



ROHM Sensors: New Products

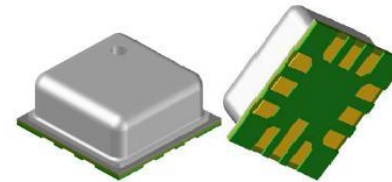
ROHM Pressure Sensor BM1383GLV Outline

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Function

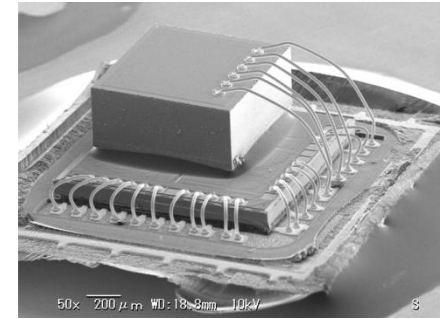
- Piezo-resistive MEMS pressure sensor
- Pressure range : 300hPa ~ 1100hPa
- Supply voltage : 1.71 ~ 3.6V
- Low current consumption
- Integrated temperature sensor
- Integrated temperature compensation function
- Selectable accurate modes
- Interface : I2C

Package/Structure



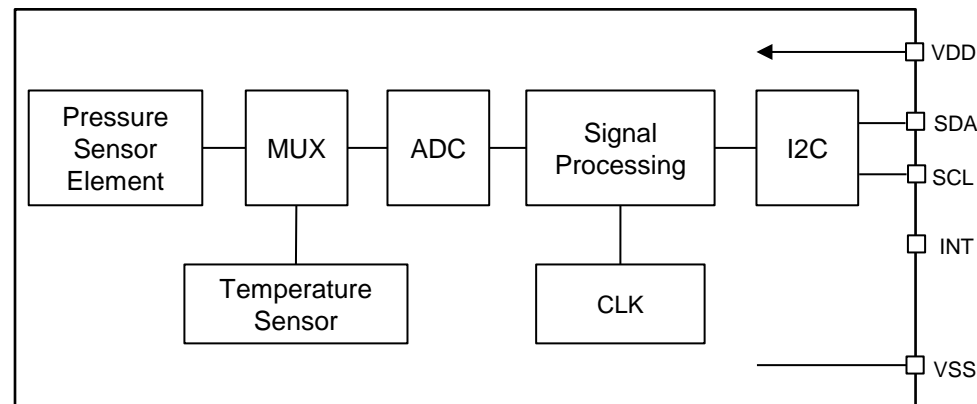
2.5mm x 2.5mm x 0.95mm

Package



Internal structure

Block diagram



Comparison

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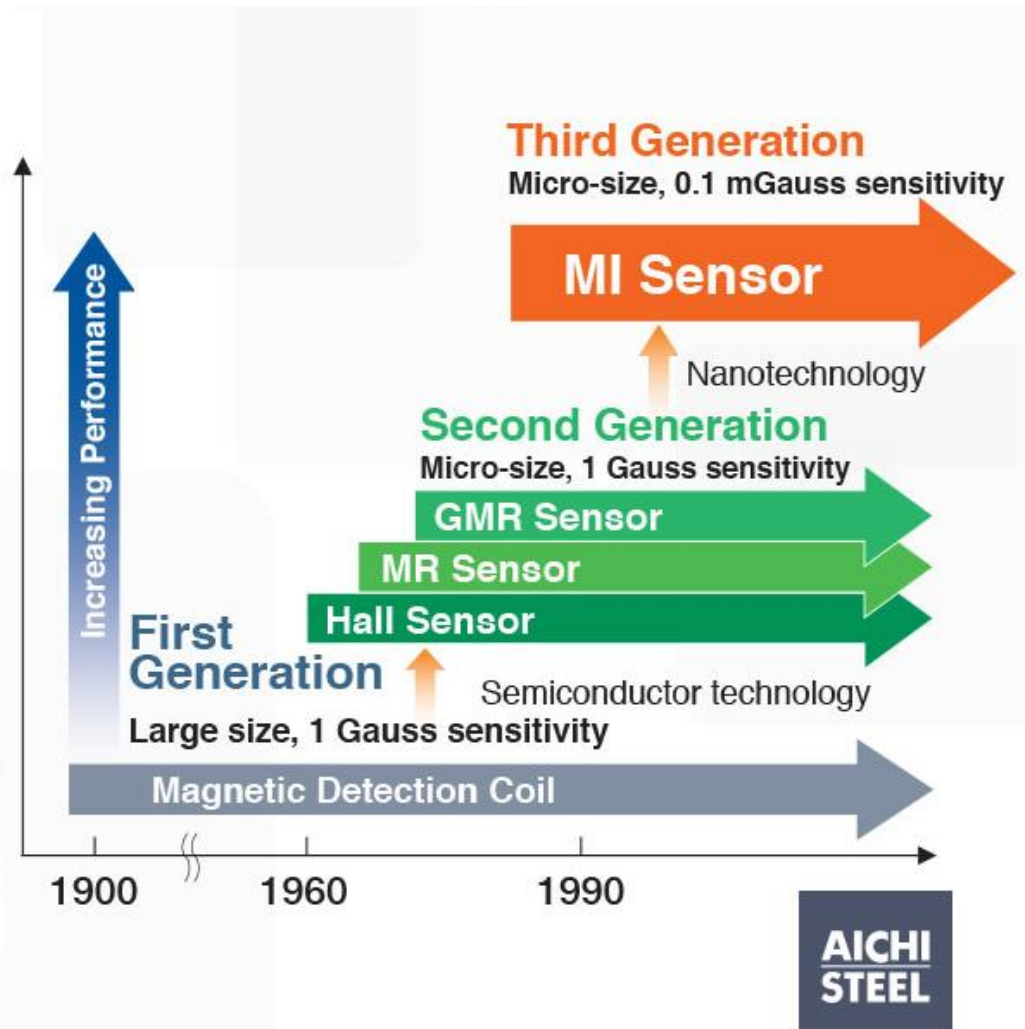
