



## Visible Light Detector

PATR NO. : PDIC-5PLC103

### FEATURES

- Near human eye photopic response
- High IR rejection – integrated optical filter
- Current output highly linear vs light level
- Temperature stable
- Integrated high gain photo-current amplifier
- Dark-current cancellation

### DESCRIPTION

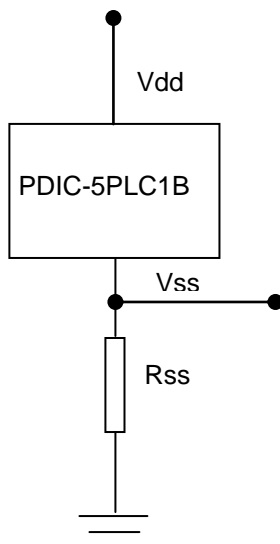
The PDIC-5PLC103 is a low cost visible light sensor, with a current output which is directly proportional to the light level. It has a built in optical filter to provide a response which is close to the human eye, or “photopic”.

The output current can be converted to a voltage by connecting it in series with a resistor. The dynamic range is determined by the external resistor and power supply (10K and 5V gives a range of 0 to 160 Lux, but can be over 700 Lux with a 1K resistor). The internal dark current cancellation enables high accuracy over the full temperature range, even at low light levels. Lens color: Dark Green

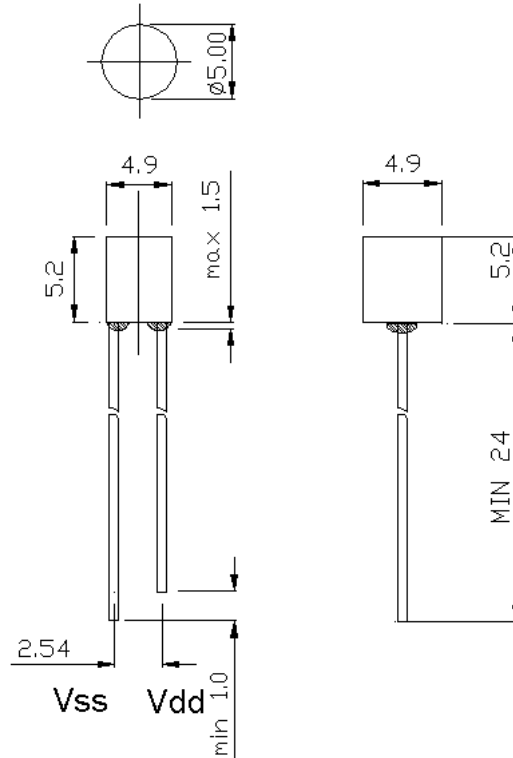
### APPLICATIONS

- Dawn/dusk sensing
- Security lighting
- Display backlighting in laptops, mobile phones, LCD TVs
- Night-lights

### BASIC APPLICATION



### Package Dimensions Unit : mm



### Notes :

1. All dimensions are in millimeters
2. Protruded resin under flange is 0.5 mm max.
3. Tolerance is  $\pm 0.25$  mm unless otherwise noted.

### Pin Description

- Vdd – Positive terminal
- Vss – Negative terminal



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNITS
Supply input voltage	-0.3 to 10	V
Supply current	Internally limited	mA
Operating Temperature, T <sub>O</sub>	-40°C to +85°C *	°C
Storage Temperature, T <sub>S</sub>	-40°C to +100°C	°C

\* The light sensor will function up to +105°C but dark current will have to be taken into consideration. Note that dark current doubles every 10°C.

### ELECTRICAL SPECIFICATION

The following parameters apply over the operating temperature range -40°C to +85°C, and with R<sub>SS</sub>=10 K-Ohms and V<sub>DD</sub>= 5V, The table below shows the range of output currents, for specific lighting conditions

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Infra red response		900 nm	0	1	5	% of peak
Min. operating voltage	V <sub>DD</sub> - V <sub>SS</sub>	I <sub>SS</sub> = 250µA		2.0	2.6	V
		I <sub>SS</sub> = 100 µA		1.5	2	V
Output Current	I <sub>SS</sub>	10 Lux	5	12	20	µA
Dark Current (Note1)	I <sub>DRK</sub>	0 Lux, Ta = 25°C		5	30	nA
		0 Lux, Ta = 85°C		150	500	nA
Gain Linearity			-10		10	%
Peak Spectral Response				520		nm
Sensitive Area				0.054		mm <sup>2</sup>
Useable light range		R <sub>SS</sub> & V <sub>DD</sub> dependant	1	1000		Lux

(Note1) 光敏管不同于光敏电阻, 光敏管常温下暗电流很小, 但随着温度升高会升高, 大约每升高10摄氏度, 其暗电流会增大1倍, 故此, 使用光敏管时, 应注意高温时暗电流的变化来设计电路

Note that with a lower R<sub>SS</sub> resistance, the linear light response range can be greatly increased.



### Characteristic Curves

