**pSpice Experience**

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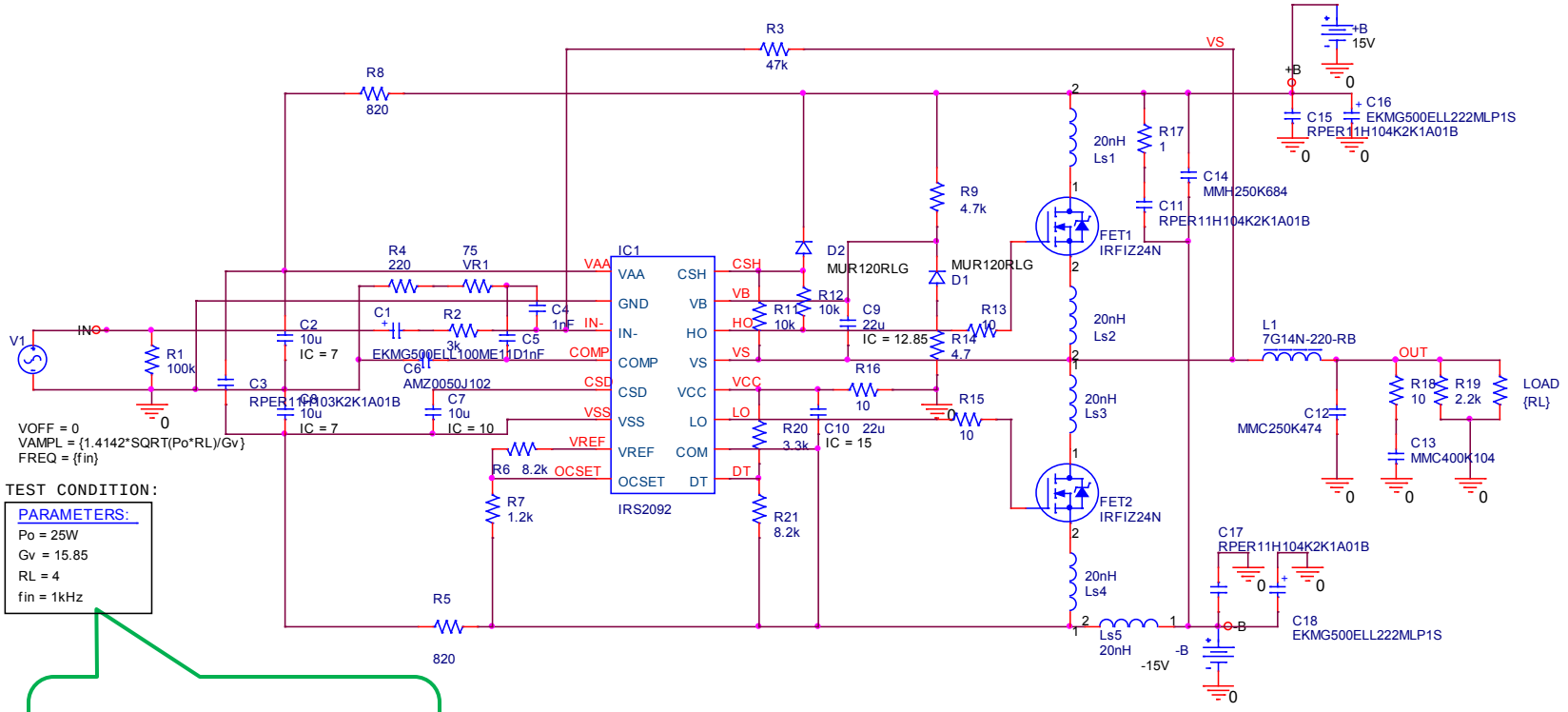
# Class D Amplifier Using PWM