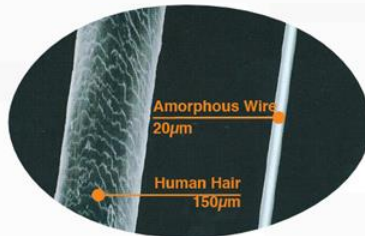
		BM1383GLV	Bosch BMP280	ST LPS25H
Package size (mm)		2.5 x 2.5 x 0.95	2.0 x 2.5 x 0.95	2.5 x 2.5 x 1.0
Supply voltage / IO voltage (V)		1.71~3.6V	1.71~3.6V / 1.2~3.6V	1.7~3.6V / 1.7~3.6V
Dynamic range (hPa)		300~1100	300~1100	260~1260
Absolute pressure accuracy (hPa)		+/- 1.0	+/- 1.0	+/- 1.0
Normal mode	Current consumption (uA)	15.5	2.8	30
	Relative pressure accuracy (hPa)	+/- 0.06 (+/- 0.5m)	+/- 0.06 (+/- 0.5m)	+/- 0.10 (+/- 0.8m)
Accurate mode	Current consumption (uA)	99	24.8	-
	Relative pressure accuracy (hPa)	+/- 0.024 (+/- 0.2m)	+/- 0.026 (+/- 0.2m)	-
Stand-by mode current consumption (uA)		1.0	0.1	0.5
Temperature compensation function		Integrated	External	Integrated

