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Optical switch and proximity sensor in SMT

Sensing a presence

The two contact-less SMT sensors SFH7740 and SFH7741 from OSRAM Opto Semiconductors will enhance the convenience of mobile devices such as cell phones and digital cameras and also save on battery power. The sensors use distance measurements to detect the operating status of the mobile devices and switch the display and keypad off as soon as they are no longer needed. They also adjust the volume of the loudspeakers.

The SFH7740 switch measures just a few millimeters (3.7 x 3.7 x 1.0) and reacts to tiny distances between 0.5 and 4 mm. It is so small that it will even fit in slider phones where it detects the position of the slider that reveals or hides the keypad. Depending on whether the slider is closed or open it switches the display lighting off or on. The sensor is insensitive to electromagnetic interference and does not produce any electromagnetic interference itself. It is therefore an ideal alternative to the Hall sensors currently in use. Its compact dimensions mean that it can be unobtrusively integrated even in unusual designs, such as extremely low-profile devices.

The tiny SFH7741 optical proximity switch reacts at distances of 1.5 cm to around 5 cm and is suitable for a wide range of applications. For example it detects when the phone is moved close to the ear, taking the display and the keypad out of sight of the user. The backlighting is therefore switched off and the volume adjusted. In handsfree mode with the phone well away from the ear the backlighting is switched on and the volume adjusted accordingly. The sensor can also help save energy in digital cameras, switching off the display lighting whenever users hold the camera up to their eyes and use the viewfinder instead of the screen for example.

The two SMT sensors only draw a current of around 50 μ A. They make use of integrated ambient light suppression and therefore operate reliably in all lighting conditions.

Following on from ambient light sensors and orientation sensors, these two new SMT components are further evidence of OSRAM's expertise in sensor technology for mobile devices.



Picture: OSRAM

<http://www.osram-os.com/press>

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Proximity sensors make mobile devices more comfortable and help saving energy.

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