

Electronics Test Report

Report NO.08E010023

PROJECT : PFM-P13D

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1. Project

PFM-P13D Rev.A0.2

2. Team Member

PM : Tony Huang ; RD : Chan Hong ; QE : Sean Hsu

3. MAIN SPEC

2.1 Main SPEC

| Engineering Specification | |
|----------------------------------|---|
| Product Name | PFM-P13D |
| Form Factor | PC/104 |
| Input Voltage | +7Vto +30V DC input range |
| Output Voltage | +5V@10.0A , +12V@2.0A , |
| Peak to Peak | <70mV *, |
| Load Regulation | +/-4% * |
| Line Regulation | +/-4% * |
| Output Ripple | 70mV * |
| Quiescent Current | 2mA |
| Efficiency | Up to 88%** |
| Operating Temperature | -40°F~185°F(-40°C~85°C) |
| Interface | PC/104+ (Optional PC/104, PCI/104) |
| | * Measured on the 5V output, others: +/- 5% |
| | ** Measured on the 12V and 24 V input |
| | |

4. Photos of Product

Fig.4.1. —Front Side

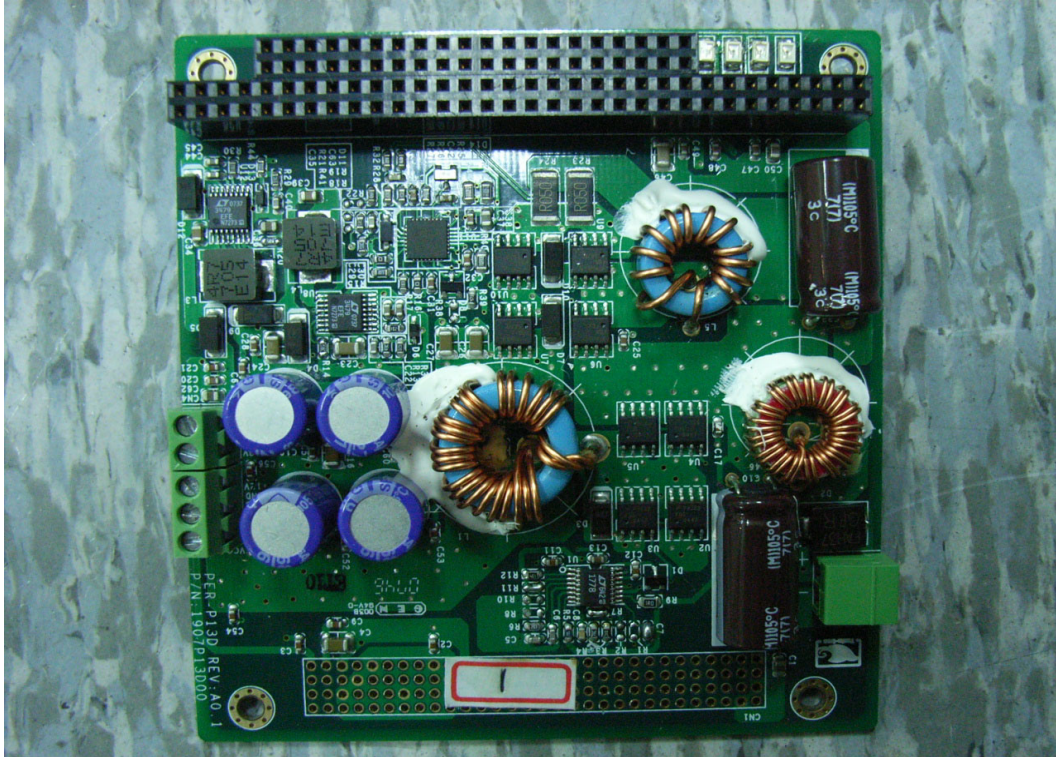
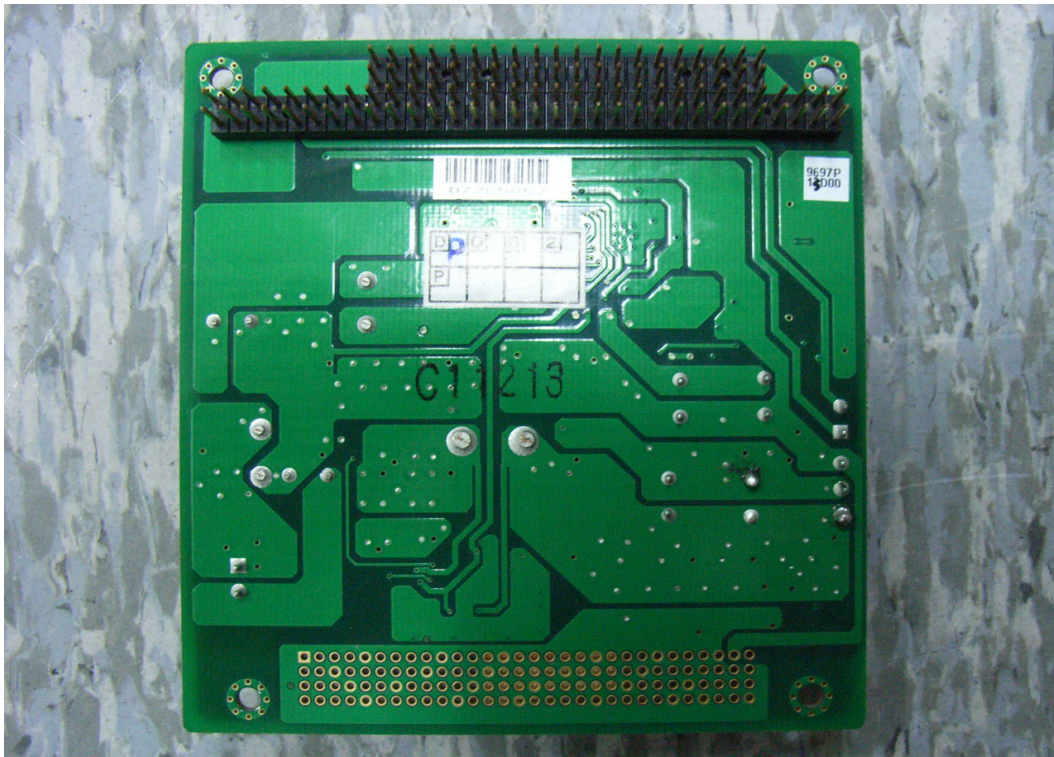


