



User Guide for
FEBFAN9673Q_B1H5000A
Evaluation Board

5 kW Three-Channel CCM PFC
with 12 V_{SB} Module
Evaluation Board

Featured Fairchild Product:
FAN9673Q

*Direct questions or comments
about this evaluation board to:
“Worldwide Direct Support”*

Fairchild Semiconductor.com



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This user guide supports the 5000 W evaluation board for a three-channel CCM PFC using the FAN9673. It should be used in conjunction with the FAN9673 datasheet as well as Fairchild's application notes and technical support team. Please visit Fairchild's website at www.fairchildsemi.com/.

1. Introduction

The FAN9673 is a 32-pin, Continuous Conduction Mode (CCM) Power Factor Correction (PFC) controller IC intended for PFC pre-regulators. The FAN9673 includes average current and boost-type power factor correction, which results in a power supply that fully complies with the IEC1000-3-2 specification. A TriFault Detect™ function helps reduce external components and provides full protection for feedback loops, such as over voltage. An over-voltage comparator shuts down the PFC stage in the event of a sudden load decrease. The RDY signal can be used for power-on sequence control. The Channel Management (CM) function can enable / disable the each channel independently. The FAN9673 also includes PFC soft-start, peak current limiting, and input voltage brown-in/out protection.

1.1. Features

- Continuous Conduction Mode Control
- Maximum Three-Channel PFC Control
- Average Current Mode Control
- PFC Slave Channels External Signal / Channel Management Function Control
- Programmable Operation Frequency Range: 18 kHz~40 kHz or 55 kHz~75 kHz
- Programmable PFC Output Voltage
- Two Types of Current Limit
- TriFault Detect™ Protects Against Feedback Loop Failure
- SAG Protection
- Programmable Soft Start
- Under-Voltage Lockout (UVLO)
- Differential Current Sensing
- Available in 32-Pin LQFP Package

2. Evaluation Board Specifications

All data for this table was measured at an ambient temperature of 25°C.

Table 1. Summary of Features and Performance

| Description | Symbol | Value | Comments |
|------------------------|--------------------|---|---------------|
| Output Power | P_O | 5 kW | |
| Efficiency | Eff, η | >95% | |
| Input Voltage | V_{AC} | 180~264 V | |
| Input Frequency | | 47~63 Hz | |
| Output Voltage | V_{OUT}, V_{PFC} | 393 V | $V_{PVO}=0$ V |
| Brown In / Out Voltage | V_{AC} | 170 V / 155 V | |
| PFC Frequency | f_{SW} | 40 kHz | |
| PFC RDY | V_{RDY} | 2.4 V / 1.55 V (96% / 62% of V_{PFC}) | |

