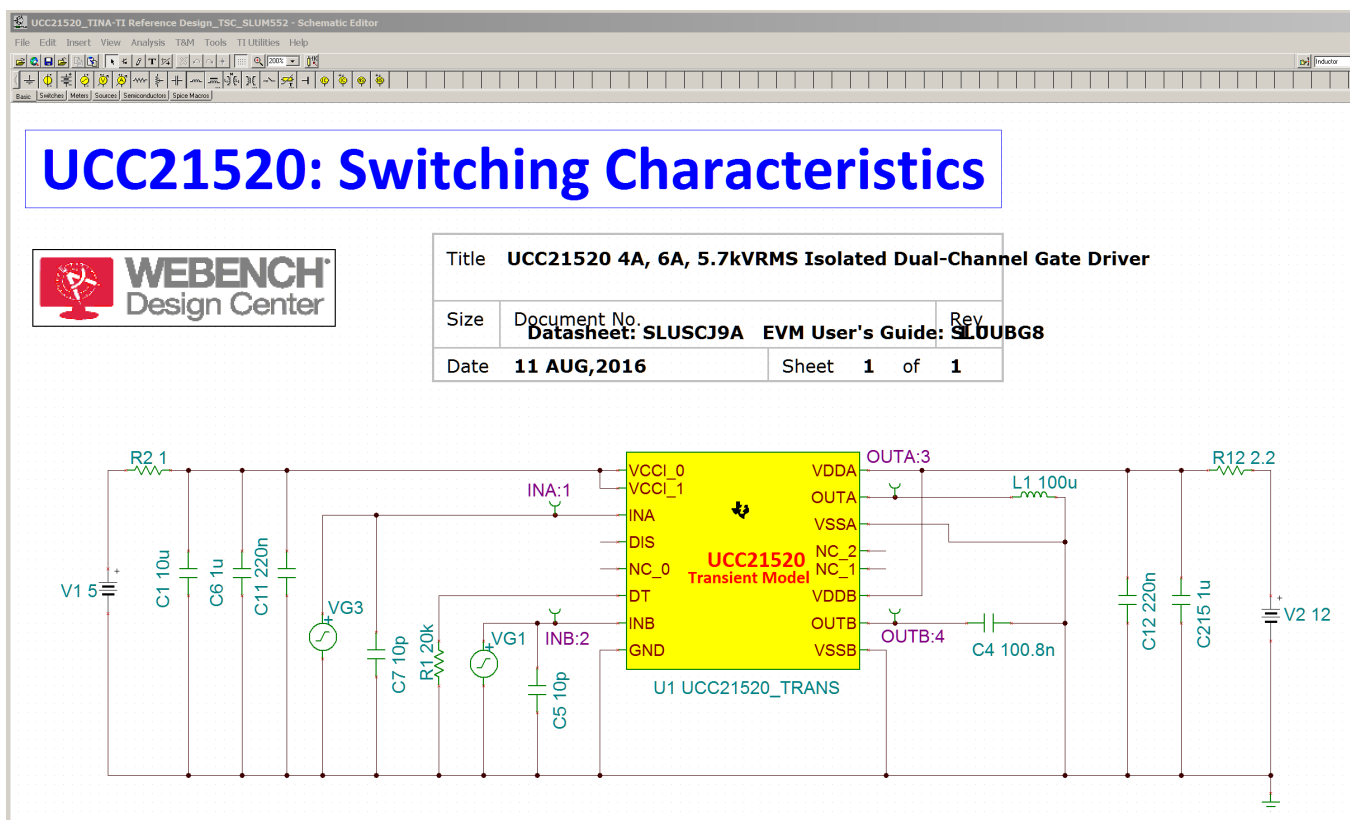


### **DEMONSTRATION of the UCC21520 Switching Characteristics [using WEBENCH Design Center]**

The circuit file of the Evaluation Board, with the IC (UCC21520) already in the circuit diagram, is also available from TI. *Simply; file | open | change the values!*

**Schematic:**



## Transient Simulation NOTES:

- OUTA (OUTA:3) load is L1 100uH inductor

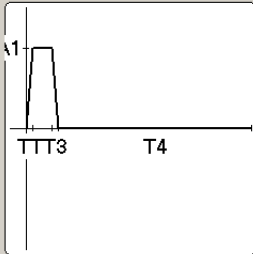
L1 - Inductor		
Label	L1	
Parameters	(Parameters)	
Inductance [H]	100u	<input checked="" type="checkbox"/>
RSer [Ohm]	10	<input type="checkbox"/>
Initial DC current [A]	0	<input type="checkbox"/>
Temperature	Relative	
Temperature [C]	0	<input type="checkbox"/>
Linear temp. coef. [1/C]	0	<input type="checkbox"/>
Quadratic temp. coef. [1/C²]	0	<input type="checkbox"/>
Maximum voltage (V)	100	<input type="checkbox"/>
Maximum current (A)	10	<input type="checkbox"/>
Fault	None	