Ultra-High Sensitivity Through Nano-technology 6

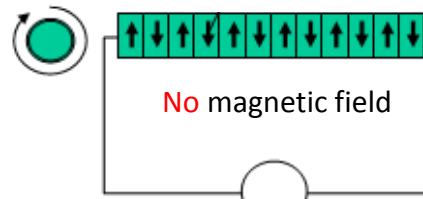
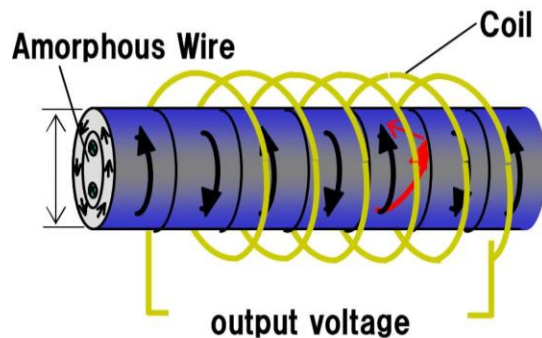
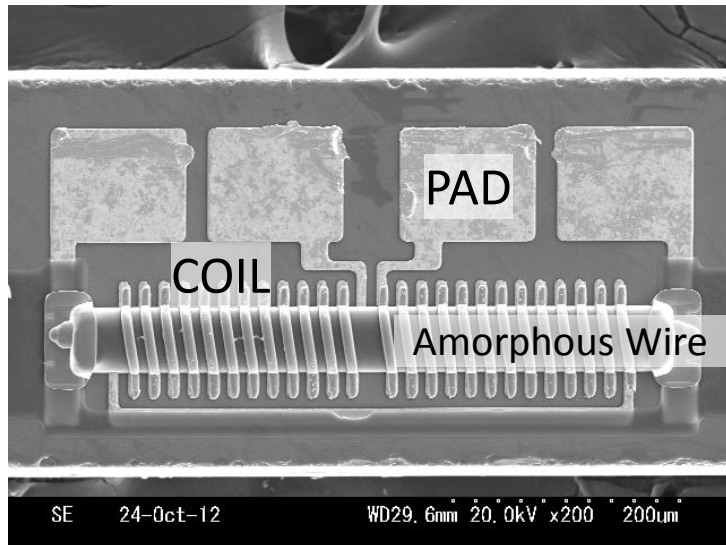
MI sensors can detect minute magnetic fields at the pT (pico Tesla) level – 10,000 times more sensitive than conventional magnetic sensors (i.e. Hall effect).

Amorphous Wire

A unique production method is used to create a 20 μ m amorphous FeCoSiB alloy magnetic wire without a crystalline structure. Amorphous metal wire exhibits optimally soft magnetic properties and is an ideal material for high sensitivity magnetic sensors.

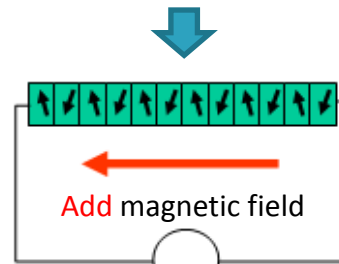


SEM Image



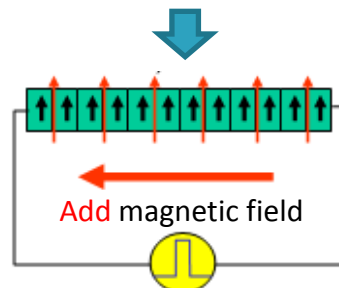
1. When there is no external magnetic field, the direction of electron spin is alternately.

Current pulse



2. When an external magnetic field is applied, the direction of electron spin is inclined by the external magnetic field.