3. Photograph

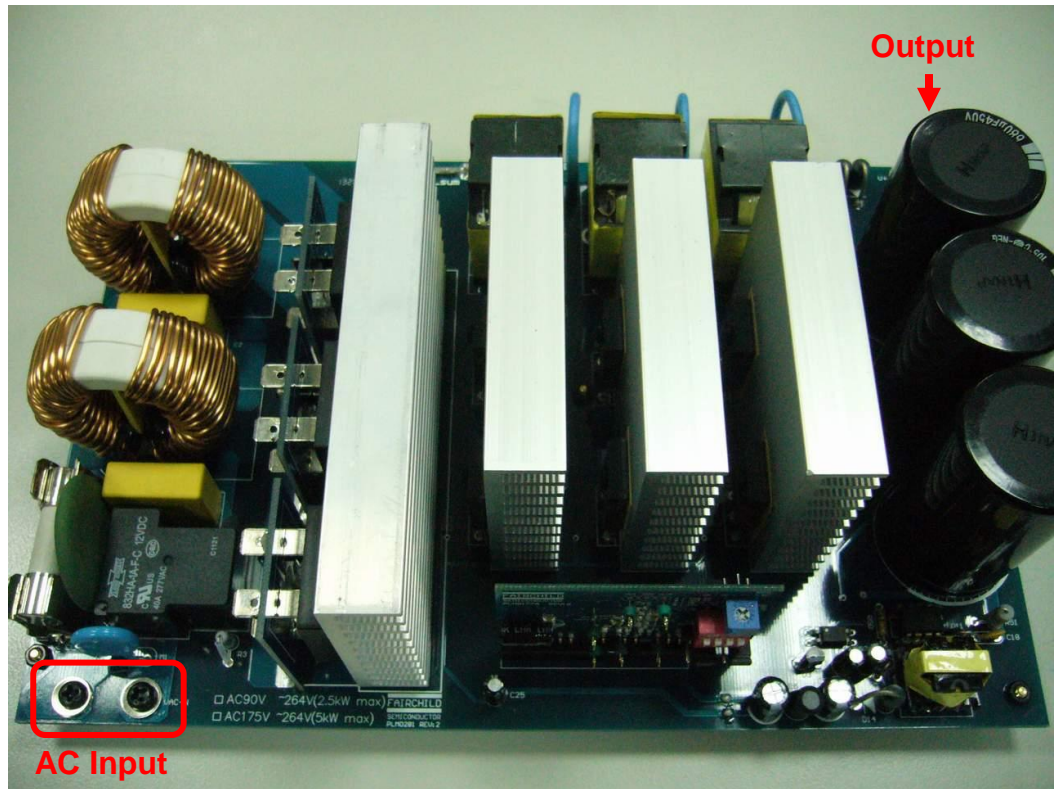


Figure 1. Top View of Evaluation Board

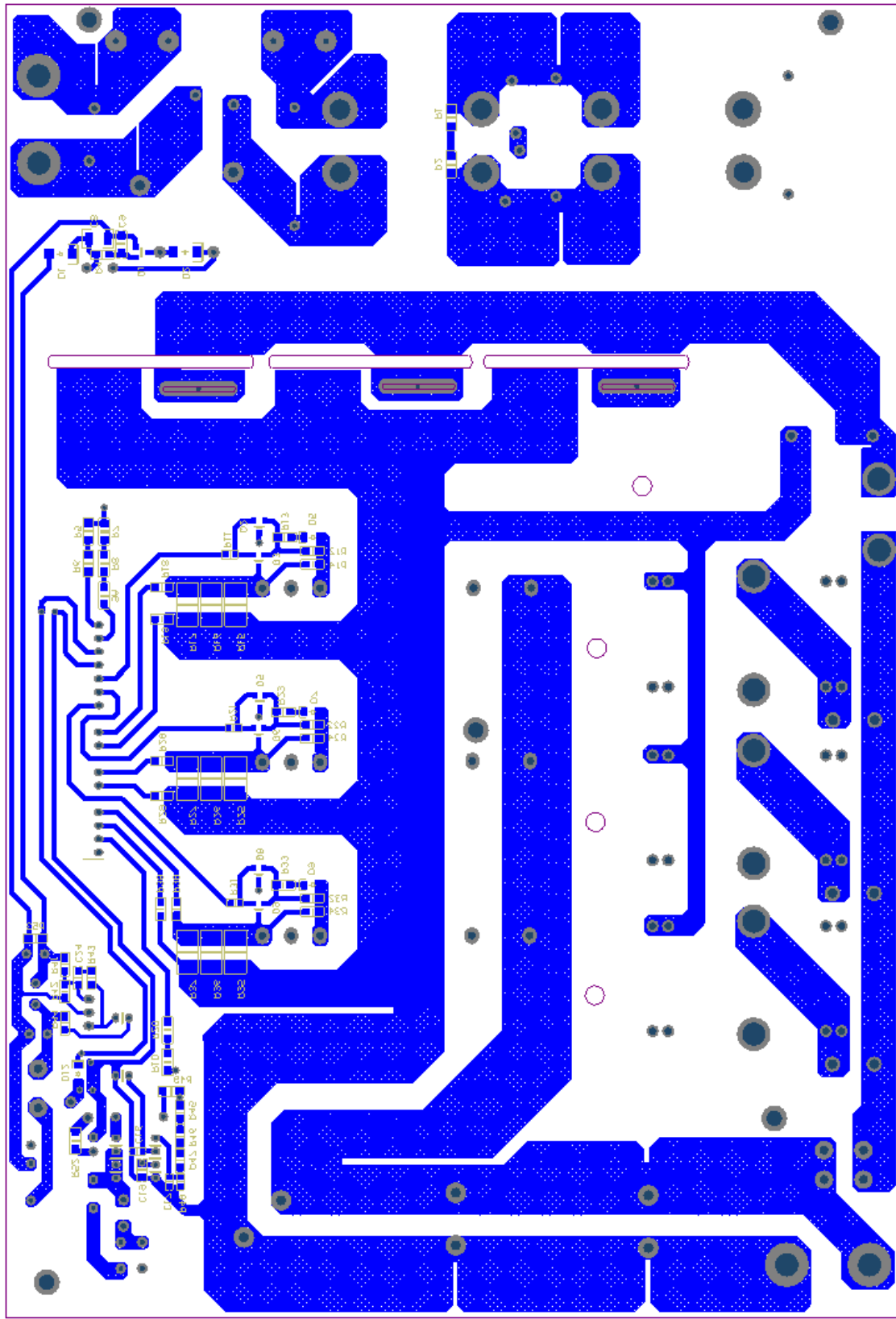


Figure 3. Bottom Side of Evaluation Board

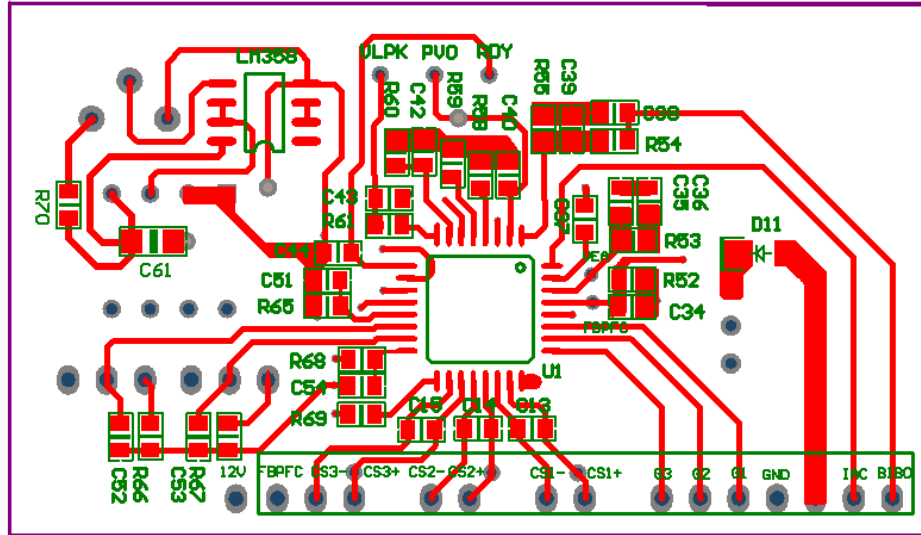


Figure 4. Top Side of Daughter Card

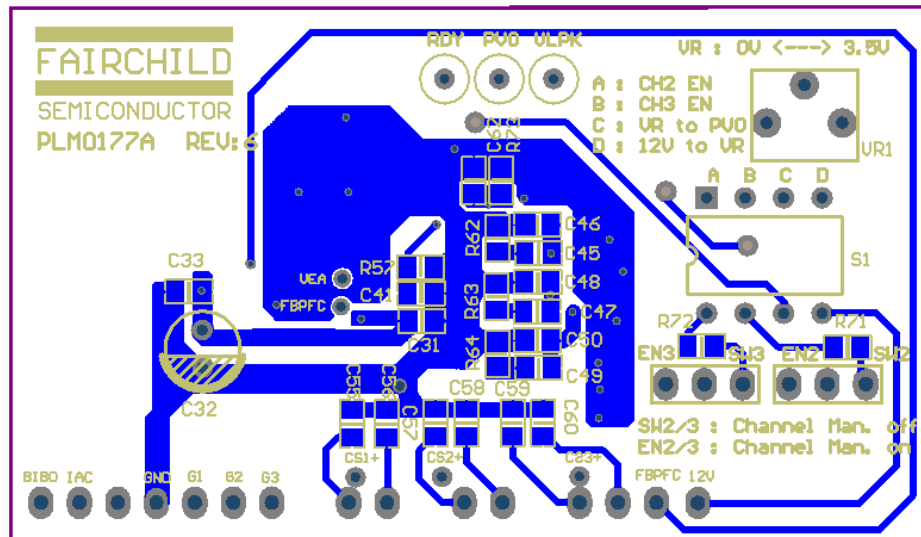


Figure 5. Bottom Side of Daughter Card

5. Schematic

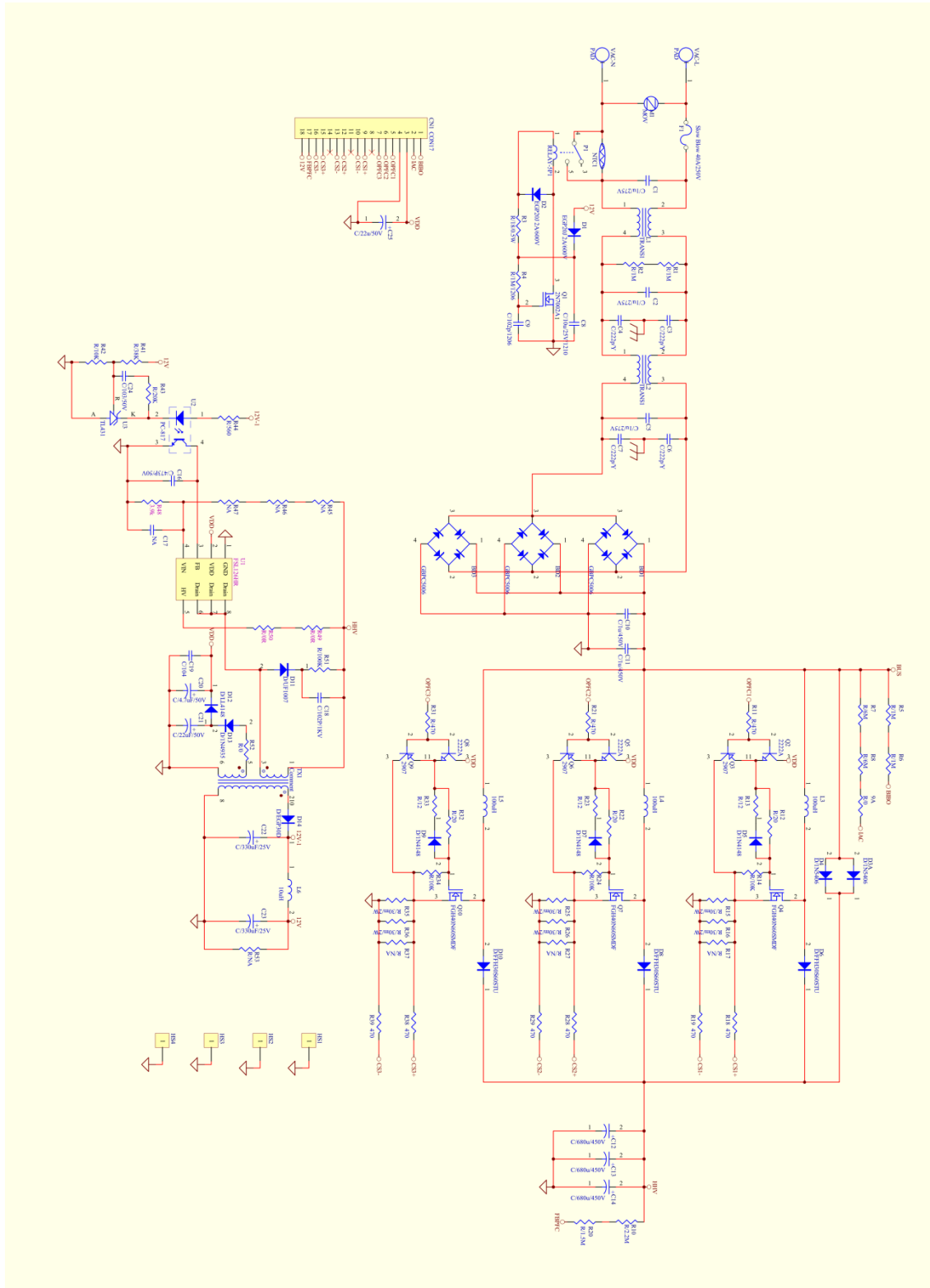


Figure 6. Evaluation Board Schematic

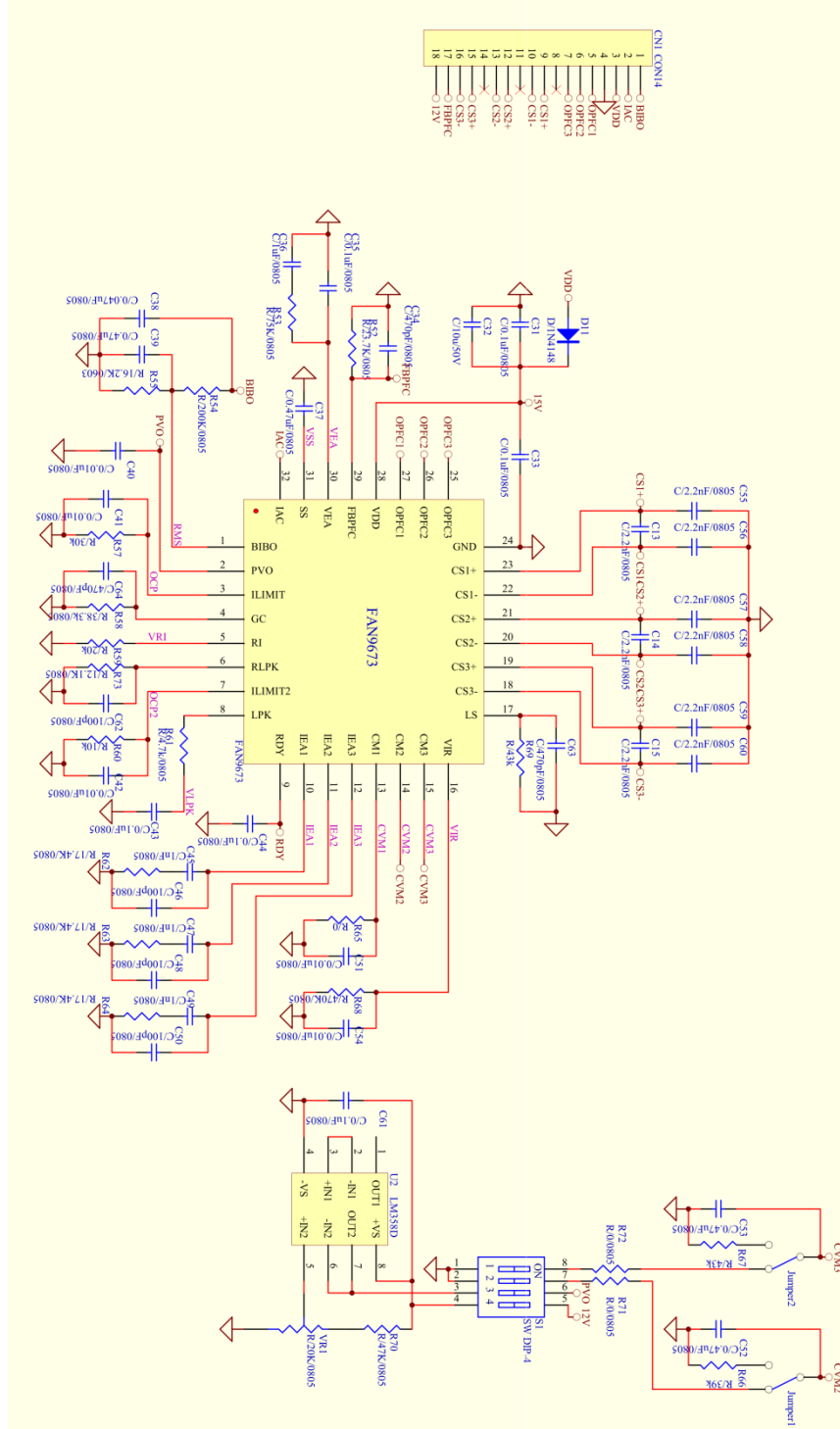


Figure 7. Daughter Card Schematic



6. Bill of Materials

| Main Board (PLM281 REV.2) | | | | | |
|---------------------------|------|-----------------------|---------------------|--------------------------|---------------------------------------|
| Reference | Qty. | Part Number | Value | Description | Manufacturer |
