

Ambient Light Sensor IC Series

# Digital 16bit Serial Output Type Color Sensor IC

## BH1749NUC

### General Description

BH1749NUC is a digital color sensor IC with I<sup>2</sup>C bus interface. This IC senses Red, Green, Blue (RGB) and Infrared and converts them to digital values. The high sensitivity, wide dynamic range and excellent Ircut characteristics make it possible for this IC to obtain the accurate illuminance and color temperature of ambient light. It is ideal for adjusting LCD backlight of TV, mobile phone and tablet PC.

### Features

- Built-in Ircut Filter
- Rejecting 50 Hz / 60 Hz Light Noise
- I<sup>2</sup>C Bus Interface (f/s mode support)
- It is possible to select 2 type of I<sup>2</sup>C bus slave address.
- Correspond to 1.8 V Logic Interface
- Resolution 0.0125 lx/count (Typ)  
(In highest gain and longest measurement time setting)

### Applications

Mobile Phone, Tablet PC, Note PC, Digital Camera  
Portable Game Machine, LCD TV

### Key Specifications

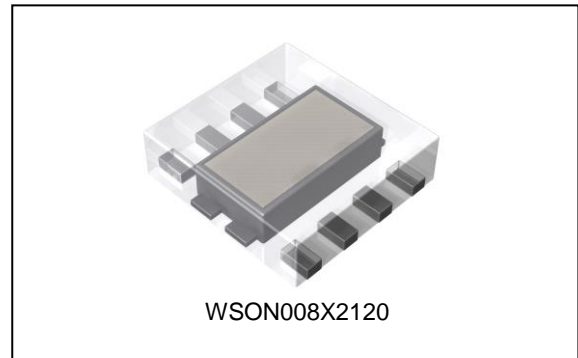
- VCC Voltage Range: 2.3 V to 3.6 V
- Illuminance Detection Range<sup>(Note 1)</sup>: 80 lx (Typ)
- Current Consumption: 190 μA (Typ)
- Power Down Current: 0.8 μA (Typ)
- Operating Temperature Range: -40 °C to +85 °C  
*(Note 1) White LED is used.*

