All-in-one PMIC provides up to 93% efficiency for cell phone displays

Maxim Integrated Products introduces the MAX8930, a highly integrated power-management IC (PMIC) for cell phone displays. By integrating a white LED (WLED) driver, passive-matrix organic LED (PMOLED) driver, and a linear drop-out regulator (LDO) in a 10mm2 package, this PMIC reduces solution size by over 45% compared to discrete implementations. The MAX8930 uses an adaptive-charge-pump architecture (1x or -0.5x) and advanced dimming techniques to achieve up to 93% efficiency. Moreover, it averages 90% efficiency over the critical 3.5V to 3.7V input range, in which the lithium-ion (Li+) cell operates most often. This combination of space savings and efficiency makes the MAX8930 ideal for space-constrained flip phones with multiple displays and a peripheral, such as a CMOS imager, in the lid.

The MAX8930 features an I2C-compatible control interface and advanced dimming techniques to extend battery life. Automatic luminance control automatically adjusts the WLED brightness according to the ambient-light level, while the content-adaptive interface optimizes brightness based on the gamma-correction information of the image.

The MAX8930 is available in a tiny (3.17mm x 3.17mm), 49-bump wafer-level package (WLP), and is fully specified over the -40 degrees Celsius to +85 degrees Celsius extended temperature range. Prices start at $3.45 (1000-up FOB USA). An evaluation kit with a USB interface and control software is available to facilitate designs.

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