PMP9475 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.

![Graph showing efficiency with VCCINT = 0.95V](image)

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
Figure 14. VIN = 12V, UTIL_12V 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 VCC Load Regulation
Figure 17. VIN = 12V, VCCBRAM Load Regulation
Figure 18. VIN = 12V, MGTAVT Load Regulation
Figure 19. VIN = 12V, VCCAUX Load Regulation
Figure 20. VIN = 12V, VCC1V8 Load Regulation
Figure 21. VIN = 12V, VADJ1V8 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_12V Load Regulation
5) **Output Voltage Ripple**

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

![Graph showing output voltage ripple](image)

Figure 26. VIN = 12V, VCCINT Output Ripple @ IOUT = 60A
Figure 27. VIN = 12V, MGTAVCC Output Ripple @ IOUT = 20A
Figure 28. VIN = 12V, VCCBRAM Output Ripple @ IOUT = 10A
Figure 29. VIN = 12V, MGTAVTT Output Ripple @ IOUT = 10A
Figure 30. VIN = 12V, VCCAUX Output Ripple @ IOUT = 10A
Figure 31. VIN = 12V, VCC1V8 Output Ripple @ IOUT = 1=A
Figure 32. VIN = 12V, VADJ1V8 Output Ripple @ IOUT = 20A
Figure 33. VIN = 12V, VCC1V2 Output Ripple @ IOUT = 10A
Figure 34. VIN = 12V, MGTVCCAUX Output Ripple @ IOUT = 4A
Figure 35. VIN = 12V, UTIL_3P3V Output Ripple @ IOUT = 20A
Figure 36. VIN = 12V, UTIL_12V Output Ripple @ IOUT = 12A
6) Load Transients

The transient response of the converters is shown below. The input voltage is 12V. The output current is pulsed from 50% load to full load.

Figure 37. VIN = 12V, VCCINT Load Transient
Figure 38. VIN = 12V, MGTA VCC Load Transient
Figure 39. VIN = 12V, MGAVTT Load Transient
Figure 40. VIN = 12V, VADJ1V8 Load Transient
Figure 41. VIN = 12V, MGTVCCAUX Load Transient
Figure 42. VIN = 12V, UTIL_3P3V Load Transient
7) **Bode Plots**

Figure 43. VIN = 12V, UTIL_12V Load Transient

Figure 44. VIN = 12V, VCCINT Bode Plot
Figure 45. VIN = 12V, MGTAVCC Bode Plot

Figure 46. VIN = 12V, VCCBRAM Bode Plot
Figure 47. VIN = 12V, MGTAVTT Bode Plot

<table>
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<tr>
<td>Frequency</td>
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<td>Magnitude</td>
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<tr>
<td>Phase</td>
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Figure 48. VIN = 12V, VCCAUX Bode Plot

<table>
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<td>Magnitude</td>
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<tr>
<td>Phase</td>
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</table>
Figure 49. VIN = 12V, VCC1V8 Bode Plot

Figure 50. VIN = 12V, VADJ1V8 Bode Plot
Figure 51. VIN = 12V, VCC1V2 Bode Plot

Figure 52. VIN = 12V, MGTVCCAUX Bode Plot
8) **Thermal Image**

A thermal image of the core voltage, VCCINT, is shown below at a full 60A load current. The input voltage is 12V.
Figure 55. VIN = 12V, VCCINT Thermal Image @ Full Load
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