OUTB (OUTB:4) load is C4 100.8nF

C4 - Capacitor		
Label	C4	
Parameters	(Parameters)	
Capacitance [F]	100.8n	<input checked="" type="checkbox"/>
RPar [Ohm]	Infinite	<input type="checkbox"/>
Initial DC voltage [V]	Not Used	<input type="checkbox"/>
Temperature	Relative	
Temperature [C]	0	<input type="checkbox"/>
Linear temp. coef. [1/C]	0	<input type="checkbox"/>
Quadratic temp. coef. [1/C²]	0	<input type="checkbox"/>
Maximum voltage (V)	100	<input type="checkbox"/>
Maximum ripple current (A)	1	<input type="checkbox"/>
Fault	None	

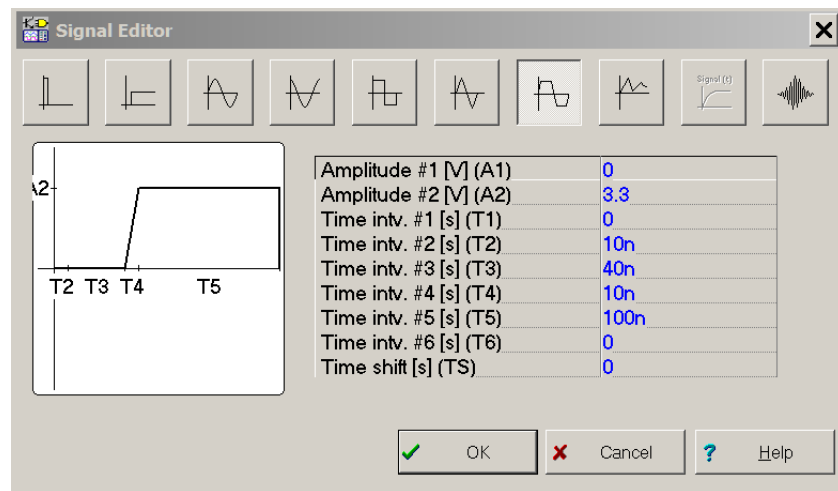
OK Cancel Help

- VG3 (INA:1)

Signal Editor																			
	<table border="1"><tbody><tr><td>Amplitude #1 [V] (A1)</td><td>3.3</td></tr><tr><td>Amplitude #2 [V] (A2)</td><td>0</td></tr><tr><td>Time intv. #1 [s] (T1)</td><td>10n</td></tr><tr><td>Time intv. #2 [s] (T2)</td><td>30n</td></tr><tr><td>Time intv. #3 [s] (T3)</td><td>10n</td></tr><tr><td>Time intv. #4 [s] (T4)</td><td>300n</td></tr><tr><td>Time intv. #5 [s] (T5)</td><td>0</td></tr><tr><td>Time intv. #6 [s] (T6)</td><td>0</td></tr><tr><td>Time shift [s] (TS)</td><td>0</td></tr></tbody></table>	Amplitude #1 [V] (A1)	3.3	Amplitude #2 [V] (A2)	0	Time intv. #1 [s] (T1)	10n	Time intv. #2 [s] (T2)	30n	Time intv. #3 [s] (T3)	10n	Time intv. #4 [s] (T4)	300n	Time intv. #5 [s] (T5)	0	Time intv. #6 [s] (T6)	0	Time shift [s] (TS)	0
Amplitude #1 [V] (A1)	3.3																		
Amplitude #2 [V] (A2)	0																		
Time intv. #1 [s] (T1)	10n																		
Time intv. #2 [s] (T2)	30n																		
Time intv. #3 [s] (T3)	10n																		
Time intv. #4 [s] (T4)	300n																		
Time intv. #5 [s] (T5)	0																		
Time intv. #6 [s] (T6)	0																		
Time shift [s] (TS)	0																		

OK Cancel Help

- VG1 (INB:2)



