



SN0803030 Project
8/21/08

The following test report is for the SN0803030 project.

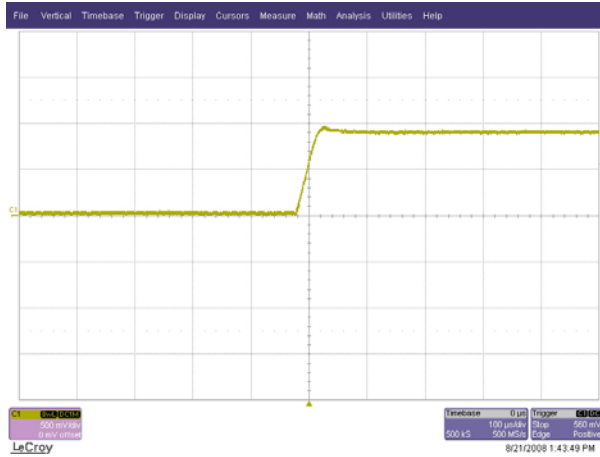
The tests performed were as follows:

- A. SN0803030 – 0.9-1.05V@33A
 - 1. Turn-On (No Load)
 - 2. Turn-Off (1A Load)
 - 3. Output Voltage Ripple (0A Load)
 - 4. Output Voltage Ripple (33A Load)
 - 5. Transient Response (3A to 30A)
 - 6. Efficiency
 - 7. Load Regulation
 - 8. Switch Node (20MHz Bandwidth Limited with no load)
 - 9. Switch Node (20MHz Bandwidth Limited with 33A load)
 - 10. Switch Node (No Bandwidth Limit with 33A load)
 - 11. Switch Node/Gate Drivers
 - 12. Thermal Images (Full Load)

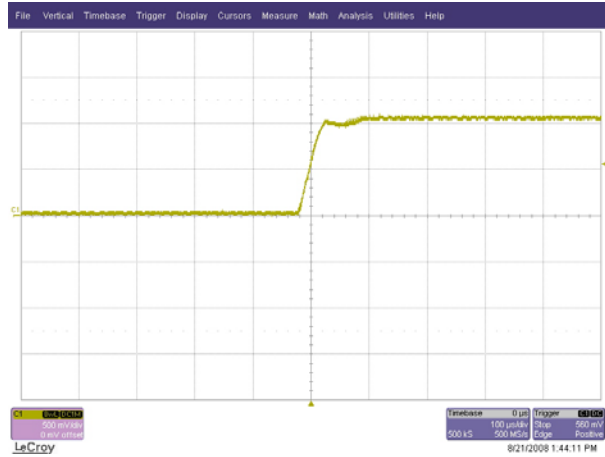
1 Startup – (SN0803030 : 0.9V-1.05V@33A)

The photos below show the startup waveforms. The input voltage is 12V, the output is not loaded. The time-base is set to 100us/Division.

Channel 1 – Yellow : Output – (500mV/Division)