# Specifications : Efficiency Evaluation Circuit

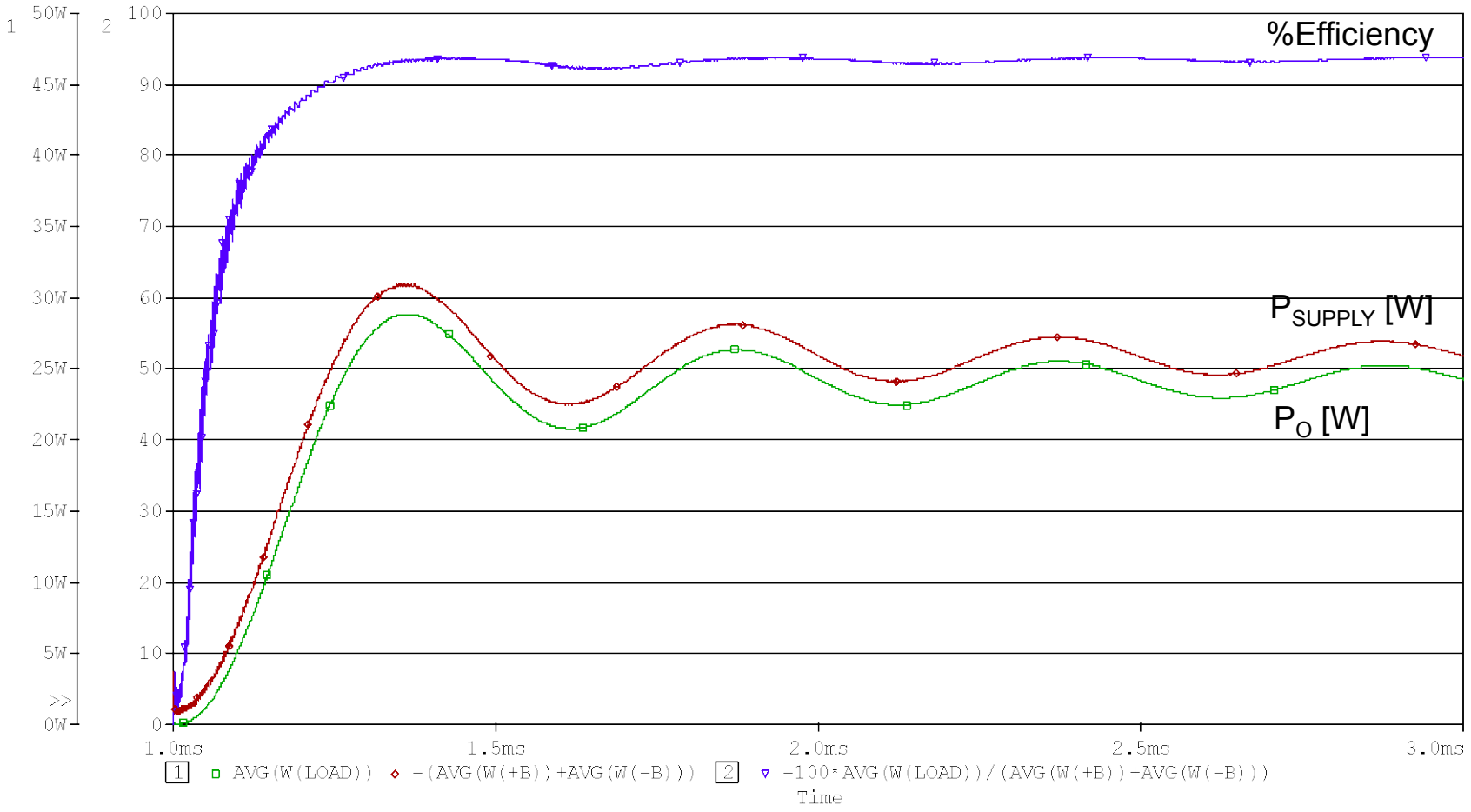



Condition :
Po = 25[W], 4Ω Load

Analysis
Time Domain (Transient)
Run to time: 3ms
Start saving data after: 1ms
Maximum step size: 100n
☑ Skip the initial transient bias point calculation (SKIPBP)

