07WA005 Transient Reduction in Pulse-Based Impedance Measurements

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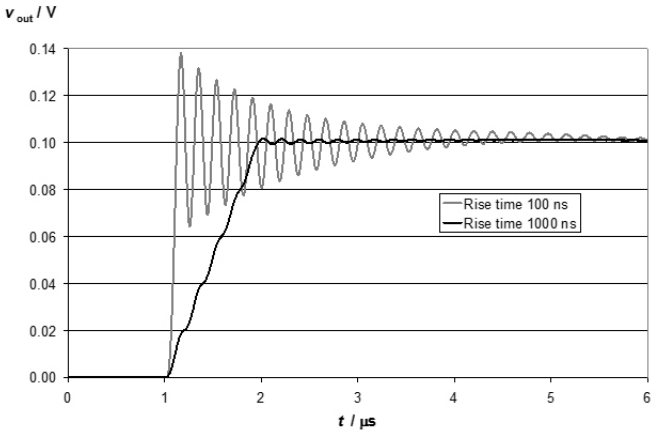
Impedance measurements based on voltage pulse injection and current detection are simple to implement and fast, but transients produced in the current-to-voltage converter can yield large deviations in the impedance measured. Because those transients depend on the impedance being measured itself, it is difficult to avoid them when the measurement range is large. We propose to reduce those transients by controlling the rise time of the pulse being injected. For a particular implementation of the method, transient amplitude has been reduced to less than 2 % of the full scale voltage, as compared to 36 % overshoot for fast voltage pulses.



Output voltage when a 100 mV pulse has been applied

07WA032 Average Value Evaluation of the Distorted Pulse Signal

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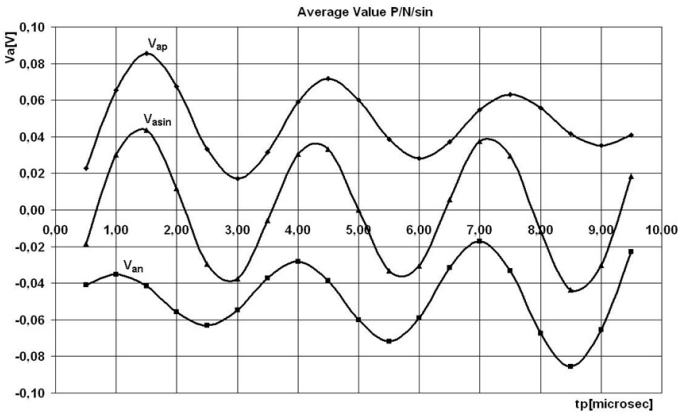
Average value of the distorted pulse signal has been evaluated for two very often encountered distortions, namely finite rise and fall edges durations and oscillations during the pulses. Relative errors of these average values are also given. The results can be applied e.g. in class D power amplifiers.



The average values of the oscillations: Vap, during the positive pulse, Van, during the zero level and their sum Vasin