5.5 V zero-channel power MOSFETs with $R_{on,sp}$ of 1.0 m$\Omega\cdot$mm$^2$ for portable power management applications

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**Abstract**
We report on the experimental demonstration of revolutionary 5.5 V zero-channel power MOSFETs with record low specific on-resistance of 1.0 m$\Omega$·mm$^2$ and Figure of Merit $(R_{on,sp}\times Q_g)$ of 8.4 m$\Omega$·mm$^2$·C with optimized metal layout. This novel device also shows good Hot Carrier Injection (HCI) immunity.

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Request PDF | 5.5 V Zero-Channel Power MOSFETs with R(on,sp) of 1.0 mΩ⋅mm² for Portable Power Management Applications | We report on the experimental demonstration of revolutionary 5.5 V zero-channel power MOSFETs with record low specific on-resistance of 1.0 mΩ⋅mm² and Figure of Merit (RontimesQg) of 8.4 mΩ⋅mm²⋅mC with optimized metal layout. This novel device also shows good Hot Carrier Injection (HCI) immunity. Not all power MOSFETs are the same. NXP power MOSFETs are designed differently and built differently, offering power design engineers unparalleled reliability and performance. #1 for Automotive MOSFETs NXP offers the industry’s largest portfolio of automotive-qualified power MOSFETs, employed in safety-critical applications as diverse as braking, steering and engine management. #1 for Hot-swap MOSFETs In applications such as hot-swap and soft-start, power MOSFETs are deliberately turned on/off slowly to limit in-rush currents, causing devices to operate in their linear mode regions.

RDSon[max] @ VGS 4.5 V (mΩ), ID [max] (A), QG(tot) [typ]. Battery-powered applications Portable devices Signal conditioning Medical instrumentation. Description. The TSZ12x series of high precision operational amplifiers offer very low input offset voltages with virtually zero drift. Supply current (per amplifier, Vout = VCC/2, RL > 1 MΩ), T = 25 °C ~ 40 °C < T < 125 °C AC performance. 28 40 40. If the input pin voltage exceeds the power supply by 0.5 V, the ESD diodes become conductive and excessive current can flow through them. Without limitation this over current can damage the device. In this case, it is important to limit the current to 10 mA, by adding resistance on the input pin, as described in Figure 42: "Input current limitation". Figure 42: Input current limitation. 5.4 Rail-to-rail input.