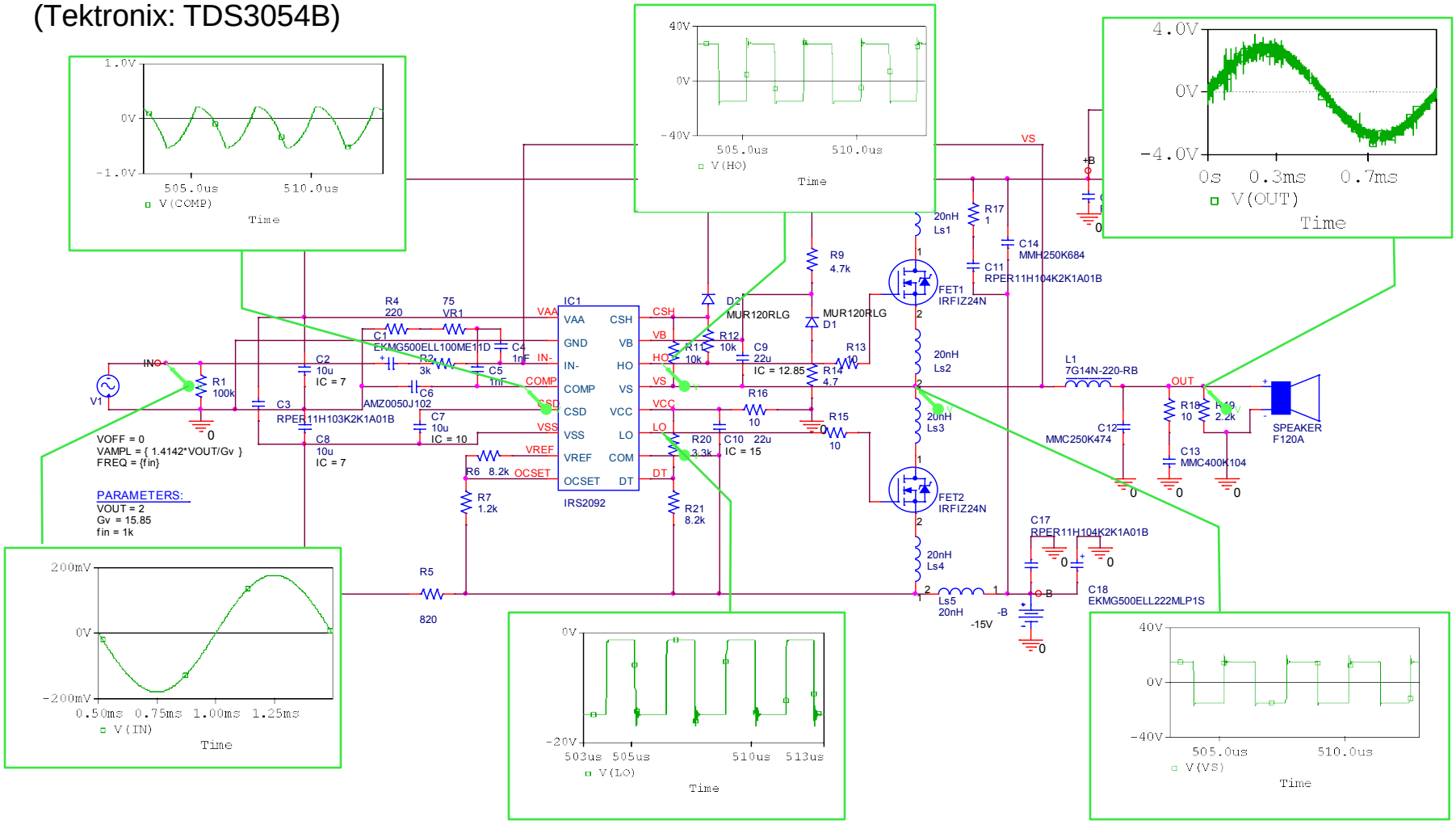
.Options
RELTOL: 0.01
VNTOL: 1.0u
ABSTOL: 1.0n
CHGTOL: 0.01p
GMIN: 1.0E-12
ITL1: 500
ITL2: 200
ITL4: 10

