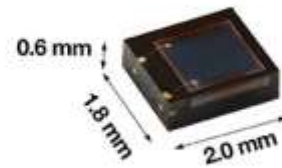




VEMD2704 High Speed PIN Photodiode in Compact 2.0 mm x 1.8 mm x 0.6 mm Package Offers Enhanced Sensitivity for Visible Light, Simple Integration, Precise Signal Detection, and Design Flexibility for Heart Rate Monitoring and Pulse Oximetry Applications

Product Benefits:

- Available in compact 2.0 mm by 1.8 mm by 0.6 mm package with clear epoxy for maximum sensitivity
- High radiant sensitivity:
 - Reverse light current of 1.17 μ A
 - Dark current of 0.03 nA
- Fast switching times of 70 ns
- Low capacitance of 17.6 pF
- Radiant-sensitive area of 1.51 mm²
- Wide spectrum range from 350 nm to 1100 nm
- $\pm 67^\circ$ angle of half-sensitivity
- 940 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 and pulse oximetry applications in wearable devices

The News:

Vishay Intertechnology introduces a new high speed silicon PIN photodiode with enhanced sensitivity for visible light. Offered in a compact 2.0 mm by 1.8 mm by 0.6 mm top-view, surface-mount package with clear epoxy for maximum sensitivity, the Vishay Semiconductors VEMD2704 provides fast switching times of 70 ns and low capacitance of 17.6 pF for precise signal detection in wearable devices.

- With its large radiant-sensitive area and high radiant sensitivity, the device detects visible and near infrared radiation over a wide spectrum range
- In wearable devices such as fitness trackers and smartwatches, the photodiode can be used with green LEDs for optical heart rate detection and red LEDs for pulse oximetry applications
- Offering a reduced size compared to previous-generation solutions, the VEMD2704 enables easier integration into smaller products like earbuds; allows several photodiodes to be included in the optical system for more precise signal detection; and offers increased flexibility in sensor placement
- The device is available at a lower cost than previous-generation photodiodes, making it ideal for cost-sensitive devices like smart bands



The Key Specifications:

- Reverse light current: 1.17 μ A
- Reverse dark current: 0.03 nA
- Rise / fall time: 70 ns
- Diode capacitance: 17.6 pF
- Spectral bandwidth: 350 nm to 1100 nm
- Wavelength of peak sensitivity: 940 nm
- Angle of half intensity: $\pm 67^\circ$
- Radiant-sensitivity area: 1.51 mm²
- Temperature range: -40 °C to +85 °C

Availability:

Samples and production quantities of the VEMD2704 are available now, with lead times of 20 weeks.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?80304> (VEMD2704)

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