Current pulse

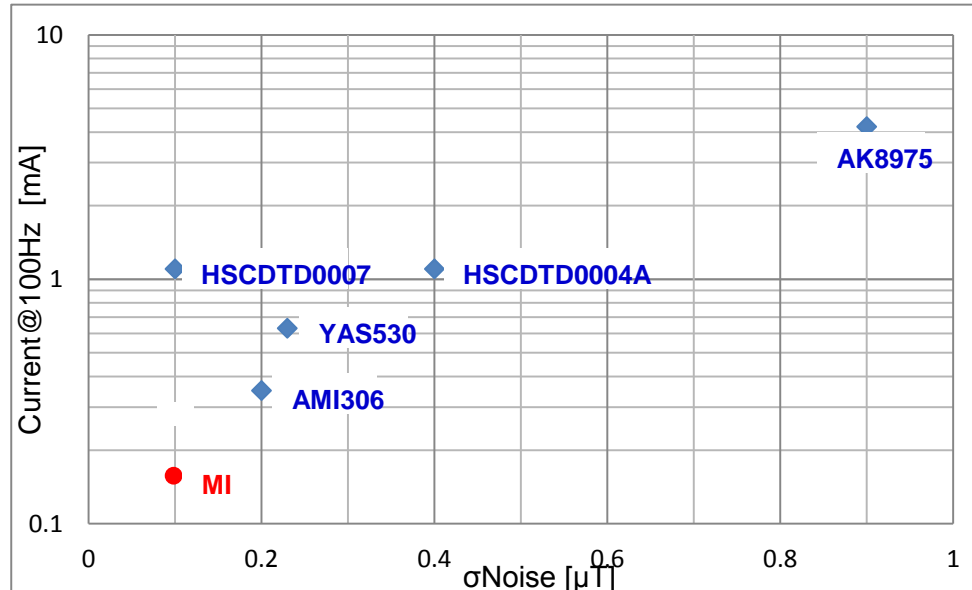
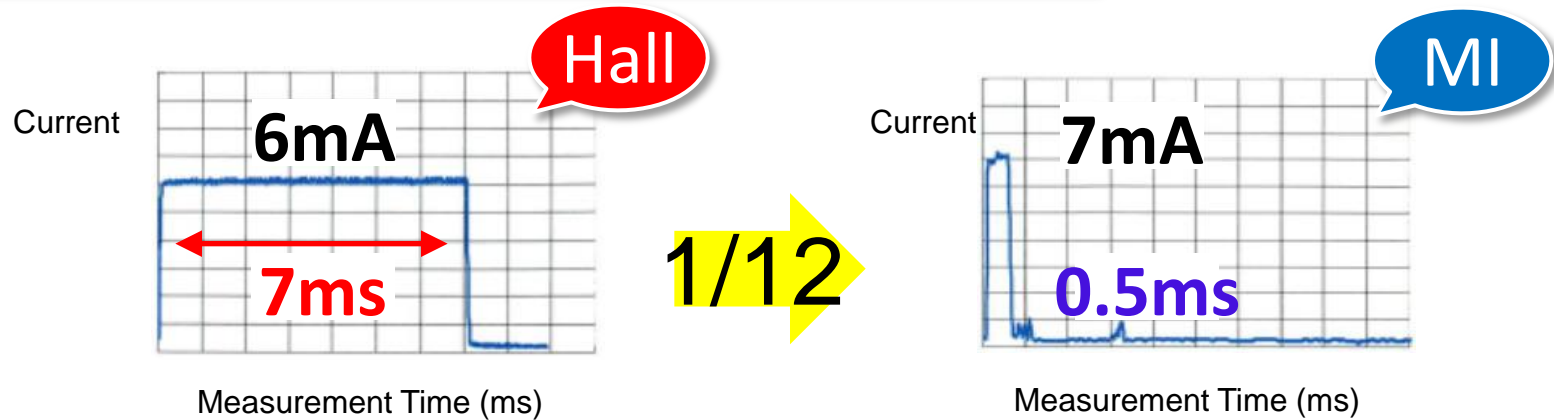


3. The electron spin is rotated by a magnetic field is created by applying a current pulse, which is aligned in one direction.

In the axial direction of the wire, the induced voltage due to the rotation of the electron spin is generated.

By detecting this by pick up coil, it is possible to detect the external magnetic field.

✓ Low Power Consumption & High speed



Compare Table

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	AMI306 (Aichi Steel)	BM1422GMV (Rohm)	AKM
Sensor Type	MI	MI	HALL
Package Size [mm]	2.0 [□] x 1.0t	2.0 [□] x 1.0t	✓ 1.6 [□] x 0.5t
Current Consumption [mA]	0.35	✓ 0.15	2.4
Response Speed [msec]	0.5	✓ 0.5	7.0
σ Noise [uT]	0.2	✓ 0.1	0.9
Dynamic Range [uT]	+/- 1200	+/- 1200	✓ +/- 4900
Temperature dependence of Sensitivity [%]	5.0	3.0	-
Temperature dependence of Offset [uT/deg]	0.3	0.1	-

