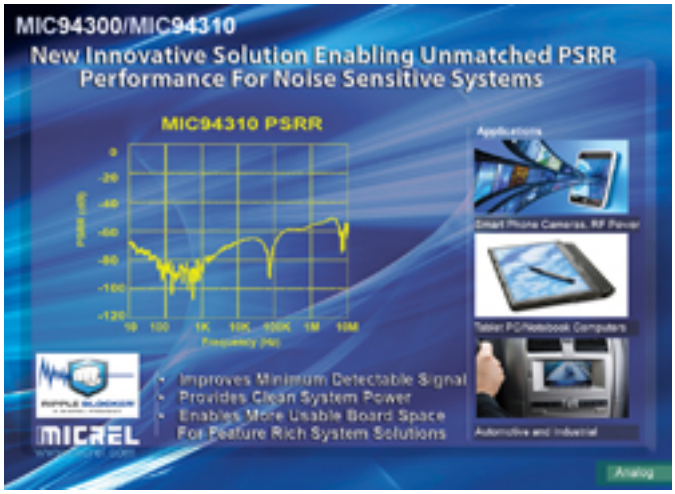
ICs Reduce Switching Regulator Output Ripple and Harmonics by 60 dB at High Frequencies



Micrel Inc., announced the Ripple Blocker family comprising the MIC94300 voltage follower output and the MIC94310 fixed output, low-dropout (LDO) IC. The new MIC94300 /MIC94310 were developed to provide more efficient noise suppression for today's highly sensitive data and image capturing systems. The MIC94300 integrates a low-R DS(ON), current-limit switch and a low-pass filter that passes DC and blocks the AC component of the input voltage. The MIC94310 is a high-performance, low dropout regulator that offers better PSRR performance from DC to 5 MHz than discrete solutions, according to the company. Both ICs feature an active-high enable pin for power sequencing. This IC family is appropriate for demanding portable applications such as smart phones, medical imaging, tablets/notebooks/webcams, digital still and video cameras, bar code scanners, GPS and image system processors for image sensors. Micrel's new Ripple Blocker technology is asserted to improve minimum detectable signal capturing for low-light image sensors by suppressing system power ripple for the Image System Processor (ISP). By eliminating the large LC filter that would typically be required to reduce ripple in a discrete solution, the MIC943XX Series devices provide more usable board space to accommodate space-constrained designs. In addition, this series offers an operating input range of 1.8 V to 3.6 V with exceptional transient performance, ultra-low dropout and very high PSRR (80 db at 1 kHz).

The MIC94300 and the MIC94310 devices deliver up to 200 mA; higher-current devices are under development. Both ICs offer full current and thermal fault condition protection and the MIC94310 offers ultra-low dropout (17mV, typical). The devices also feature a -40ºC to 125ºC junction temperature range. Package options include 0.88mm x 0.88mm, 4-bump CSP and 1.2 mm x 1.6 mm Thin-MLF.

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[1]

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[1] http://www.micrel.com