	0.6	20	30
PGM5637D	150	100	-30 ~ +70	560	16 ~ 50	5.0	0.7	20	30
PGM5639D	150	100	-30 ~ +70	560	30 ~ 90	10.0	0.8	20	30
PGM5649D	150	100	-30 ~ +70	560	50 ~ 160	20.0	0.8	20	30
PGM5659D	150	100	-30 ~ +70	560	150 ~ 300	20.0	0.8	20	30

PGM55** Electronics Characteristics

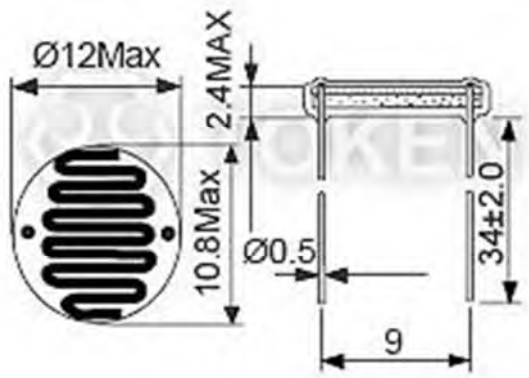
Hermetical package 5mm CdS (PGM55**-MP) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM5506-MP	100	90	-30 ~ +70	540	2 ~ 6	0.15	0.6	30	40
PGM5516-MP	100	90	-30 ~ +70	540	5 ~ 10	0.2	0.6	30	40
PGM5526-MP	150	100	-30 ~ +70	540	8 ~ 20	1.0	0.6	20	30
PGM5537-MP	150	100	-30 ~ +70	540	16 ~ 50	2.0	0.7	20	30
PGM5539-MP	150	100	-30 ~ +70	540	30 ~ 90	5.0	0.8	20	30
PGM5549-MP	150	100	-30 ~ +70	540	45 ~ 140	10.0	0.8	20	30

Configurations & Dimensions

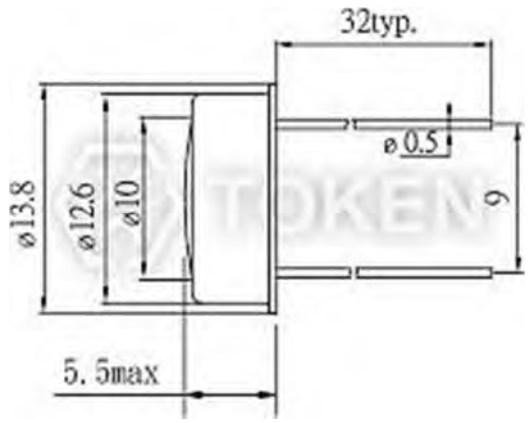
12mm Cds Photo Resistors (PGM) Configurations & Dimensions

Epoxy resin package
12mm CdS Photo Resistors Appearance PGM12 series**



Epoxy resin package
12mm Cds PGM12 series Dimensions (Unit: mm)**

Hermetical package
12mm CdS Photo Resistors Appearance PGM12-MP series**



Hermetical package
12mm Cds PGM12-MP series Dimensions (Unit: mm)**

- **Note : All dimensions are in mm and NTS.**

PGM12** Electronics Characteristics

Cds - (PGM12**) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM1200	250	250	-30 ~ +70	560	2~5	1.0	0.6	30	40
PGM1201	250	250	-30 ~ +70	560	4~10	2.0	0.7	30	30
PGM1202	250	250	-30 ~ +70	560	8~20	5.0	0.7	30	30
PGM1203	250	250	-30 ~ +70	560	18~50	10	0.8	30	30
PGM1204	250	250	-30 ~ +70	560	45~150	20	0.8	30	30
PGM1205	250	250	-30 ~ +70	560	140~300	20	0.8	30	30

PGM12**-MP Electronics Characteristics

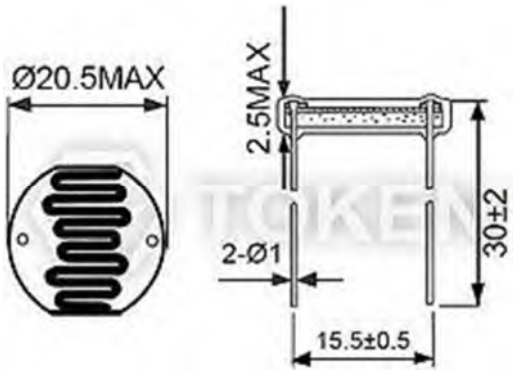
Cds - (PGM12**-MP) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM1200-MP	250	250	-30 ~ +70	560	2~5	1.0	0.6	30	40
PGM1201-MP	250	250	-30 ~ +70	560	4~10	2.0	0.7	30	30
PGM1202-MP	250	250	-30 ~ +70	560	8~20	5.0	0.7	30	30
PGM1203-MP	250	250	-30 ~ +70	560	18~50	10	0.8	30	30
PGM1204-MP	250	250	-30 ~ +70	560	45~150	20	0.8	30	30
PGM1205-MP	250	250	-30 ~ +70	560	140~300	20	0.8	30	30