# Specifications : Efficiency Simulation Result



# Waveforms Evaluation

Class D amplifier circuit are simulated and compared with measured waveforms from oscilloscope (Tektronix: TDS3054B)

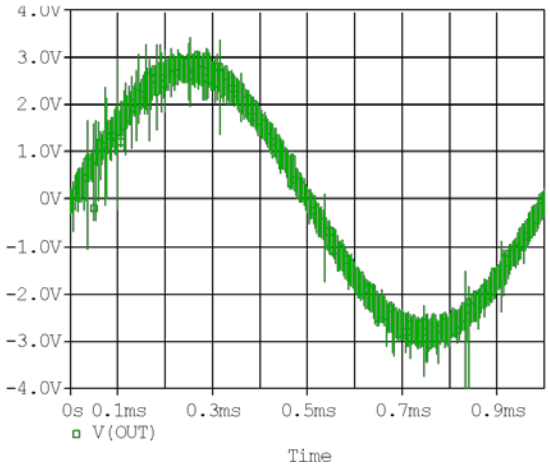


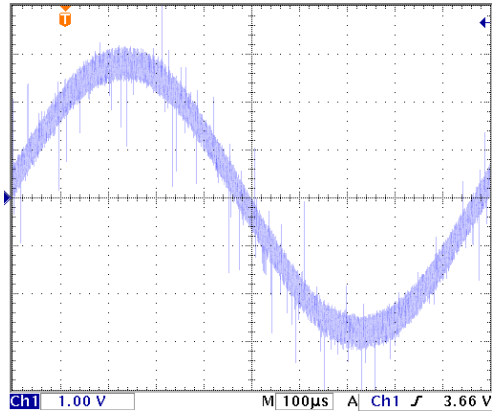
