New VEMD8081 High Speed PIN Photodiode Enables Improved Bio Sensor Performance, Slim Design for Wearables; Offers Increased Photocurrent of 33 µA in 4.8 mm by 2.5 mm SMD Package With Industry-Low 0.48 mm Profile

Product Benefits:

- Enhanced sensitivity to visible and infrared light
- Rectangular 4.8 mm by 2.5 mm top-view, surface-mount package with a low 0.48 mm profile
- Typical reverse light current of 33 µA
- Radiant-sensitive area measuring 5.4 mm²
- Wide spectral range from 350 nm to 1100 nm
- Fast switching times and low capacitance of 50 pF enable high sampling rates
- ± 65° angle of half-sensitivity
- Temperature range of -40 °C to +85 °C
- 840 nm wavelength of peak sensitivity
- RoHS-compliant, halogen-free, and Vishay Green
- Moisture sensitivity level (MSL) of 3 in accordance with J-STD-020 for a floor life of 168 hours

Market Applications:

- Optical heart rate detection in wearable devices such as fitness trackers and smartwatches when placed between two pulsing green LEDs
- SpO2 measurement in medical monitors when combined with red and infrared emitters

The News:

Vishay Intertechnology broadens its optoelectronics portfolio with the introduction of a new high speed silicon PIN photodiode with enhanced sensitivity to visible and infrared light. Featuring a rectangular 4.8 mm by 2.5 mm top-view, surface-mount package with an industry-low 0.48 mm profile, the Vishay Semiconductors VEMD8081 offers increased typical reverse light current of 33 µA for improved bio sensor performance in wearable devices and medical applications.

- Offers 15 % greater reverse light current than its predecessor, the VEMD8080, while maintaining the same package dimensions
- Utilizes Vishay's proven wafer technology to detect visible and near infrared radiation
- The device provides designers with a drop-in replacement that can improve performance by increasing signal output, or extend battery life by reducing LED current
- For heart rate measurement in wearable devices, the light reflected off the skin is received by the photodiode and converted to an output current, with the device's increased sensitivity enabling more accurate measurements
- The VEMD8081's rectangular shape maximizes the area of the photodiode receiving reflected light, eliminating the wasted area typically found in square photodiodes

The Key Specifications:

- Typical capacitance: 50 pF
- Radiant sensitive area: 5.4 mm²
- Typical reverse light current: 33 µA
- Typical reverse dark current: 0.5 nA
- Spectral bandwidth: 350 nm to 1100 nm
- Angle of half-sensitivity: ± 65°
- Temperature range: -40 °C to +85 °C
- Wavelength of peak sensitivity: 840 nm

Availability:
Samples and production quantities of the VEMD8081 are available now, with lead times of 10 weeks.

To access the product datasheet on the Vishay Website, go to
http://www.vishay.com/ppg?80218 (VEMD8081)

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