Better than
AMI306

Better than
AMI306

Color sensor

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Function

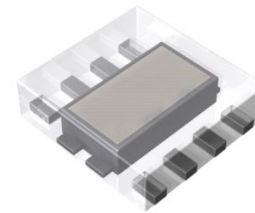
- Illuminance, Color temperature detection
- Utilizable with dark window
- Wide receiving angle

Dark window



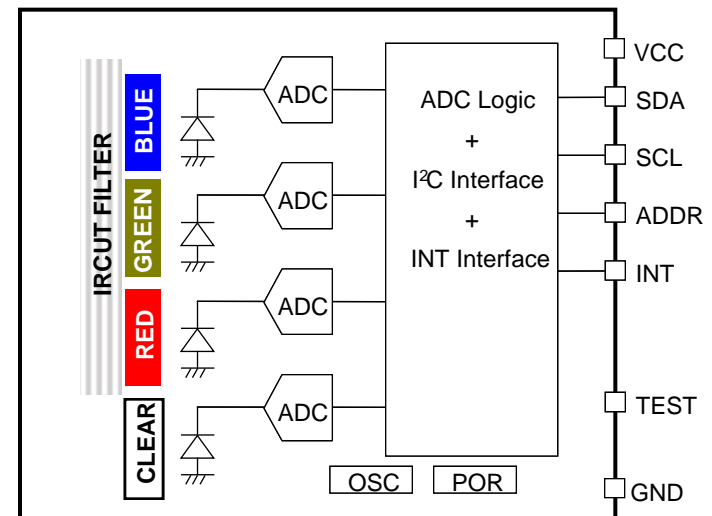
Optical window with high design flexibility
can be used.
e.g. Dark/colored window

Package

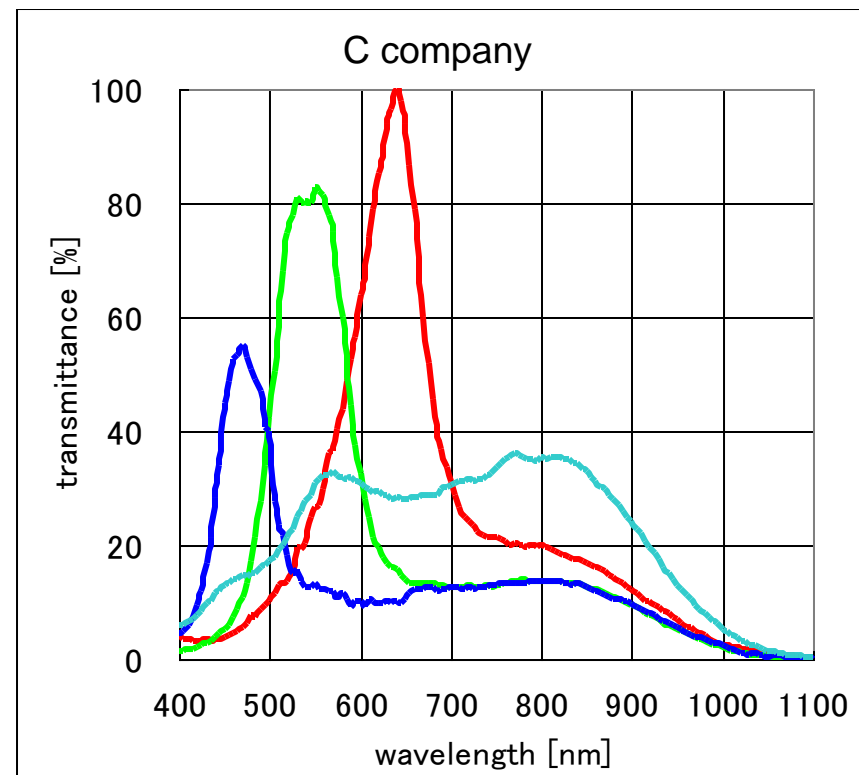
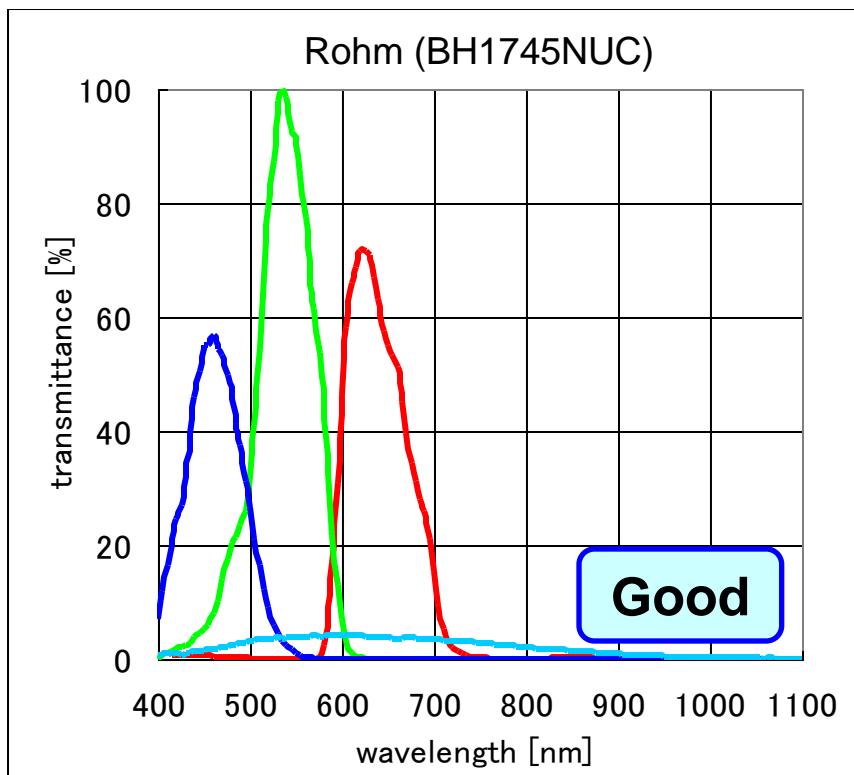