| BD1, BD2, BD3 | 3 | GBPC5006 | | | |
| PLM0276AV0 x3 | 3 | | | Transfer Card for Bridge | |
| C1, C2, C5 | 3 | | 1 μ F / 275 V | | |
| C10 | 1 | | 1 μ F / 450 V | | |
| C12, C13, C14 | 3 | | 680 μ F / 450 V | | |
| C16 | 1 | | 47 nF / 50 V | | |
| C18 | 1 | | 1 nF / 1 kV | | |
| C19 | 1 | | 0.1 μ F | | |
| C20 | 1 | | 4.7 μ F / 50 V | | |
| C21, C25 | 2 | | 22 μ F / 50 V | | |
| C22, C23 | 2 | | 330 μ F / 25 V | | |
| C24 | 1 | | 10 nF / 50 V | | |
| C3, C4 | 2 | | 2.2 pF / 250 V | | |
| C8 | 1 | | 10 μ F / 25 V | | |
| C9 | 1 | | 1 nF / 1 kV | | |
| CN1 | 1 | | | CON18 | |
| D1, D2 | 2 | S1J | | | |
| D11 | 1 | UF1007 | | | |
| D13 | 1 | 1N4935 | | | Fairchild |
| D14 | 1 | EGP30D | | | |
| D3, D4 | 2 | 1N5406 | | | Fairchild |