# Simulated vs. Measured Waveform

Simulated

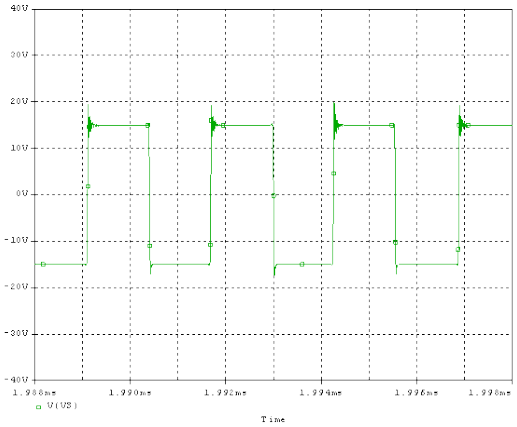
Measured

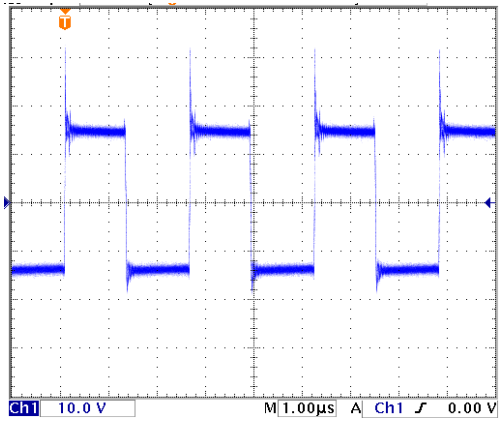
OUT



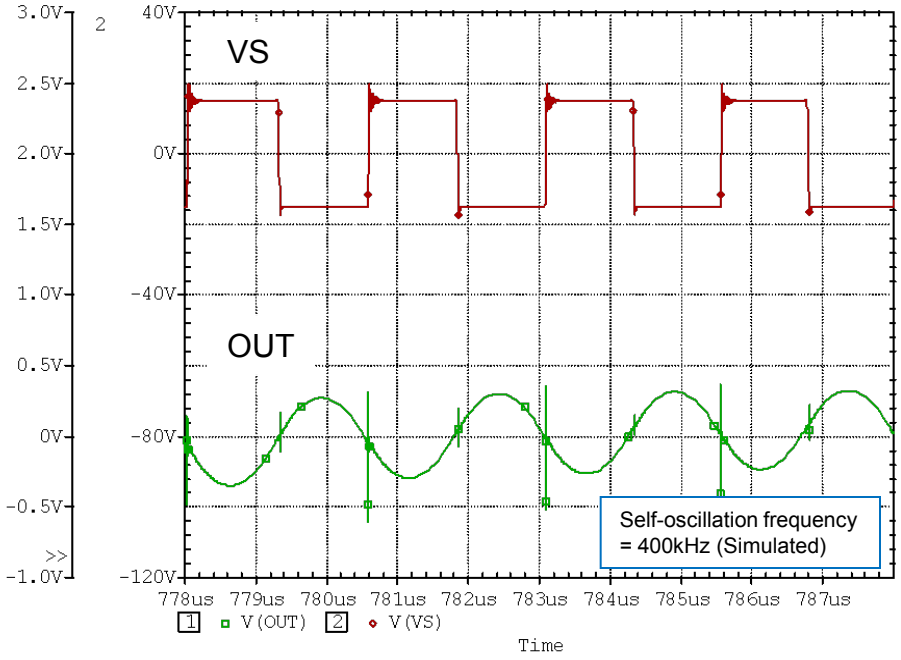

VS



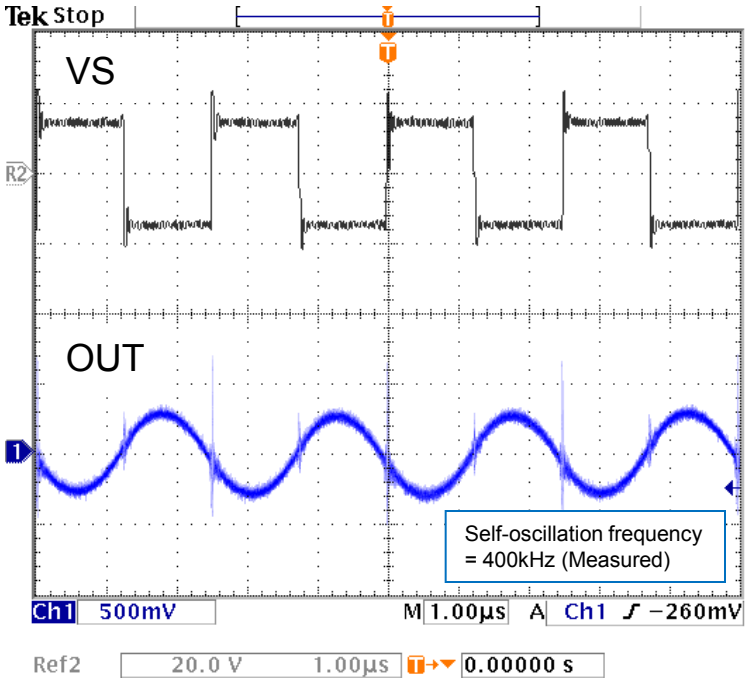


