Test Report

TIDA-00507

TPS53625 Intel® Atom™ C2000 PVCCP
PVCCP- Configuration

- 1-phase mode
- MOSFET: TI Power Stage: CSD97374Q4M
- Inductor: 0.23uH, 0.29mohm big ferrite, PULSE, VITEC
- Output Capacitor:
  - Bulk: 1x470uF; ESR: 4.5mhm, ESL: 1nH
  - Ceramic: 10x47uF
- Max Current: 21A
- Frequency: 600KHz
- Zero Load-line
- Ramp 100mV
- SVID Address : 00h
- OSR disabled
Frequency Variation

Frequency setting = 600kHz

![Graph showing frequency variation with load current](image-url)
PS0 Efficiency

PS0 state Efficiency

Efficiency (%) vs. Load Current (A)
Loadline

PS0 Loadline

- Blue diamonds: Measured
- Red line: Ideal

Load Current (A) vs. Vout (V)
Analog Current Monitor Output (IMON)

Graph showing the relationship between IMON Voltage (V) and Load Current (A). The graph is a straight line with a positive slope, indicating a direct proportionality between the two variables.
Ripple and jitter
Vin 9V

Load 0A
Ripple: 8mV

Load 20A
Ripple: 8mV
Ripple and jitter
Vin 12V

Load 0A
Ripple: 8mV

Load 20A
Ripple: 8mV
Ripple and jitter

Vin 15V

Load 0A
Ripple: 8mV

Load 20A
Ripple: 8.5mV
Load Transient Performance
1A to 14A (PS0 state) - 50% duty cycle

DC and AC ripple guideline: +/-54mV
Output Voltage waveform within the +/-54 mV lines
Load fall
Overshoot: 45mV

Load rise
Droop: 27mV
Load Transient Performance
3A to 16A (PS2-PS0 state)- 305 Hz
Dynamic VID
0.52V-1.24V Fast-Fast 5A load

Fall Slew rate: 12.58 mV/us
Rise Slew rate: 12.47 mV/us
Droop: 26mV

Overshoot: 29mV
Dynamic VID
0.52V-1.24V Fast-Slow 5A load

Fall Slew rate: 3.13 mV/us
Rise Slew rate: 12.22 mV/us
Droop: 13mV

Overshoot: 30mV
Dynamic VID
0.52V-1.24V Slow-Slow 5A load

Fall Slew rate: 3.1 mV/us

Rise Slew rate: 3.14mV/us
Droop: 12.4mV

Overshoot: 20mV
Dynamic VID
0.52V-1.24V Fast-Decay 5A load

Decay Fall Slew rate: 4 mV/us
Droop: 52mV

Overshoot: 22mV
Dynamic VID
0.52V-1.24V PS0-PS2 5A load
Droop: 24mV

Overshoot: 30mV
PS transition
PS0-PS2 0A load
PS transition
PS0-PS2 0.5A load

PS0 to PS2 voltage change: 7.8mV

PS2 to PS0 voltage change: 6.2mV
PS transition
PS0-PS2 2A load

PS0 to PS2 voltage change: 8mV

PS0 to PS2 voltage change: 7.9mV
PS transition
PS0-PS3 0A load
PS transition
PS0-PS3 0.5A load

PS0 to PS3 voltage change: 9.7mV

PS3 to PS0 voltage change: 11.9mV
PS transition
PS0-PS3 5A load

PS0 to PS3 voltage change: 11.6mV

PS3 to PS0 voltage change: 10.1mV
PS transition
PS2-PS3 2.5A load

PS2 to PS3 voltage change: 7.3mV

PS3 to PS2 voltage change: 20mV
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