

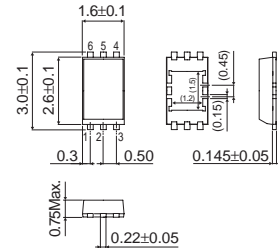


## Ambient Light Sensor IC BH1600FVC / BH1710FVC

### Description

BH1600FVC is an analog current output type ambient light sensor IC. BH1710FVC is a digital ambient light sensor IC for I<sup>2</sup>C BUS interface. It is possible to detect wide range from darkness to direct sunlight environment. These ICs are the most suitable to obtain the ambient light data for adjusting LCD and Keypad backlight power of Mobile phone. It is possible to improve both reducing power consumption and visibility of LCDs by making brightness adjustments based on the ambient light.

### Dimensions (Unit :mm)



WSOF6

### Function table for ambient light sensor ICs

Part. No	Type.	Interface	Illuminance measurement range(lx)
BH1600FVC	Current output	-	0 to 50,000
BH1710FVC	Digital serial 16bit	I <sup>2</sup> C BUS	0 to 65,000

### Features

- 1) Spectral responsibility is approximates human eyes response.(BH1600FVC/BH1710FVC)
- 2) Correspond to wide range of light intensity.(BH1600FVC/BH1710FVC)
- 3) Low current by power down function.(BH1600FVC/BH1710FVC)
- 4) Correspond to 1.8V logic interface.(BH1600FVC/BH1710FVC)
- 5) Control output current gain in 2 steps is possible.(BH1600FVC)
- 6) Rejecting 50Hz/60Hz light noise enables a more stable sensing.(BH1710FVC)
- 7) No need any external parts.(BH1710FVC)

### Applications

Mobile phone, LCD TV, Laptop PC, Portable game machine,  
Digital still camera, Car navigation, Digital video camera, PDA.

### [ BH1600FVC / BH1710FVC ]

#### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply Voltage	Vmax	4.5	V
Operating Temperature	Topr	-30 to +85	°C
Storage Temperature	Tstg	-40 to +100	°C

- The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- The application circuit examples, information, and various data pertaining to the use of the products presented in this documentation are provided for reference purposes only.
- Please note that ROHM cannot bear any responsibility regarding any problems relating to industrial property rights resulting from their use thereof.

The products listed in this catalog are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).  
Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Current specifications in effect of 1st. March 2007.

Excellence in Electronics



ROHM CO., LTD.

21, Saiin Mizosaki-cho, Ukyo-ku, Kyoto  
615-8585, Japan  
TEL: +81-75-3112121 FAX: +81-75-315-0172  
URL: http://www.rohm.com

Contact us for further information about the products.

**Seoul** TEL: +82-2-8182-700 FAX: +82-2-8182-715  
**Dalian** TEL: +86-411-8230-8549 FAX: +86-411-8230-8537  
**Beijing** TEL: +86-10-8525-2483 FAX: +86-10-8525-2489  
**Shanghai** TEL: +86-21-6279-2727 FAX: +86-21-6247-2066  
**Shenzhen** TEL: +86-755-8307-3001 FAX: +86-755-8307-3003  
**Hong Kong** TEL: +852-2-740-6262 FAX: +852-2-375-8971  
**Taipei** TEL: +866-2-2500-6956 FAX: +866-2-2503-2869  
**Singapore** TEL: +65-6332-2322 FAX: +65-6332-5662  
**Philippines** TEL: +63-2807-6872 FAX: +63-2809-1422  
**Thailand** TEL: +66-2-254-4890 FAX: +66-2-256-6334

**Malaysia** TEL: +60-3-7958-8355 FAX: +60-3-7958-8377  
**Germany** TEL: +49-2154-9210 FAX: +49-2154-921400  
**France** TEL: +33-1-5697-3060 FAX: +33-1-5697-3080  
**United Kingdom** TEL: +44-1-908-306700 FAX: +44-1-908-235788  
**San Diego** TEL: +1-858-625-3630 FAX: +1-858-625-3670  
**Atlanta** TEL: +1-770-754-5972 FAX: +1-770-754-0691  
**Dallas** TEL: +1-469-287-5367 FAX: +1-469-362-7973  
**Kyoto** TEL: +81-75-365-1218 FAX: +81-75-365-1228  
**Yokohama** TEL: +81-45-476-2290 FAX: +81-45-476-2295



[ BH1600FVC / BH1710FVC ]

**Operating Conditions** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Vcc Voltage	Vcc	2.4	3.0	3.6	V

[ BH1600FVC ]

**Electric Characteristics** (Unless otherwise specified, Ta=25°C, Vcc=3V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Current	Icc1	39	64	90	μA	Ev=100lx(H-Gain mode) *
Shutdown Current	Icc2sd	—	0.01	0.2	μA	VGC1=VGC2=0 No input light
Dark Current	Idark	—	—	0.1	μA	Ev=0lx *
light Current	Iout	39	60	81	μA	Ev=100lx (H-Gain mode) *
Saturated Output Voltage	Vomax	2.6	2.9	3.0	V	Ev=100lx, RL=220kΩ(H-Gain mode) *
Gain Ratio H-Gain Mode / L-Gain Mode		—	9.5	10	times	Ev=100lx *

\*White LED is used as optical source.

[ BH1710FVC ]

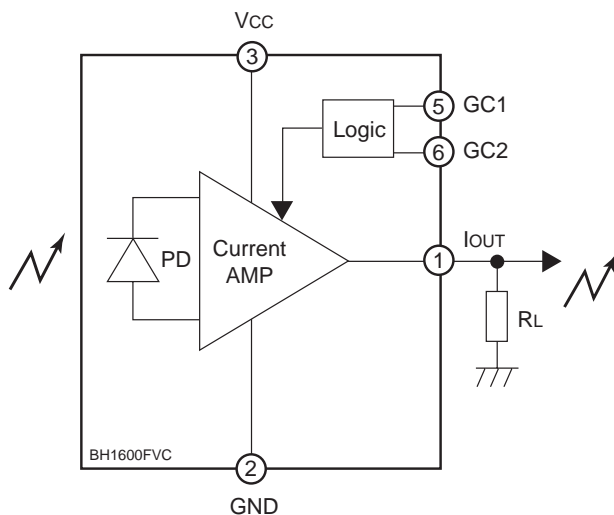
**Electric Characteristics** (Unless otherwise specified, Ta=25°C, Vcc=3V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Current	Icc1	—	120	190	μA	Ev=100lx *
Powerdown Current	Icc2	—	0.01	0.2	μA	No input light
Measurement Accuracy	S / A	0.75	1.2	1.65	times	Sensor out / Actual lx, Ev=1000lx *
H-Res Mode Measure Time	tHR	—	120	180	ms	
M-Res Mode Measure Time	tMR	—	16	24	ms	
L-Res Mode Measure Time	tLR	—	2.9	4.5	ms	

\*White LED is used as optical source.

**Block diagram**

[ BH1600FVC ]



[ BH1710FVC ]