# Self-Oscillating Frequency

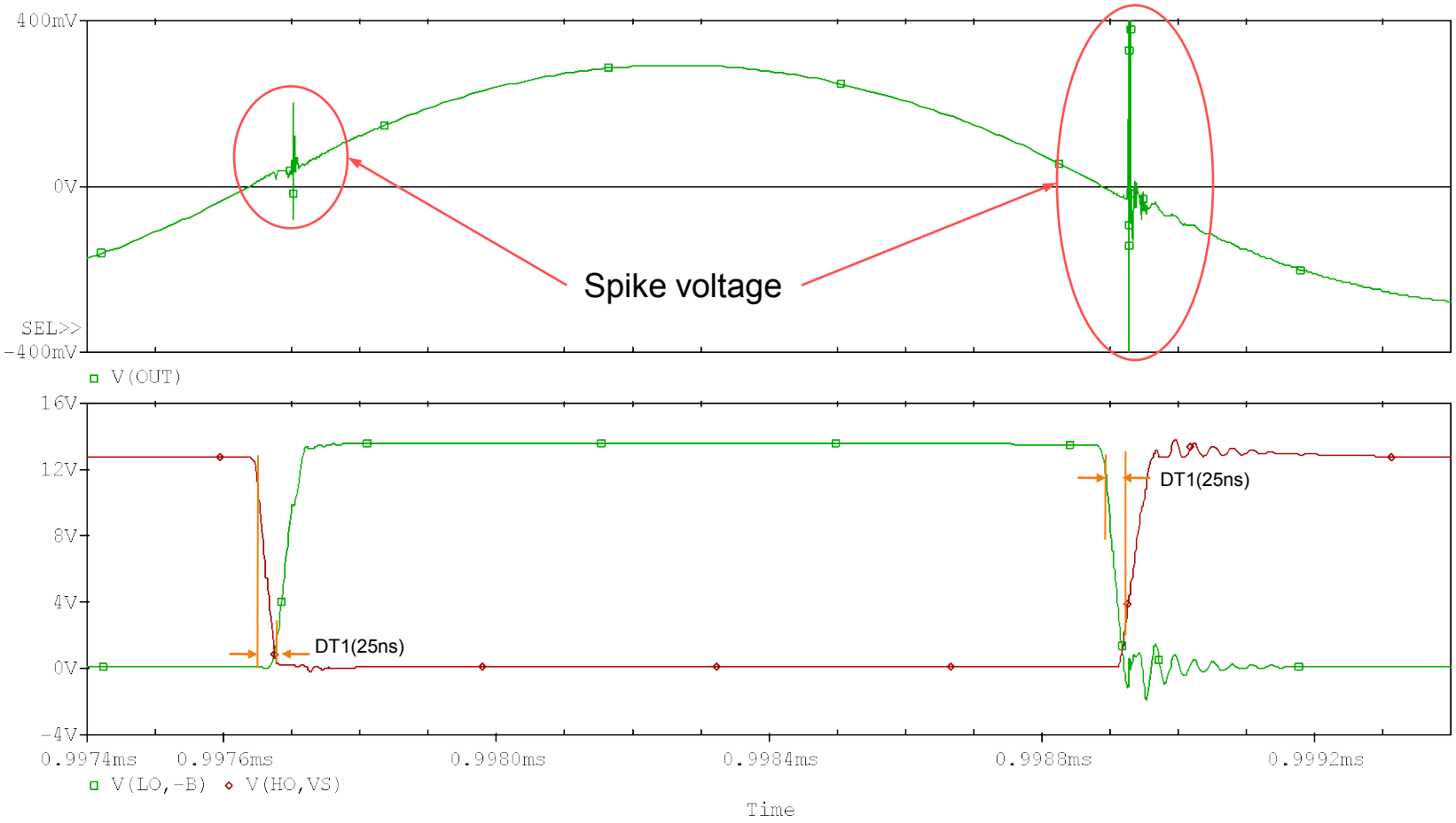
Simulated




Measured



# Dead-time (25ns)



# Power losses FET

FET: ID and VDS are simulated and compared with scope (Tektronix: TDS2012B) waveforms

$P_{SW}$ ,$P_{cond}$ ,*and* $P_{gd}$ are calculated by PSpice.