| D5, D7, D9, D12 | 4 | 1N4148 | | | |
| D6, D8, D10 | 3 | FFH30S60STU | | | Fairchild |
| F1 | 1 | Slow Blow Fuse | 40 A / 250 V | | |
| HS1 | 1 | H-sink | | | |
| HS2, HS3, HS4 | 3 | H-sink | | | |
| L1, L2 | 2 | FS4015H-2LB | | EMI | FORMOSA SHING GA ENTERPRISE CO., LTE. |
| L3, L4, L5 | 3 | Core Type: QP3925H | 100 μ H | | |
| L6 | 1 | | 10 μ H | | |
| M1 | 1 | | MOV | | |
| Q1 | 1 | 2N7002A | | | |
| Q2, Q5, Q8 | 3 | 2222A | | | |
| Q3, Q6, Q9 | 3 | 2907 | | | |
| Q4, Q7, Q10 | 3 | FGH40N60SMDF | | | Fairchild |
| R1, R2, R4, R5, R6 | 5 | | 1 M Ω | | |
| R11, R21, R31 | 3 | | 470 Ω | | |
| R12, R22, R32 | 3 | | 20 Ω | | |



| Main Board (PLM281 REV.2) | | | | | |
|------------------------------|------|-------------|---------------------|--------------------------------|------------------|
