



## VEMD8082 Silicon PIN Photodiode Improves Sensitivity in Biomedical Applications; Features Larger Sensitive Area of 6.0 mm<sup>2</sup>, Increased Reverse Light Current, and Small Form Factor of 4.8 mm by 2.5 mm by 0.5 mm

### Product Benefits:

- Enhanced sensitivity
- Small form factor of 4.8 mm by 2.5 mm by 0.5 mm
- Radiant sensitive area of 6.0 mm<sup>2</sup>
- High reverse light current of 40  $\mu$ A at 850 nm
- Low diode capacitance of 46 pF
- Fast rise and fall times of 40 ns
- $\pm 65^\circ$  angle of half sensitivity
- Suitable for visible and near infrared radiation
- Compatible with infrared reflow solder processes
- RoHS-compliant, halogen-free, and Vishay Green



### Market Applications:

- Biomedical applications such as heart rate and blood oxygen monitoring

### The News:

Vishay Intertechnology releases a new silicon PIN photodiode that brings a higher level of sensitivity in the visible / near infrared wavelength to biomedical applications.

- Compared to previous-generation solutions, the VEMD8082 offers an 18 % to 20 % increase in reverse light current, depending on wavelength; a decrease in diode capacitance from 50 pF to 46 pF; and faster rise and fall times of 40 ns vs. 110 ns, allowing for higher sampling rates
- The device's small form factor makes it suitable for integration into low profile devices such as smart watches
- The high sensitivity provided by the VEMD8082 is particularly important in biomedical applications such as photoplethysmography (PPG), where the photodiode is used to detect changes in blood volume and flow by measuring the amount of light absorbed or reflected by blood vessels
  - In such applications, precise measurements are crucial for diagnosing and monitoring conditions such as cardiovascular disease



## The Key Specifications:

- Radiant sensitive area: 6.0 mm<sup>2</sup>
- Dimensions: 4.8 mm by 2.5 mm by 0.5 mm
- Range of spectral bandwidth: 350 nm to 1100 nm
- Typical reverse light current:
  - 25  $\mu$ A at 525 nm
  - 40  $\mu$ A at 850 nm
  - 38  $\mu$ A at 940 nm
- Diode capacitance: 46 pF
- Rise time: 40 ns

## Availability:

Samples and production quantities of the VEMD8082 are available now. with lead times of 12 weeks for production orders

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?80381> (VEMD8082)

## Contact Information:

### THE AMERICAS

Jim Toal  
[jim.toal@vishay.com](mailto:jim.toal@vishay.com)

### EUROPE

Boris Lazic  
[boris.lazic@vishay.com](mailto:boris.lazic@vishay.com)

### ASIA/PACIFIC

Jason Soon  
[jason.soon@vishay.com](mailto:jason.soon@vishay.com)