

Backlight LED Driver Is Compatible With 3- To 12-in. Vehicle LCD Panels

ROHM Semiconductor's BD81A76EFV-M LED driver IC is optimized for LCD backlights in instrument cluster, center information displays and car navigation. Unlike conventional drivers with four channels that support LCDs up to 8 in., this IC provides six channels of output (with 120 mA per channel) that can support LCD panels of up to the 10-in. to 12-in. class. At the same time original buck-boost control ensures compatibility with both small and large LCDs using a single driver. This makes it possible to develop a common design for an LCD control board that is suitable for conventional panels along with the latest large-size displays (see the figure).

In recent years, to improve both visibility and design in the automotive field, LCDs are being used in an increasing number of systems including instrument clusters, head-up displays and car navigation. In addition, larger screen sizes are being demanded. They require a greater number of high brightness LEDs for backlight as well as LED drivers featuring multi-channel operation and advanced dimming features that can prevent flicker effects. The BD81A76EFV-M was developed in response to these trends.

"ROHM's new LED driver allows flexibility of design in modern display architectures and ensures backwards compatibility providing cost effectiveness," said Stefan Drouzas, product marketing manager for Automotive Display Products, ROHM Semiconductor.

Incorporating a constant current driver with low heat generation enables a 6-channel LED current output of 120 mA per channel, enabling support of the larger LCD panels. In addition, original PWM dimming technology (patent no. 2018-169705) provides a dimming ratio of 10,000:1, improving visibility and greater design flexibility for center information displays and instrument clusters.

Other innovations include the driver's leveraging of analog design expertise and process technologies to reduce standby current consumption to just 10 μ A. According to the company, this is less than one-third that of functionally equivalent products, which feature a standby current of 40 μ A (typ.).

In addition to obtaining qualification under the international AEC-Q100 standard for automotive reliability, the LED driver integrates a spread spectrum function as a countermeasure against EMI that allows it to clear CISPR25 noise requirements for vehicle applications. Available now in sample and OEM quantities, the BD81A76EFV-M is housed in an HTSSOP-B30 package.

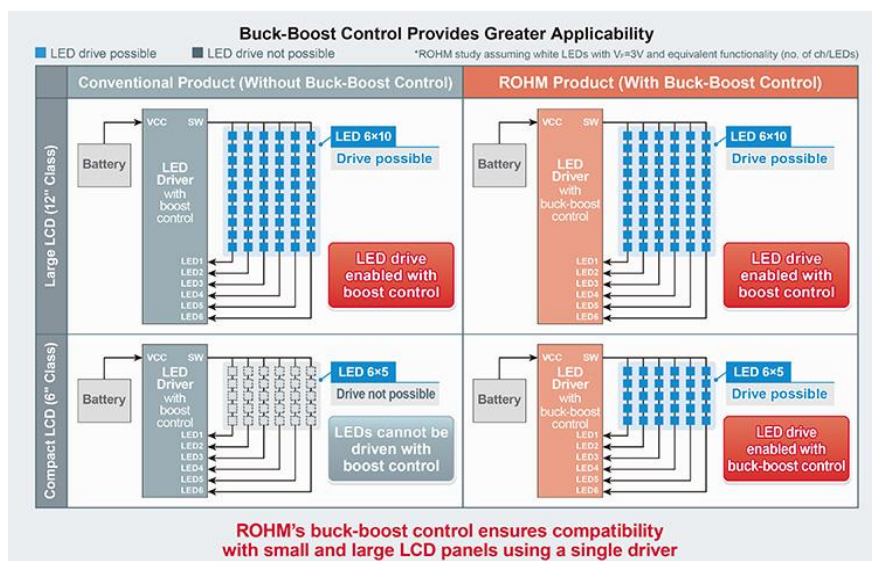


Figure. The BD81A76EFV-M incorporates proprietary buck-boost control to provide greater application flexibility in LCD applications in contrast to conventional 6-channel backlight LED drivers using only boost control. While conventional LED drivers are only capable of driving 36 to 60 LEDs (6 to 10 LEDs/channel), the BD81A76EFV-M driver IC expands the range, driving from 6 to 60 LEDs (1 to 10 LEDs/channel). This ensures the support of not only larger displays but also small- and medium-size panels as well, using a single driver. This supports use of a common design for the control board.