Fig.4.2. —Rear Side



5. Test Item

| Test Item | Test Condition / Specification | | Sanction | |
|--------------------------------|---|---|-------------|--------|
| | | | Measured | Result |
| 5.1. DC Input Current | I/P:7V | A | 8.73A | PASS |
| 5.2. MAX Inrush Current | I/P:15V | A | A | - |
| | I/P:24V | A | A | - |
| 5.3. Input Frequency & Voltage | I/P:7VDC | ■ON □ OFF | - | PASS |
| | I/P:30VDC | ■ON □ OFF | - | PASS |
| 5.4. Switching Test | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC □ON □ OFF | - | - |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC □ON □ OFF | - | - |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC □ON □ OFF | - | - |
| | Switching Time: 0.5 Sec MIN Load / Full Load | @115VAC □ON □ OFF | - | - |
| 5.5. Efficiency | I/P:7VDC FULL LOAD | | 82.318% | - |
| | I/P:12VDC FULL LOAD | @88%Min | 90.733% | PASS |
| | I/P:24VDC FULL LOAD | @88%Min | 89.419% | PASS |
| | I/P:30VDC FULL LOAD | | 87.391% | - |
| 5.6. Line Regulation | I/P:7VDC~30VDC | ≤±4%(5V) | 2.6% | PASS |
| | | ≤±5%(12V) | 0.25% | PASS |
| 5.7. Load Regulation | I/P:7VDC O/P:MINLOAD~FULL LOAD | ≤±4%(5V) | 2.4/2.6 | PASS |
| | | ≤±5%(12V) | 0.083/0.25 | PASS |
| | I/P:30VDC O/P:MINLOAD~FULL LOAD | ≤±4%(5V) | 2.4/2.6 | PASS |
| | | ≤±5%(12V) | 0.25/0.167 | PASS |
| 5.8. Over-Voltage Protection | I/P:15DC O/P:MIN LOAD | V1 : 3.9~4.6 | - | - |
| | | V2 : 5.6~6.4 | - | - |
| | | V3 : 5.6~6.4 | - | - |
| 5.9. Over-Circuit Protection | O/P: 5V | A(MAX) | - | - |
| | O/P: 12V | A(MAX) | - | - |
| 5.10. Over-Load Protection | I/P:7DC O/P:MIN LOAD | - | - | - |
| | I/P:30DC O/P:MIN LOAD | - | - | - |
| 5.11. Short Circuit Protect | I/P:7DC O/P:MIN LOAD | 5V&GND Short | NO O/P | PASS |
| | I/P:30DC O/P:MIN LOAD | 12V&GND Short | NO O/P | PASS |
| 5.12. Line Voltage Surge | O/P: FULL LOAD | Surge voltage from 15VDC to 19VDC (0.5sec), back to 15VDC | - | - |
| | O/P: FULL LOAD | Surge voltage from 19VDC to 24VDC (0.5sec), back to 19VDC | - | - |
| 5.13. Line Voltage Sag | O/P: FULL LOAD | Sag voltage from 19VDC to 15VDC (0.5sec), back to 15VDC | - | - |
| | O/P: FULL LOAD | Sag voltage from 24VDC to 19VDC (0.5sec), back to 24VDC | - | - |
| 5.14. Ripple & Noise | I/P:7VDC O/P:FULL LOAD | ≤70mv(5V) | 65.6 | PASS |
| | | ≤600mv(12V) | 42.2 | PASS |
| | I/P:30VDC O/P:FULL LOAD | ≤70mv(5V) | 27.9 | PASS |
| | | ≤600mv(12V) | 176 | PASS |
| 5.15. Setup Time | I/P:7VDC O/P:FULL LOAD | mS(MAX) | 151mS (5V) | - |
| | I/P:30VDC O/P:FULL LOAD | mS(MAX) | 96mS(5V) | - |
| 5.16. Hold up Time | I/P:7VDC O/P:FULL LOAD | mS(MAX) | mS (5V) | - |
| | I/P:30VDC O/P:FULL LOAD | mS(MAX) | mS(5V) | - |
| 5.17. Rise Time | I/P:7VDC O/P:FULL LOAD | mS(MAX) | 36mS (5V) | - |
| | I/P:30VDC O/P:FULL LOAD | mS(MAX) | 11.9mS (5V) | - |
| 5.18. Turn on Overshoot | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD | | - | - |
| | Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD | | - | - |

| | | | |
|------------------------------------|---|----|------|
| 5.19. Turn off Undershoot | Turn off undershoot shall not exceed 10% over nominal voltages | - | - |
| | Turn off undershoot shall not exceed 10% over nominal voltages | - | - |
| 5.20. Remote ON/OFF | Simulate TTL signal to test this function | | - |
| 5.21. Power Good Signal | Shall go high level with a delay of 100~500ms | mS | - |
| 5.22. Power On In Low Temperature | I/P: 7VDC (-40 °C) After 2HR Power On | | PASS |
| | I/P: 30VDC (-40 °C) After 2HR Power On | | PASS |
| 5.23. Power On In High Temperature | I/P: 7VDC (85 °C) After 2HR Power On | | PASS |
| | I/P: 30VDC (85 °C) After 2HR Power On | | PASS |
| 5.24. Room Burn-in test | I/P: 7VDC O/P: FULL LOAD TA: 25 °C BURN-IN DURATION : 2 hour | | PASS |
| 5.25. On/Off Cycling | Times / on: 20 sec / off: 10 sec | | - |

6. Test Result

No problem was found during test.