| Reference | Qty. | Part Number | Value | Description | Manufacturer |
| R13, R23, R33 | 3 | | 12 Ω | | |
| R14, R24, R34, R42 | 4 | | 10 k Ω | | |
| R15, R16, R25, R26, R35, R36 | 6 | | 30 m Ω / 2 W | | |
| R18, R19, R28, R29, R38, R39 | 6 | | 470 Ω | | |
| R20 | 1 | | 1.5 M Ω | | |
| R3 | 1 | | 20 Ω | | |
| R41 | 1 | | 38.3 k Ω | | |
| R43 | 1 | | 20 k Ω | | |
| R44 | 1 | | 560 Ω | | |
| R48 | 1 | | 3.9 k Ω | | |
| R49, R50, R52 | 3 | | 0 Ω | | |
| R51 | 1 | | 100 k Ω | | |
| R7 | 1 | | 5.1 M Ω | | |
| R8 | 1 | | 4.7 M Ω | | |
| R9A, R10 | 2 | | 2.2 M Ω | | |
| Relay1 | 1 | Power Relay | 40 A | | |
| TX1 | 1 | 750342371 | | 12 V _{SB} Transformer | Würth Elektronik |
| U1 | 1 | FSL126HR | | Controller | Fairchild |
| U2 | 1 | PC-817 | | | |
| U3 | 1 | TL431 | | | |

