

# World's Smallest Advanced Lighting Management Unit for Handheld Devices

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National Semiconductor Corporation introduced the world's smallest backlight light emitting diode (LED) driver that controls lighting applications in handheld devices, including cellular phones, digital still cameras, gaming devices and MP3 players.

Housed in a tiny micro SMD package, the LP3954 advanced lighting management unit integrates two backlight drivers, a dual red-green-blue (RGB) LED controller, a Flash LED driver and an analog-to-digital converter (ADC) on a single chip. The integrated, magnetic boost DC-DC converter efficiently drives high current loads over a wide battery voltage range.

"National's LP3954 is a highly integrated backlight LED driver that is easy-to-use, feature-rich and small enough to implement into any phone

today,” said Gianluca Colli, director of integrated system products for National Semiconductor’s Portable Power Products Group. “Built-in, stand-alone features, including backlight fading, RGB control and audio synchronization, allow differentiation and reduce software development time, helping manufacturers get their cellular phones to market faster.”

### Key Technical Specifications of National’s LP3954 Advanced Lighting Management Unit

The LP3954 is a lighting management unit that drives two separately controlled white LED backlights for the main and sub-display. In the case of a single large display, these units can be combined together to drive up to six LEDs.

The integrated backlight drivers are highly efficient, low-voltage structures with excellent matching that feature an automatic fade-in/fade-out function.

The enhanced, stand-alone, command-based RGB controller allows more flexible control of color or RGB LEDs and is easy to configure. The high-current camera Flash LED driver has a programmable safety timer and features both a torch and a flash mode. The Flash LED timing is triggered by an external signal, a key feature for cell phone cameras. An internal ADC enables either high resolution ambient light/temperature sensing or a built-in, multi-mode audio synchronization feature that drives color LEDs based on an audio input from an MP3, for example. The flexible SPI/I2C compatible interface allows easy control of the LP3954.

The LP3954 is housed in a tiny, 36-bump micro SMD lead-free package that measures 3 mm by 3 mm by 0.6 mm. For more information on the LP3954 or to order samples, visit

[www.national.com/pf/LP/LP3954.html](http://www.national.com/pf/LP/LP3954.html) .

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