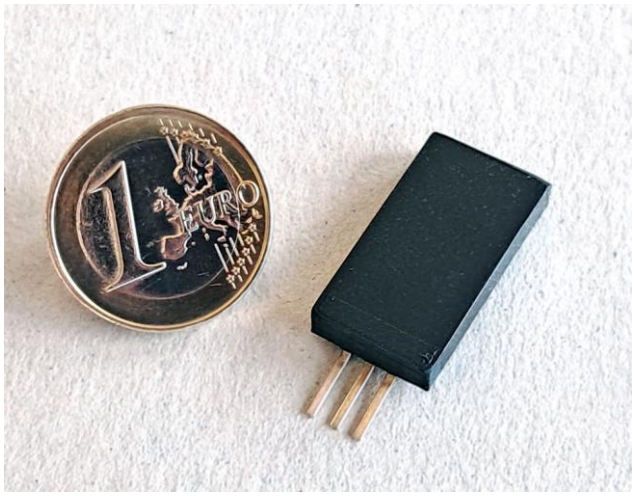


Radiation Sensor BG51-OEM

- Nuclear Beta and Gamma Radiation Sensor
- For the Original Equipment Manufacturer (OEM)

Description

The function of the BG51-OEM radiation sensor is based on an array of customized PIN diodes. The integrated pulse discriminator with a temperature compensated threshold level provides true CMOS/TTL signal output. The BG51-OEM is capable of detecting beta radiation (electrons), gamma radiation (photons) and X-rays.

The BG51 sensor in the OEM version is primarily used where weight and dimensions are critical. For the standard BG51 sensor with housing, no special precautions are required when handling and especially during installation.

Features and Benefits

- Low weight (2,2g)
- New: Ultra low power requirement (25µA)
- Pulse Rate vs. Radiation Rate: 300 cph/µSv/h
- High immunity to RF and electrostatic fields
- Linear response over wide temperature range (-30°C to 60°C)
- Swiss made

Application Areas

- CubeSats conducting scientific investigations in space
- Original Equipment Manufacturers (OEM)
- Equipment for detecting radioactivity in medical environment
- Radiation monitors for nuclear safeguards and security
- Gamma detector to detect illicit nuclear material

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Absolute Maximum Ratings

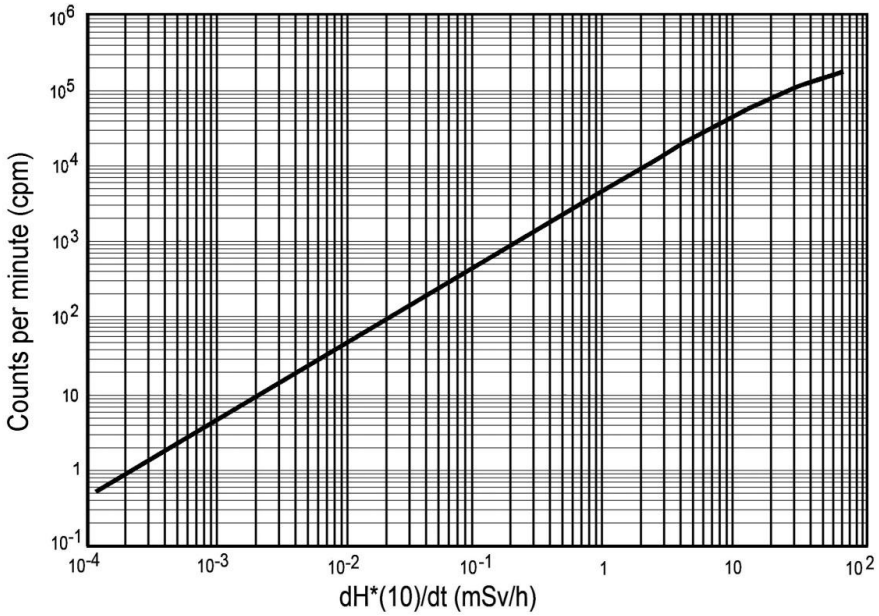
Supply voltage, V_{CC} to GND	18.0V
Output short-circuit current	continuous
Storage temperature range	-65°C to 100°C