0.9V

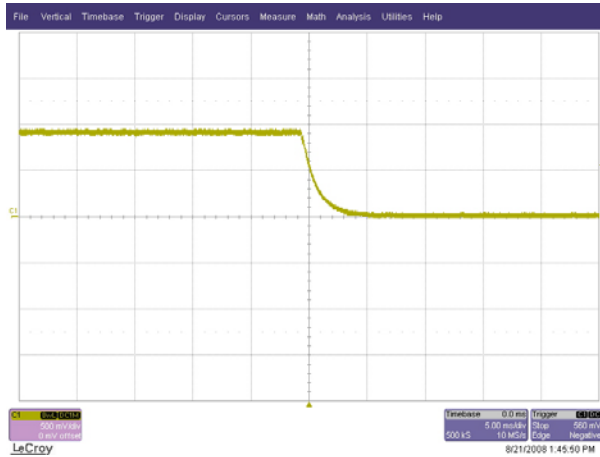


1.05V

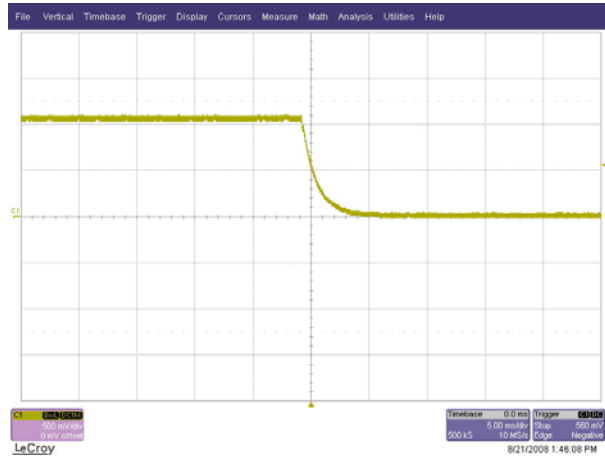
2 Shutdown – (SN0803030 : 0.9V-1.05V@33A)

The photos below show the shutdown waveforms. The input voltage is 12V, the output is loaded with 1A. The time-base is set to 5ms/Division.

Channel 1 – Yellow : Output – (500mV/Division)



0.9V



1.05V

3 Output Voltage Ripple (No Load) – (SN0803030 : 0.9V-1.05V@33A)

The photo below shows the output voltage ripple. The output is not loaded. The input voltage is 12V. The timebase is set to 50ms/Division.

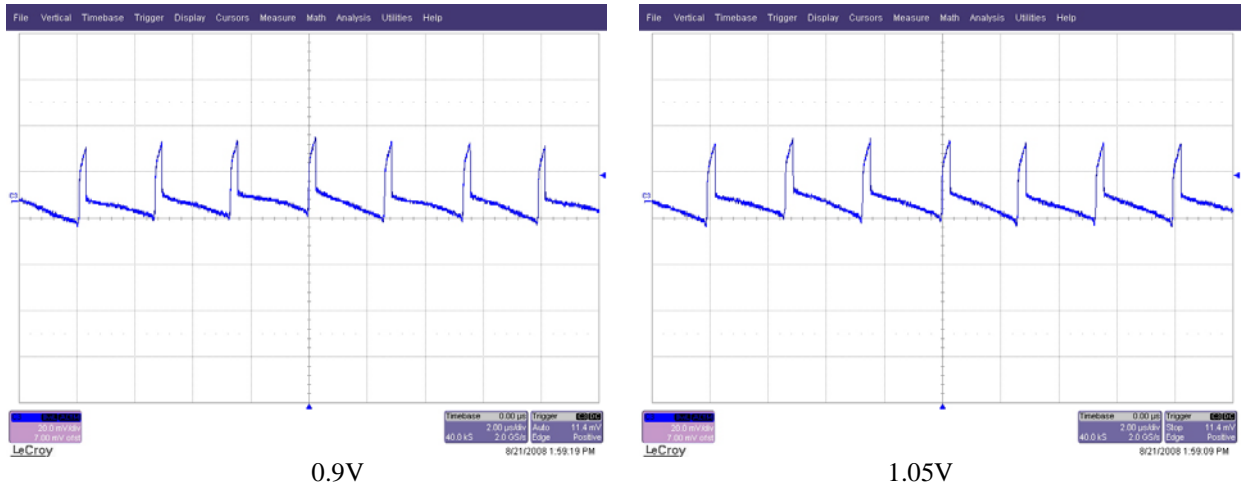
Channel 3 – Output Voltage : (20mV/Division; AC Coupled)



4 Output Voltage Ripple (33A Load) – (SN0803030 : 0.9V-1.05V@33A)

The photo below shows the output voltage ripple. The output is not loaded. The input voltage is 12V. The timebase is set to 2us/Division.

Channel 3 – Output Voltage : (20mV/Division; AC Coupled)