Configurations & Dimensions

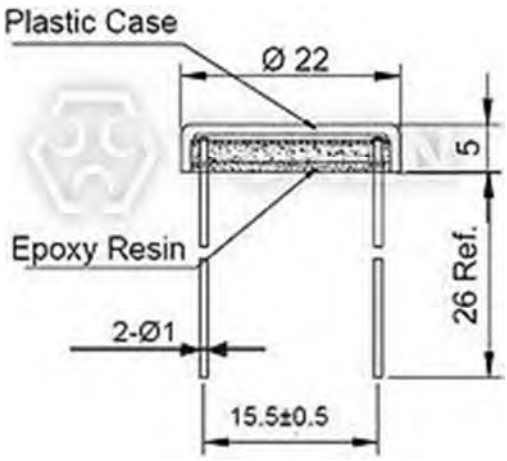
20mm CDS Photo Resistors (PGM) Configurations & Dimensions

Epoxy resin package
20mm CDS Photo Resistors Appearance PGM20 series**



Epoxy resin package
20mm CdS PGM20 series Dimensions (Unit: mm)**

Hermetical package
20mm CDS Photo Resistors Appearance PGM20-PP series**



Hermetical package
20mm CdS PGM20-PP series Dimensions (Unit: mm)**

- **Note: All dimensions are in mm and NTS.**

PGM20** Electronics Characteristics

CdS - (PGM20**) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM2000	500	500	-30 ~ +70	560	2~5	1.0	0.6	30	40
PGM2001	500	500	-30 ~ +70	560	4~10	2.0	0.7	30	30
PGM2002	500	500	-30 ~ +70	560	8~20	5.0	0.7	30	30
PGM2003	500	500	-30 ~ +70	560	18~50	10	0.8	30	30
PGM2004	500	500	-30 ~ +70	560	45~150	20	0.8	30	30
PGM2005	500	500	-30 ~ +70	560	140~300	20	0.8	30	30

PGM20**-PP Electronics Characteristics

CdS - (PGM20**-PP) Electronics Characteristics

Model	VMax. (VDC)	PMax. (mW)	Ambient Temp (℃)	Spectral Peak (nm)	Photo Resistance (10Lx) (KΩ)	Dark Resistance (MΩ)Min.	γ Min.	Response Time (ms)	
								Rise	Decay
PGM2000-PP	500	500	-30 ~ +70	560	2~5	1.0	0.6	30	40
PGM2001-PP	500	500	-30 ~ +70	560	4~10	2.0	0.7	30	30
PGM2002-PP	500	500	-30 ~ +70	560	8~20	5.0	0.7	30	30
PGM2003-PP	500	500	-30 ~ +70	560	18~50	10	0.8	30	30
PGM2004-PP	500	500	-30 ~ +70	560	45~150	20	0.8	30	30
PGM2005-PP	500	500	-30 ~ +70	560	140~300	20	0.8	30	30

Order Codes

Order Codes (PGM)

PGM5516	P
Part Number	Package

General Information

General Purpose Resistors with Customized Service

Token Electronics is expanding business to include a broad range of General Purpose Resistor products designed for high volume applications. This expanded range of commercial resistor presents a more comprehensive product offering for Customer Experience Management (CEM) and other high volume customers that require quality products at competitive pricing.

Backed by the same customer service, technical support and quality assurance that Token has always provided, these new commercial products enable you the opportunity to source a wider range of resistors from a trusted supplier.

General Use

When an ambient temperature exceeds a rated ambient temperature, resistor shall be applied on the derating curve by derating the load power. General purpose resistor under overloads is not combustion resistant and is likely to emit, flame, gas, smoke, red heat, etc. Flame retardant resistor generally emits smoke and red heat in a certain power and over but do not emit fire or flame.

When resistors are shielded or coated with resin etc., stress from the storage heat and the resins are applied. So, performance and reliability should be checked well before use.

When a voltage higher than rated is applied in a short time (single pulse, repeated pulses, surge, etc.), it does not necessarily ensure safety that an effective wattage is not higher than a rated wattage. Then consult with us with your specified pulse wave shape. Resistors shall be used in a condition causing no dew condensation.

Keep temperature from rising by choosing resistor with a higher rated capacity; do not use a component having the exact load value required. For considerations of safety in extended period applications, the rating should be more than four times higher than the actual wattage involved, but never use resistors at less than 25% of its rated power.

In applications where resistors are subject to intermittent current surges and spikes, be sure in advance that the components selected are capable of withstanding brief durations of increased load.

Do not exceed the recommended rated load. Resistor must use within the rated voltage range to prevent the shortening of service life and/or failure of the wound resistance elements.

Minimum load: Resistor must be utilized at 1/10 or more of the rated voltage to prevent poor conductance due to oxidation build-up. For basic particulars for cautions, refer to EIAJ Technical Report RCR-2121 "Guidance for care note on fixed-resistors".