| Daughter Card (PLM0177A REV.6) | | | | | |
|--------------------------------|------|-------------|-----------------|-------------|--------------|
| Reference | Qty. | Part Number | Value | Description | Manufacturer |
| C35, C40, C41, C42, C51, C54 | 6 | SMD 0805 | 0.01 μ F | | |
| C38 | 1 | SMD 0805 | 0.047 μ F | | |
| C31, C33, C43, C44, C61 | 5 | SMD 0805 | 0.1 μ F | | |
| C36, C37, C39, C52, C53 | 5 | SMD 0805 | 0.47 μ F | | |
| C45, C47, C49 | 3 | SMD 0805 | 1.2 nF | | |
| C46, C48, C50, C62 | 4 | SMD 0805 | 100 pF | | |
| C32 | 1 | | 10 μ / 50 V | | |
| C13, C14, C15 | 3 | SMD 0805 | 2.2 nF | | |
| C55, C56, C57, C58, C59, C60 | 6 | SMD 0805 | 2.2 nF | | |
| C34, C63, C64 | 1 | SMD 0805 | 470 pF | | |
| CN1 | 1 | | | CON14 | |
| D11 | 1 | | 1N4148 | | |



| Daughter Card (PLM0177A REV.6) | | | | | |
|--------------------------------|------|-------------|-----------------|-------------|--------------|
| Reference | Qty. | Part Number | Value | Description | Manufacturer |
| U1 | 1 | FAN9673 | | Controller | Fairchild |
| U2 | 1 | LM358D | | | Fairchild |
| R56, R65, R72, R71 | 4 | SMD 0805 | 0 Ω | | |
| R60 | 1 | SMD 0805 | 10 k Ω | | |
| R73 | 1 | SMD 0805 | 12.1 k Ω | | |
| R55 | 1 | SMD 0603 | 16.2 k Ω | | |
| R62, R63, R64 | 3 | SMD 0805 | 17.4 k Ω | | |
| R69 | 1 | SMD 0805 | 43 k Ω | | |
| R54 | 1 | SMD 0805 | 200 k Ω | | |
| R59 | 1 | SMD 0805 | 20 k Ω | | |
| VR1 | 1 | SMD 0805 | 20 k Ω | | |
| R52 | 1 | SMD 0805 | 23.7 k Ω | | |
| R57 | 1 | SMD 0805 | 30 k Ω | | |
| R58 | 1 | SMD 0805 | 38.3 k Ω | | |
| R61 | 1 | SMD 0805 | 4.7 k Ω | | |
| R68 | 1 | SMD 0805 | 470 k Ω | | |
| R66, R67, R70 | 3 | SMD 0805 | 47 k Ω | | |
| R53 | 1 | SMD 0805 | 75 k Ω | | |
| S1 | 1 | DIP-4 | | Switch | |

7. Transformer and Winding Specifications

7.1. TX2 Specification

- Core: EE-16 (3C94)
- Bobbin: 10 Pins

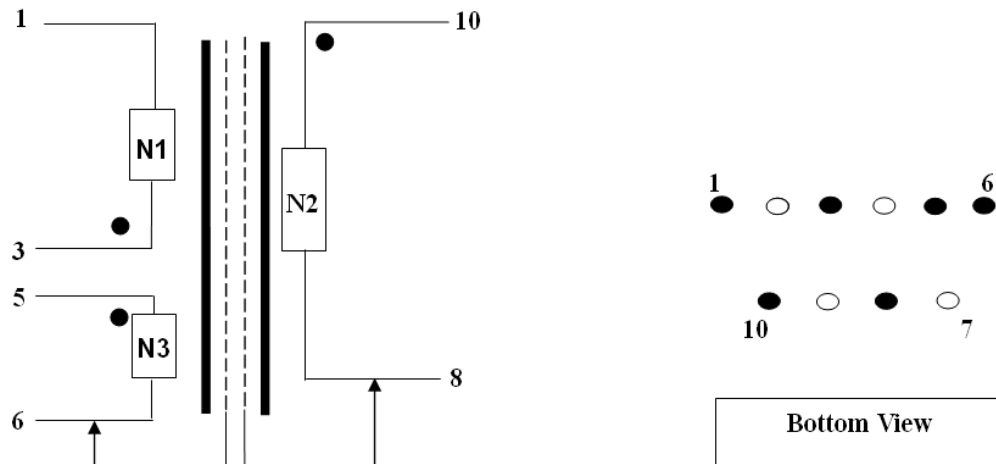


Figure 8. Transformer Specifications & Construction

Table 2. Winding Specifications

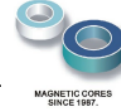
| No. | Winding | Pin (S → F) | Wire | Turns | Winding Method |
|-----|--|-------------|---------|-------|------------------|
| 1 | N1 | 3 → 2 | 0.29φ×1 | 36 | Solenoid Winding |
| 2 | Insulation: Polyester Tape t = 0.025 mm, 3-Layer | | | | |
| 3 | N2 | 10 → 8 | 0.35φ×3 | 10 | Solenoid Winding |
| 4 | Insulation: Polyester Tape t = 0.025 mm, 3-Layer | | | | |
| 5 | N1 | 2 → 1 | 0.29φ×1 | 18 | Solenoid Winding |
| 6 | Insulation: Polyester Tape t = 0.025 mm, 6-Layer | | | | |
| 7 | N3 | 5 → 6 | 0.15φ×1 | 13 | Solenoid Winding |
| 8 | Insulation: Polyester Tape t = 0.025 mm, 3-Layer | | | | |
| 9 | Copper-Foil 1.2T to PIN6 | | | | |