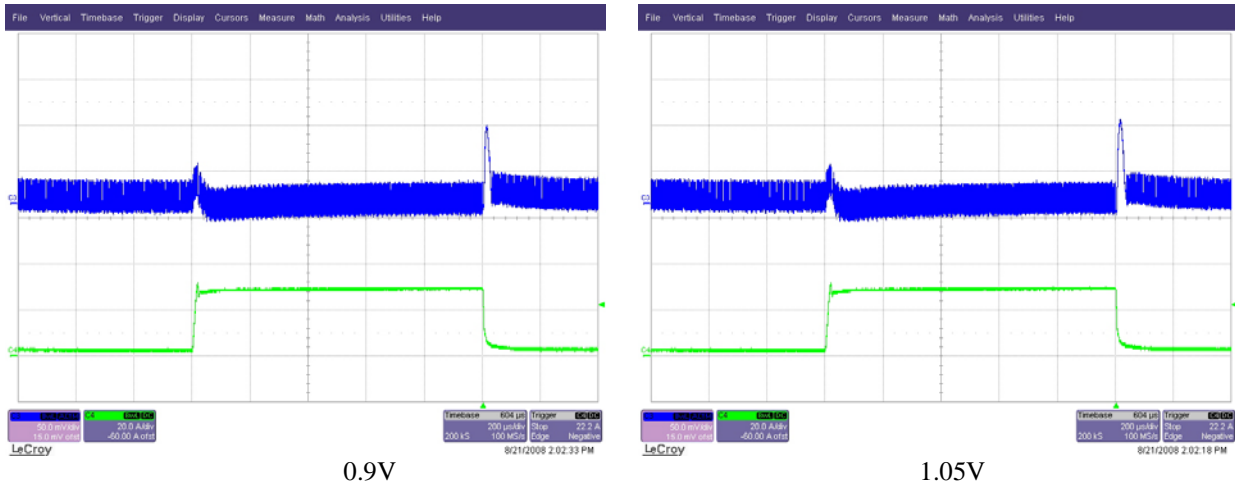


5 Transient Response – (SN0803030 : 0.9V-1.05V@33A)

The transient response of the converter is shown in the figures below. The input voltage is 12V. The current is pulsed from 3A to 30A.

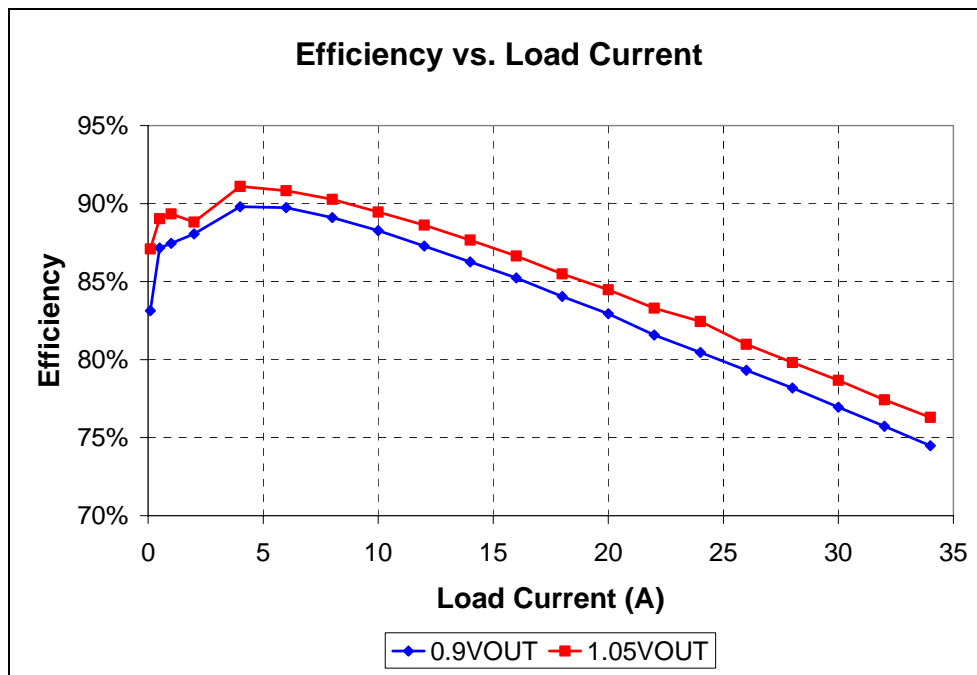
Channel 3 – Output Voltage : (200mV/Division; AC Coupled)

Channel 4 – Output Current : (500mA/Division; AC Coupled)