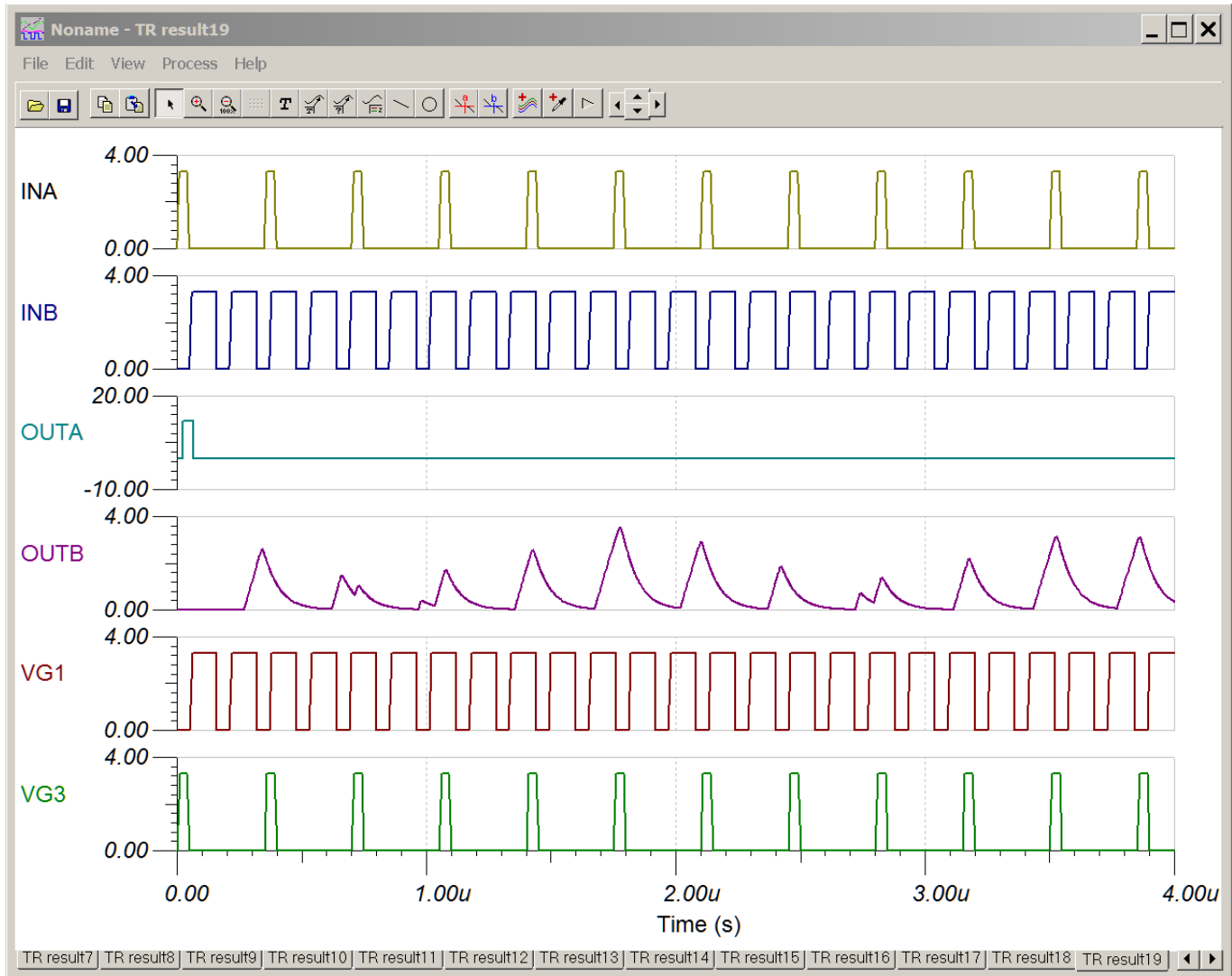
- Transient Analysis

The Transient Analysis dialog box contains the following settings:

- Start display: 0 [s]
- End display: 4u [s]
- Calculate operating point: ☒
- Use initial conditions: ☐
- Zero initial values: ☐
- Draw excitation: ☒

Buttons: OK, Cancel, Help

## Transient Analysis simulation WAVEFORMS



Note: OUTB doesn't seem to "like" the 100.8nF C4.  
OUTA seems ok with a 100uH @ 10 ohm internal resistance

SiC MOSFET spice files are easily added to this circuit, as well as other devices, etc., as required.

***This only a quick demonstration of what can be done using one of the many "free" simulation packages with very little time, effort, learning curve, and no expense!***

SL