2.1mm x 2.0mm x 0.55mm

Block Diagram

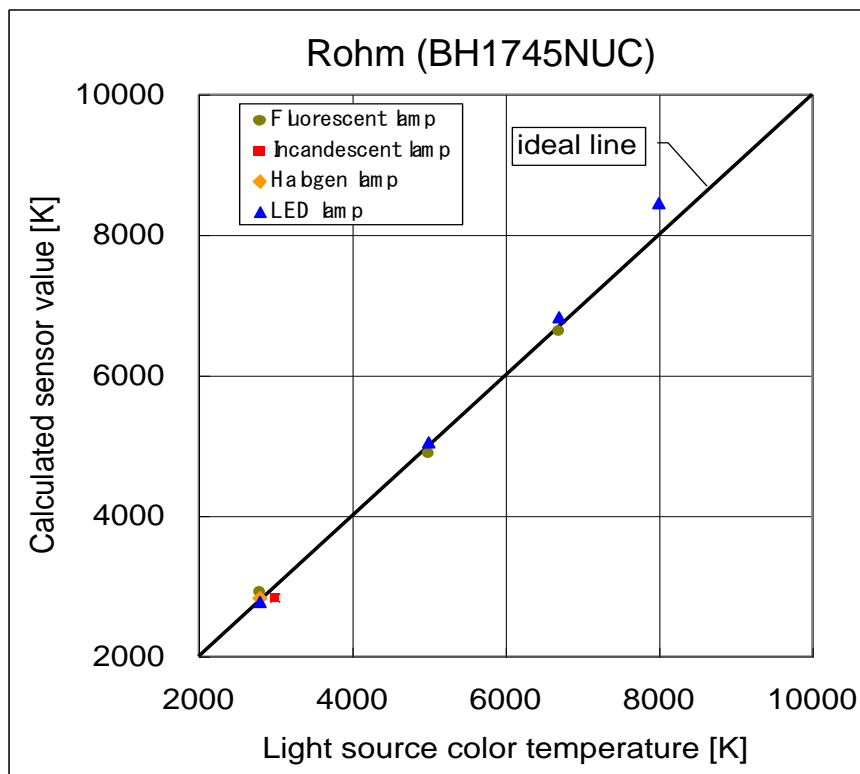


Spectral response

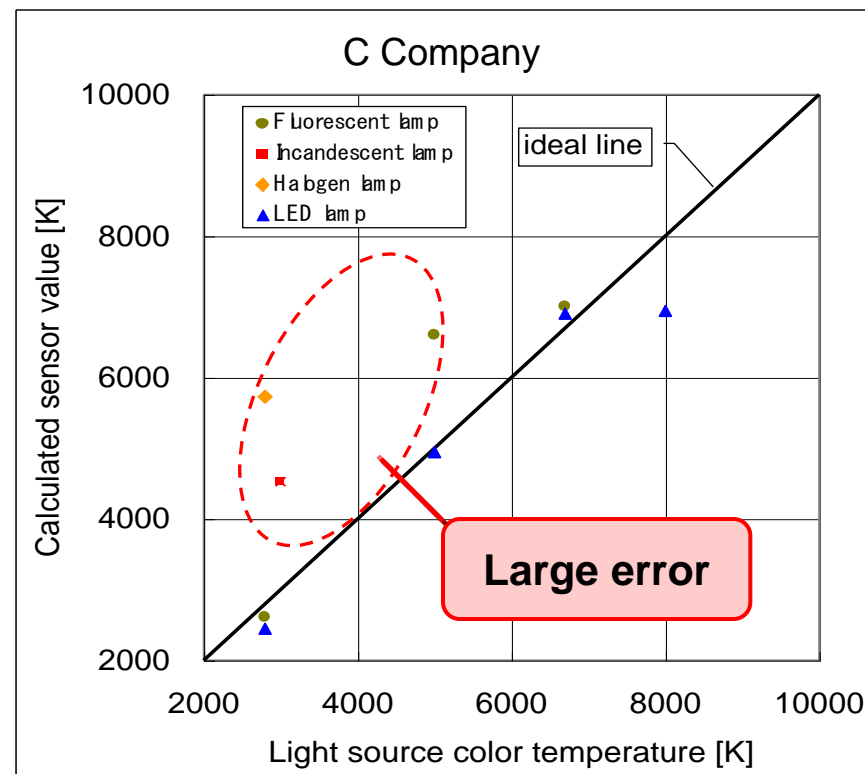


High infra-red light rejection achieves precise RGB components detection.

