New VSMG10850 and VSMB10940 Infrared Emitters and VEMD10940F Silicon PIN Photodiode

The News:

Vishay Intertechnology Introduces New High-Speed 850 nm and 940 nm IR Emitters and Package-Matched High-Speed Silicone PIN Photodiode With Daylight Blocking Filter

Vishay Intertechnology, Inc. (NYSE: VSH) broadens its optoelectronics portfolio with the introduction of two new high-speed 850 nm and 940 nm infrared emitters and a package-matched high-speed silicon PIN photodiode with high radiant sensitivity from 780 nm to 1050 nm. The VSMG10850, VSMB10940, and VEMD10940F each offer an ultra-wide ±75° angle of half intensity in a compact side-view surface-mount package measuring 3 mm by 2 mm by 1 mm.

Product Benefits:

- Compact package measures 3 mm by 2 mm with a height of only 1 mm
- Ultra-wide ±75° angle of half intensity
- IR emitters
  - Peak wavelengths of 850 nm and 940 nm
  - Clear, untinted plastic packages
  - High radiant intensity of 1 mW/sr typical at 20 mA
  - Fast switching times of 15 ns
  - GaAlAs multi quantum well and double hetero technology
  - Low forward voltage down to 1.3 V typical
- Photodiode
  - High radiant sensitivity from 780 nm to 1050 nm
  - Features a daylight blocking filter matched with 830 nm to 950 nm IR emitters
  - Reverse light current of 3 µA
  - Low dark current of 1 nA
  - 920 nm wavelength of peak sensitivity
  - Low 0.1 %/K temperature coefficient of light current
- Floor life of 168 hours and moisture sensitivity level (MSL) of 3 in accordance with J-STD-020
- Support lead (Pb)-free reflow soldering
- Conform to Vishay’s “Green” standards
The Key Specifications:

<table>
<thead>
<tr>
<th>Infrared emitters</th>
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<tbody>
<tr>
<td>Part #</td>
<td>VSMG10850</td>
<td>VSMB10940</td>
</tr>
<tr>
<td>Peak wavelength</td>
<td>850 nm</td>
<td>940 nm</td>
</tr>
<tr>
<td>Technology</td>
<td>GaAlAs double hetero</td>
<td>GaAlAs multi quantum well</td>
</tr>
<tr>
<td>Radiant intensity</td>
<td>1 mW/sr typical</td>
<td>1 mW/sr typical</td>
</tr>
<tr>
<td>Switching times</td>
<td>15 ns</td>
<td>15 ns</td>
</tr>
<tr>
<td>Forward voltage</td>
<td>1.4 V typical</td>
<td>1.3 V typical</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Photodiode</th>
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<tbody>
<tr>
<td>Part #</td>
<td>VEMD10940F</td>
<td></td>
</tr>
<tr>
<td>Radiant sensitivity</td>
<td>780 nm to 1050 nm</td>
<td></td>
</tr>
<tr>
<td>Wavelength of peak sensitivity</td>
<td>920 nm</td>
<td></td>
</tr>
<tr>
<td>Dark current</td>
<td>1 nA</td>
<td></td>
</tr>
<tr>
<td>Reverse light current</td>
<td>3 µA</td>
<td></td>
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</tbody>
</table>

Market Applications:

- IR touch panels for devices such as printer displays, eBook readers, smart phones, tablets, ultrabooks, and GPS units

The Perspective:

With their low profiles of 1 mm, the VSMG10850, VSMB10940, and VEMD10940F are optimized for use in IR touch panels in a wide range of devices. Offered in clear, untinted plastic packages, the 940 nm VSMB10940 and 850 nm VSMG10850 IR emitters provide high radiant intensity of 1 mW/sr typical at 20 mA – up to 33% higher than comparable devices on the market – and fast switching times of 15 ns. Offering high radiant sensitivity from 780 nm to 1050 nm, the VEMD10940F photodiode features a daylight blocking filter matched with 830 nm to 950 nm IR emitters, including the VSMG10850 and VSMB10940.

Availability: Samples and production quantities of the new IR emitters and photodiode are available now, with lead times of six to eight weeks.

To access the product datasheets on the Vishay Web site, go to

Contact Information:

- The Americas
  - Mr. Dale Henderson
dale.henderson@vishay.com

- Europe
  - Mr. Kai Rottenberger
kai.rottenberger@vishay.com

- Asia/Pacific
  - Mr. Jason Soon
jason.soon@Vishay.com