Table 3. Electrical Characteristics

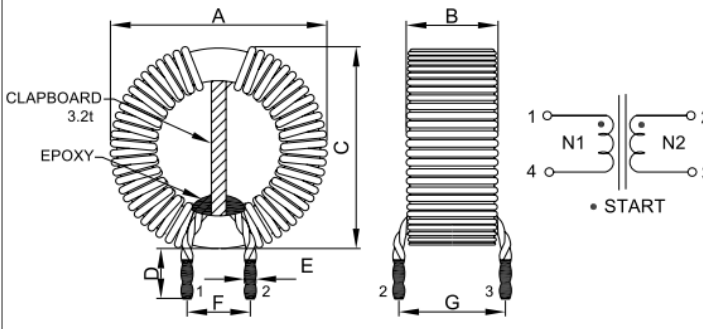
| | Pins | Specifications |
|------------|-------|----------------|
| Inductance | 3 - 1 | 800 μH ±5% |

7.2. L1 & L2 Specification

FORMOSA SHING GA ENTERPRISE CO., LTD.



SPECIFICATION FOR PRODUCTS

| CUST | FAIRCHILD | | OUT DWG NO. | | | | | | | | | | | | | | | | | | | | |
|---|-------------|------------|---|--|---------|------------|---------|-----------|--|---|----------|---|----------|---|----------|---|----------|---|---------|---|----------|---|----------|
| ITEM | SN-403215-A | | DATE | 2014/06/16 | | | | | | | | | | | | | | | | | | | |
| PART NO. | | | REV:A2 | | | | | | | | | | | | | | | | | | | | |
| 1.SCHEMATIC DIMENSION: | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | <table border="1"> <thead> <tr> <th colspan="2">SPEC.(mm)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>53.0 MAX</td> </tr> <tr> <td>B</td> <td>27.0 MAX</td> </tr> <tr> <td>C</td> <td>49.0 MAX</td> </tr> <tr> <td>D</td> <td>10.0±1.0</td> </tr> <tr> <td>E</td> <td>4.0 MAX</td> </tr> <tr> <td>F</td> <td>10.0 REF</td> </tr> <tr> <td>G</td> <td>24.0 REF</td> </tr> </tbody> </table> | | | | SPEC.(mm) | | A | 53.0 MAX | B | 27.0 MAX | C | 49.0 MAX | D | 10.0±1.0 | E | 4.0 MAX | F | 10.0 REF | G | 24.0 REF |
| SPEC.(mm) | | | | | | | | | | | | | | | | | | | | | | | |
| A | 53.0 MAX | | | | | | | | | | | | | | | | | | | | | | |
| B | 27.0 MAX | | | | | | | | | | | | | | | | | | | | | | |
| C | 49.0 MAX | | | | | | | | | | | | | | | | | | | | | | |
| D | 10.0±1.0 | | | | | | | | | | | | | | | | | | | | | | |
| E | 4.0 MAX | | | | | | | | | | | | | | | | | | | | | | |
| F | 10.0 REF | | | | | | | | | | | | | | | | | | | | | | |
| G | 24.0 REF | | | | | | | | | | | | | | | | | | | | | | |
| *Vacuum Varnish Processed | | | | | | | | | | | | | | | | | | | | | | | |
| 2.WINDING & ELECTRONICS: (150kHz 0.1V)30°C | | | | | | | | | | | | | | | | | | | | | | | |
| ITEM | START | FINISH | MATERIAL | URNS | COLOR | INDUCTANCE | DCR(mΩ) | | | | | | | | | | | | | | | | |
| N1 | 1 | 4 | 2UEW φ 1.6*2P | 16TS | N | 1.0mH MIN | / | | | | | | | | | | | | | | | | |
| N2 | 2 | 3 | 2UEW φ 1.6*2P | 16TS | N | 1.0mH MIN | / | | | | | | | | | | | | | | | | |
| 3.TEST INSTRUMENTS: L.C.R.CH-1062;502B | | | | | | | | | | | | | | | | | | | | | | | |
| 4.MATERIAL LIST: | | | | | | | | | | | | | | | | | | | | | | | |
| NO | ITEM | MATERIAL | SUPPLIER | | UL NO. | CLASS | | | | | | | | | | | | | | | | | |
| 1 | CORE | SN403215-A | FORMOSA SHING GA ENTERPRISE CO., LTD. | | | | | | | | | | | | | | | | | | | | |
| 2 | WIRE | 2UEW | PACIFIC ELECTRIC WIRE & CABLE CO.,LTD. | | E201757 | 130°C | | | | | | | | | | | | | | | | | |
| 3 | EPOXY | G-9008 | GUDAK CHEMISTRY TECH.(D.G)LTD | | E218090 | 90°C | | | | | | | | | | | | | | | | | |
| 4 | CLAPBOARD | FR-4 | HUIZHOU JIANYONG INSULATED PRODUCT CO.,LTD | | E123995 | 130°C | | | | | | | | | | | | | | | | | |
| 5 | MYLAR TAPE | CT-280 | HUIZHOU YAHUA STICKING TAPE CO.,LTD | | E165111 | | | | | | | | | | | | | | | | | | |
| 6 | VARNISH | V1630FS | ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC | | E75225 | | | | | | | | | | | | | | | | | | |
| CUSTOMER | | APPROVAL | | CHECKED | | DRAWN | | | | | | | | | | | | | | | | | |
| | | AI-PING | | STEVEN CHANG | | SANDY CHEN | | | | | | | | | | | | | | | | | |