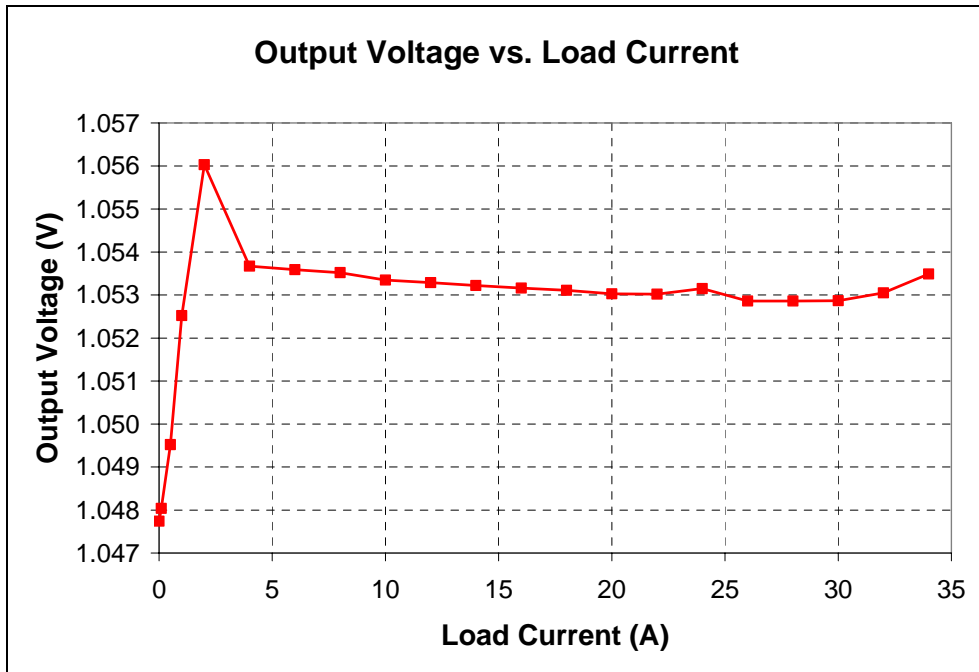
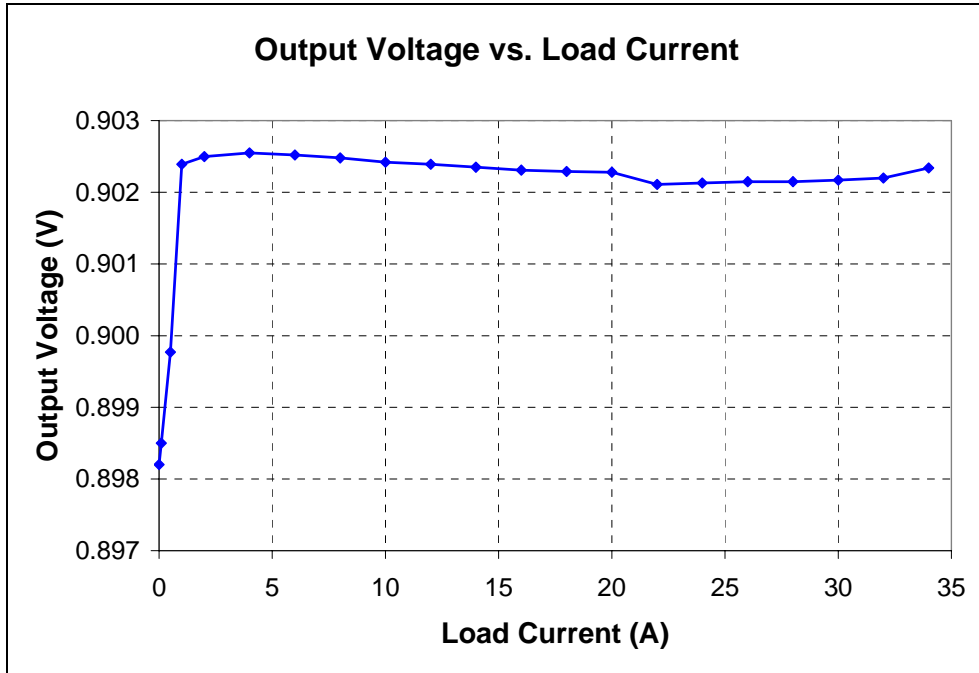
6 Efficiency – (SN0803030 : 0.9V-1.05V@33A)

The efficiency of the converter is shown in the picture below.



