PMP9444 Test Report

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1) Block Diagram

Figure 1. Block Diagram
2) Board Photos

Figure 2. Board Photo Top

Figure 3. Board Photo Bottom
3) Efficiency

The efficiency of the converters is shown in the figures below. The input voltage is set to 12V.

Figure 4. VIN = 12V, VCCINT Efficiency
Figure 5. VIN = 12V, MGTAVCC Efficiency
Figure 6. VIN = 12V, VCCBRAM Efficiency
Figure 7. VIN = 12V, MGTAVTT Efficiency
Figure 8. VIN = 12V, VCCAUX Efficiency
Figure 9. VIN = 12V, VCC1V8 Efficiency
Figure 10. VIN = 12V, VADJ1V8 Efficiency
Figure 11. VIN = 12V, VCC1V2 Efficiency
Figure 12. VIN = 12V, MGTVCCAUX Efficiency
Figure 13. VIN = 12V, UTIL_3P3V Efficiency
4) **Load Regulation**

The images below show the output load regulation. The input voltage is 12V.
Figure 15. VIN = 12V, VCCINT Load Regulation
Figure 16. VIN = 12V, MGTA\text{VCC} Load Regulation
Figure 17. VIN = 12V, VCCBRAM Load Regulation
Figure 18. VIN = 12V, MGTAVTT Load Regulation
Figure 19. VIN = 12V, VCCAUX Load Regulation
Figure 20. VIN = 12V, VCC1V8 Load Regulation
Figure 21. VIN = 12V, VADJ = 1.8V Load Regulation
Figure 22. VIN = 12V, VCC1V2 Load Regulation
Figure 23. VIN = 12V, MGTVCCAUX Load Regulation
Figure 24. VIN = 12V, UTIL_3P3V Load Regulation
Figure 25. VIN = 12V, UTIL_5V Load Regulation
5) **Output Voltage Ripple**

The images below show the output voltage ripple when load is fully applied. The input voltage is 12V.

Figure 26. VIN = 12V, VCCINT Output Ripple @ IOUT = 40A
Figure 27. VIN = 12V, MGTAVCC Output Ripple @ IOUT = 4A
Figure 28. VIN = 12V, VCCBRAM Output Ripple @ IOUT = 5A
Figure 29. VIN = 12V, MGTAVTT Output Ripple @ IOUT = 2A
Figure 30. VIN = 12V, VCCAUX Output Ripple @ IOUT = 3A
Figure 31. VIN = 12V, VCC1V8 Output Ripple @ IOUT = 2A
Figure 32. VIN = 12V, VADJ1V8 Output Ripple @ IOUT = 10A
Figure 33. VIN = 12V, VCC1V2 Output Ripple @ IOUT = 2A
Figure 34. VIN = 12V, MGTVCCAUX Output Ripple @ IOUT = 1A
Figure 35. VIN = 12V, UTIL_3P3V Output Ripple @ IOUT = 1A
Figure 36. VIN = 12V, UTIL_5V Output Ripple @ IOUT = 1A
6) **Load Transients**

The transient response of the converters is shown below. The input voltage is 5V. The output current is pulsed from 50% load to full load.

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**Figure 37. VIN = 12V, VCCINT Load Transient**
Figure 38. VIN = 12V, VCCINT Load Transient
Figure 39. VIN = 12V, MGTAVCC Load Transient
Figure 40. VIN = 12V, VCCBRAM Load Transient
Figure 41. VIN = 12V, MGTA/VTT Load Transient
Figure 42. VIN = 12V, VCCAUX Load Transient
Figure 43. VIN = 12V, VCC1V8 Load Transient
Figure 44. VIN = 12V, VADJ1V8 Load Transient
Figure 45. VIN = 12V, VCC1V2 Load Transient
Figure 46. VIN = 12V, MGTVCC AUX Load Transient
Figure 47. VIN = 12V, UTIL_3P3V Load Transient
Figure 48. VIN = 12V, UTIL_5V Load Transient

7) Bode Plots

Figure 49. VIN = 12V, VCCINT Bode Plot
Figure 50. VIN = 12V, MGTAVCC Bode Plot

Figure 51. VIN = 12V, VCCBRAM Bode Plot
Figure 52. VIN = 12V, MGTA VTT Bode Plot

Figure 53. VIN = 12V, VCCAUX Bode Plot
Figure 54. VIN = 12V, VCC1V8 Bode Plot

Figure 55. VIN = 12V, VADJ1V8 Bode Plot
Figure 56. VIN = 12V, VCC1V2 Bode Plot

Figure 57. VIN = 12V, MGTVCCAUx Bode Plot
8) **Thermal Image**

A thermal image of the core voltage, VCCINT, is shown below at a full 40A load current. The input voltage is 12V. All other rails are at 0A during this test.
Figure 60. VIN = 12V, VCCINT Thermal Image @ Full Load
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