### Package(s)

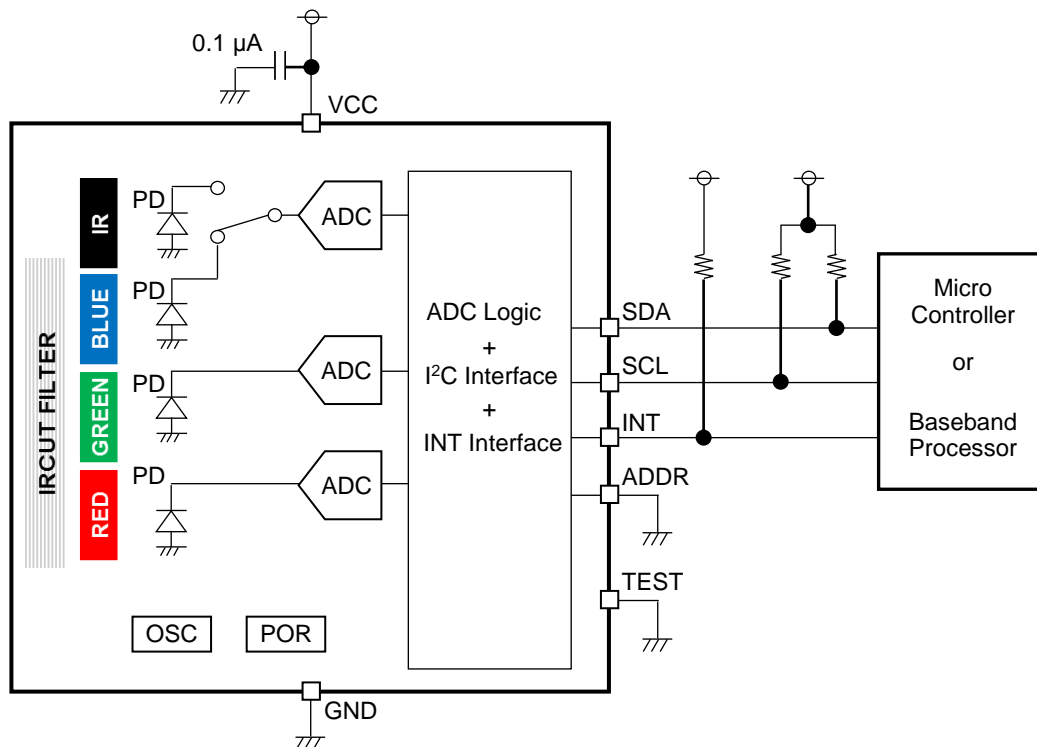
WSON008X2120

W(Typ) x D(Typ) x H(Max)

2.10 mm x 2.00 mm x 0.6 mm



### Typical Application Circuits



○Product structure : Silicon monolithic integrated circuit.

○This product does not include laser transmitter.

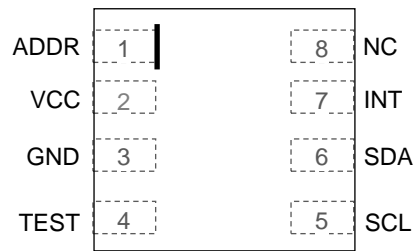
○This product includes Photo detector, ( Photo Diode ) inside of it.

○This product has no designed protection against radioactive rays.

○This product does not include optical load.

## Pin Configuration

TOP VIEW

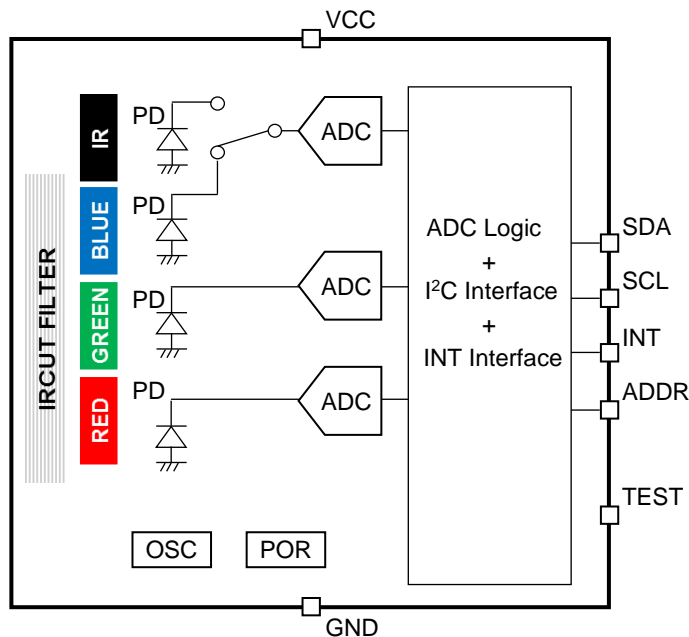


## Pin Description

Pin No.	Pin Name	Function
1	ADDR	I <sup>2</sup> C bus slave address selector
2	VCC	Power supply <sup>(Note 1)</sup>
3	GND	Ground
4	TEST	Test pin (Connect to GND)
5	SCL	I <sup>2</sup> C bus serial clock
6	SDA	I <sup>2</sup> C bus serial data
7	INT	Interrupt
8	NC	Non connect

(Note 1) Dispose a bypass capacitor as close as possible to the IC

## Block Diagram



## Description of Blocks

- IRCUT FILTER  
Infrared cut filter
- RED, GREEN, BLUE, IR  
Red, Green, Blue, Infrared pass filter
- PD  
Photodiode
- ADC  
Analog-to-Digital Converter for obtaining 16bit digital data.
- ADC Logic + I<sup>2</sup>C Interface + INT Interface  
ADC control logic and I/F logic
- OSC  
Clock generator for internal logic
- POR  
Power ON Reset. All registers are reset after VCC is supplied.