7 Load Regulation – (SN0803030 : 0.9V-1.05V@33A)

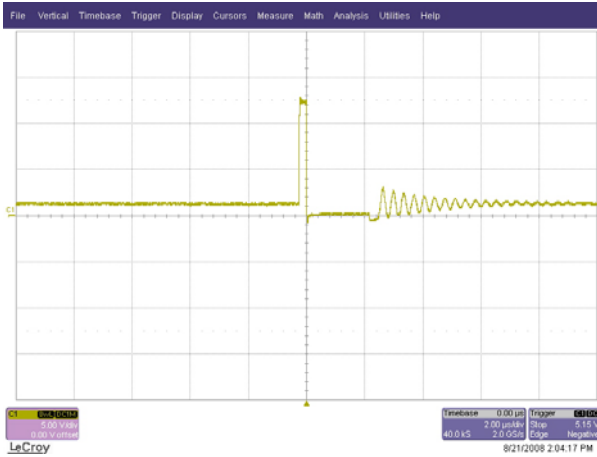
The load regulation is shown in the figures below.



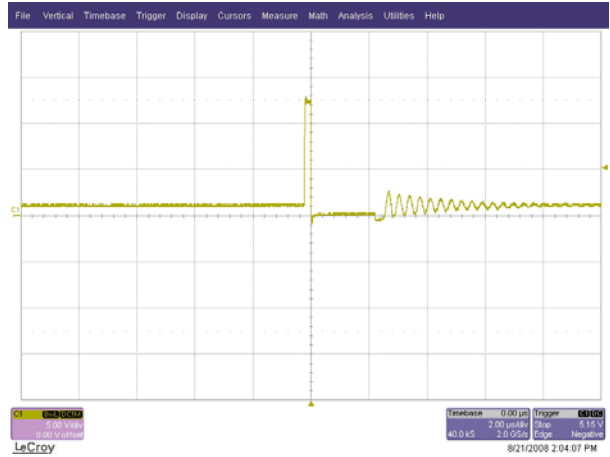
8 Switching Waveforms (No Load) – (SN0803030 : 0.9V-1.05V@33A)

The waveforms below show the switching behavior for the converter. The input is 12V. The timebase is set to 2us/Division.

Channel 1 – Yellow : Switch Node – (5V/Division)



0.9V

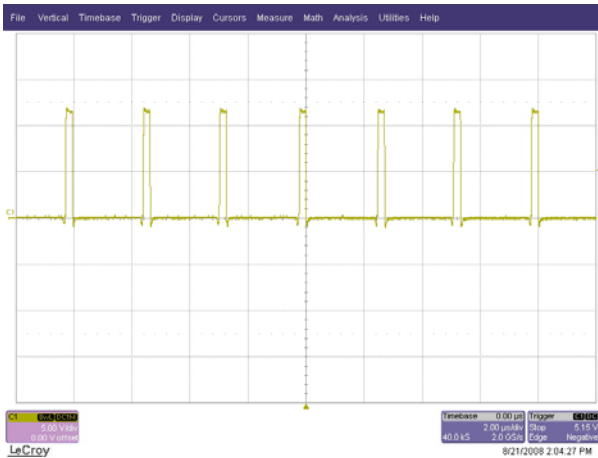


1.05V

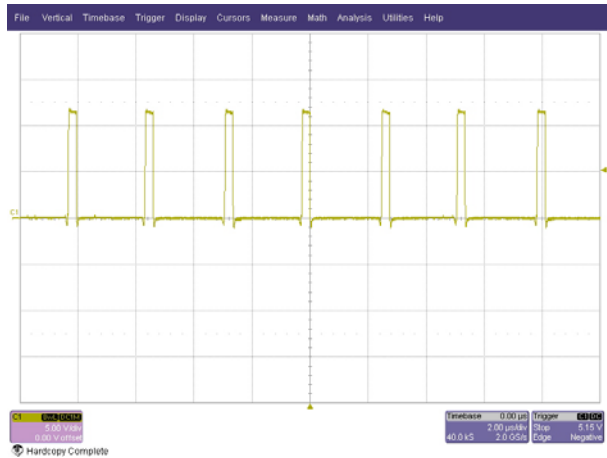
9 Switching Waveforms (33A Load) – (SN0803030 : 0.9V-1.05V@33A)

The waveforms below show the switching behavior for the converter. The input is 12V. The timebase is set to 2us/Division.