Electrical characteristics

Unless otherwise indicated specified at:
V_{CC} = 4.0V, T_A = 25°C

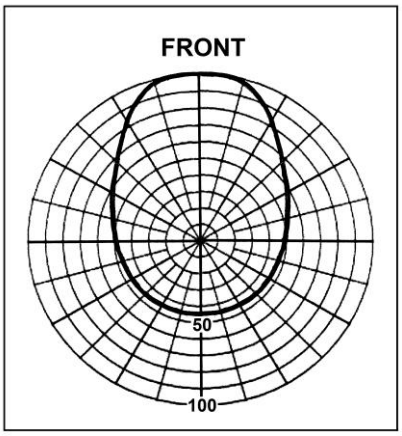
Measurement range of dose rate	0.1 µSv/h to 100 mSv/h
Pulse Rate vs. Radiation Rate	300 cph ± 15% for 1 µSv/h
Energy response	70 keV to 2 MeV
Output pulse level	Equal to supply voltage (positive going)
Output pulse width	50 µs to 200 µs (LOW→HIGH→LOW)
Supply voltage range, V_{CC}	2.5V to 10.0V
Supply current, I_S	25µA TYP
Operating temperature range	-30°C to 60°C

BG51-OEM Sensor Linearity

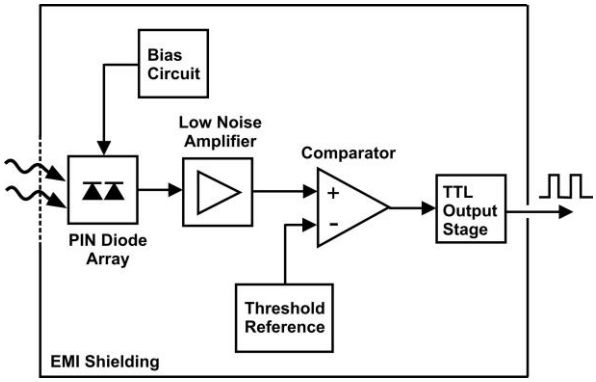


dH*(10) / dt = Radiation dose equivalent rate for Cs-137 and Co-60 (mSv/h)

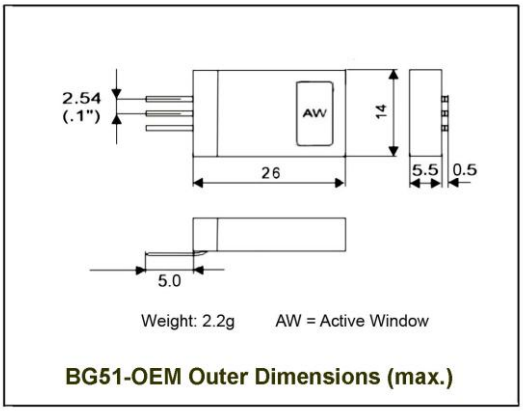
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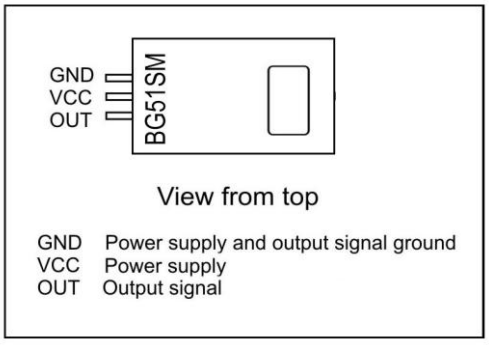
BG51 Directional Response
Front: 100%, Back: 45%



BG51 Functional Block Diagram



BG51 Outline Dimensions
(in millimeters)



BG51 Connection Descriptions

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Application Information

BG51 / BG51-OEM foot print and mechanical specification
https://www.teviso.com/documents/bg51-mechanical-specification.pdf
Preventing false measurements
https://www.teviso.com/documents/how-to-prevent-false-measurements.pdf
Facts about radioactivity
https://www.teviso.com/documents/how-to-live-with-radioactivity.pdf

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