Color temperature detection



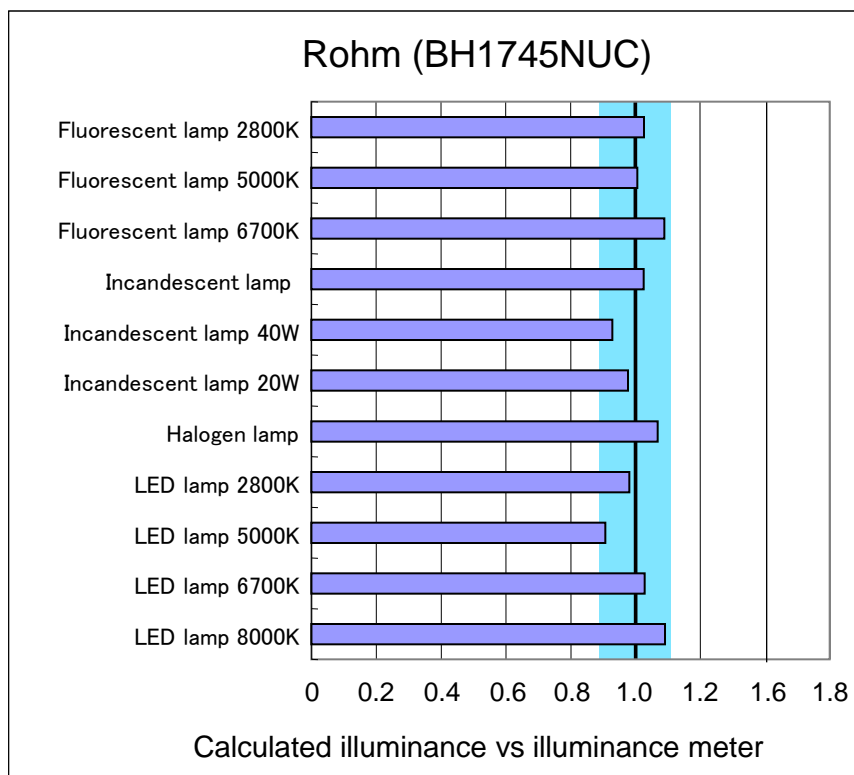
*dark window is used above data



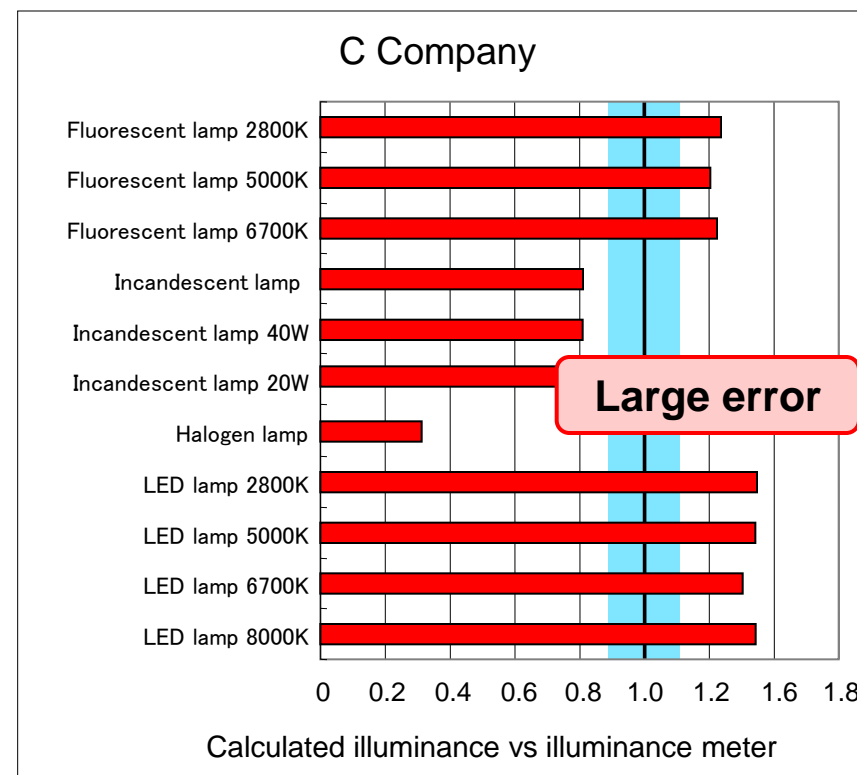
*dark window is used above data

Color temperatures of several types light sources can be detected.

Illuminance detection



*dark window is used above data

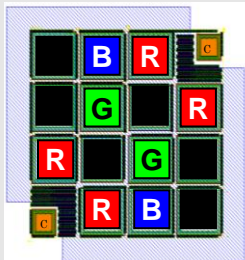
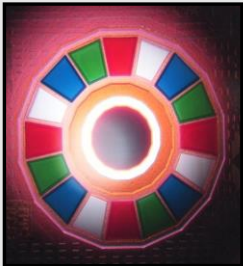
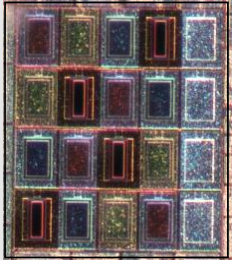


*dark window is used above data

Illuminance of several types light sources can be detected

Competitor comparison

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	ROHM BH1745NUC	Avago	Capella
Package Size	2.1 x 2.0 x 0.55(mm)	3.94 x 2.36 x 1.35mm	2.0 x 1.25 x 1.0(mm)
Detector Layout			
Infrared transmittance	1%	8%	20%
Angular Response	