Channel 1 – Yellow : Switch Node – (5V/Division)



0.9V

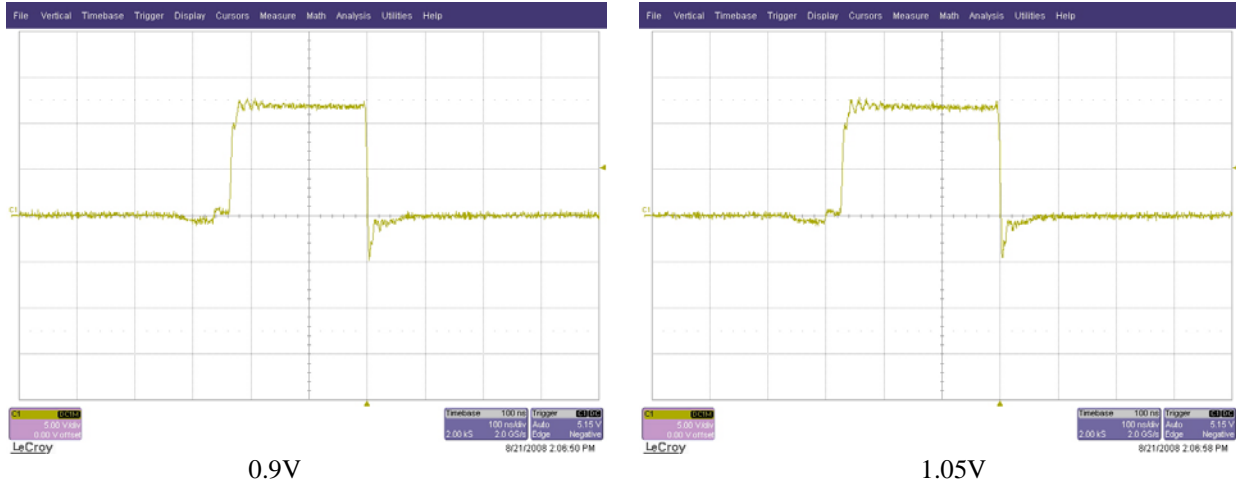


1.05V

10 Switching Waveforms (No BWL) – (SN0803030 : 0.9V-1.05V@33A)

The waveforms below show the switching behavior for the converter. The input is 12V. The timebase is set to 100ns/Division.

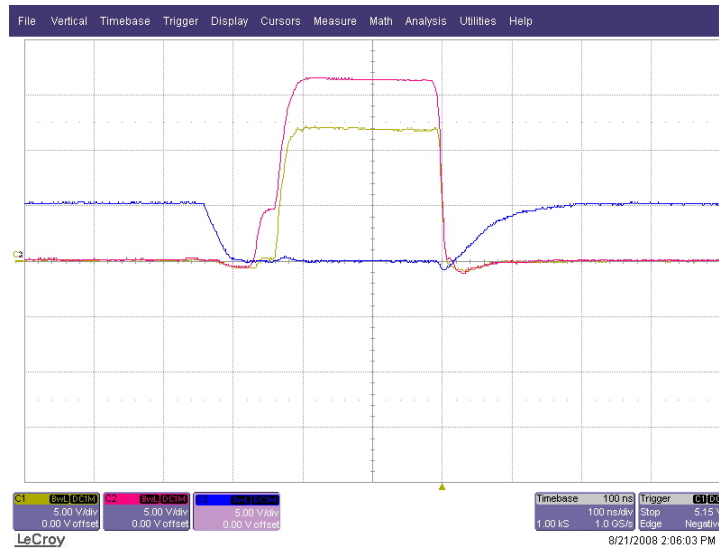
Channel 1 – Yellow : Switch Node – (5V/Division)



11 Switch Node/Gate Drivers – (SN0803030 : 0.9V-1.05V@33A)

The waveforms below show the switching node and gate driver outputs. The input is 12V. The timebase is set to 100ns/Division.

Channel 1 – Yellow : Switch Node – (5V/Division)
 Channel 2 – Pink : High Side Gate Drive – (5V/Division)
 Channel 3 – Blue : Low Side Gate Drive – (5V/Division)



12 Thermal Camera Image – (SN0803030 : 0.9V-1.05V@33A)

The figure below shows the thermal performance of the PMP3994 PCB. The input voltage is 12V, the output is fully loaded. The image shows the maximum component temperature is on the high side FETs.



1.05V



0.9V

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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