■ TEL : 886-2-87875958 ■ FAX : 886-2-87875969 ■ E-MAIL : philip01@ms2.hinet.net

7.3. L3, L4, & L5 Specification

- Core: QP3925H (3C94)
- Bobbin: 7 Pins

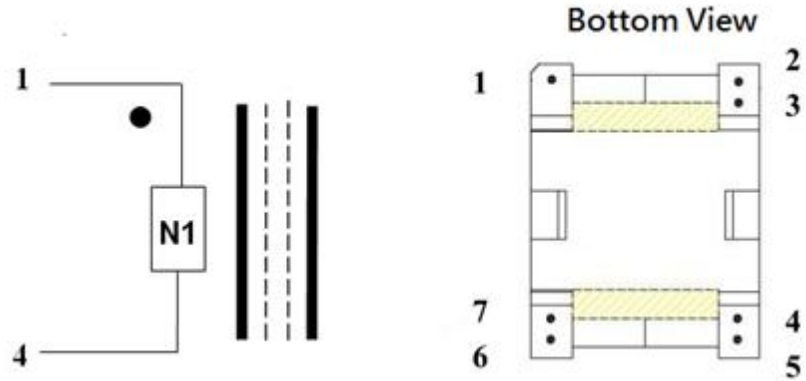


Figure 9. Transformer Specifications & Construction

Table 4. Winding Specifications

| No. | Winding | Pin (S → F) | Wire | Turns | Winding Method |
|-----|--|-------------|------------|-------|------------------|
| 1 | N1 | 1 → 6, 7 | 0.2φ×35 *1 | 25 | Solenoid Winding |
| 2 | Insulation: Polyester Tape t = 0.025 mm, 2-Layer | | | | |
| 3 | Copper-Foil 1.2T to PIN4, 5 | | | | |

Table 5. Electrical Characteristics

| | Pin | Specifications |
|------------|----------|----------------|
| Inductance | 1 → 6, 7 | 100 μH ± 5% |

7.4. L11 Specification

- Core: Ferrite core DRWW 6x10(6ψ*10 mm)
- Bobbin: 2 Pins

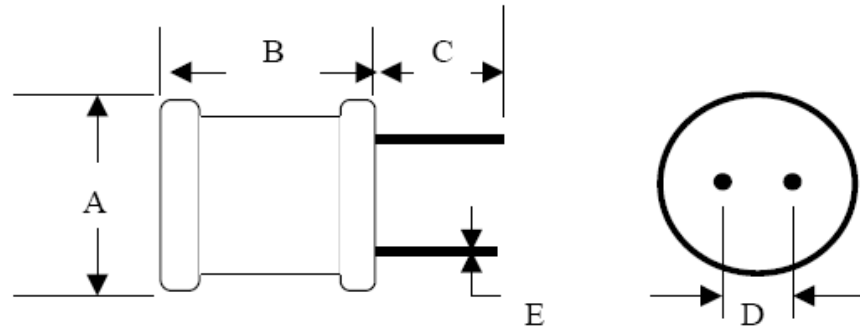


Figure 10. Transformer Specifications & Construction

Table 6. Winding Specifications

| No. | Winding | Pin (S → F) | Wire | Turns | Winding Method |
|-----|-----------------------------------|-------------|---------|-------|------------------|
| 1 | N1 | 1 → 2 | 0.55 mm | 18 | Solenoid Winding |
| 2 | Ferrite core DRWW 6x10 (6ψ*10 mm) | | | | |

Table 7. Electrical Characteristics

| | Pin | Specifications |
|------------|-------|----------------|
| Inductance | 1 - 2 | 10 μH ± 5% |

8. Test Conditions & Test Equipment

8.1. Features

Table 8. Test Conditions & Test Equipment

| | |
|-------------------------|---|
| Test Mode | FEBFAN9673Q_B1H5000A |
| Test Date | Nov.4, 2013 |
| Test Temperature | Ambient 25°C |
| Test Equipment | AC Source: EXTECH 6220 AC/DC Electronic Load: Chroma 63020 Power Meter: HIOKI 3390 Oscilloscope: Lecroy Wavesurfer 424 |
| Test Items | 1. AC Trim Up & Trim Down 2. PFC ON/OFF & RDY 3. Ripple & Noise 4. Efficiency 5. Current Harmonic |

8.2. Test Procedure

Before powering up the board, verify that the AC voltage source is connected to line input terminals on the evaluation board and the AC-DC electronic load is connected to the PFC output.

1. Set the electronic load to no-load or light-load condition and apply the AC voltage across the input of the evaluation board.
2. When the AC voltage (180~264 V_{AC}) is supplied to the board, the FAN9673 begins normal operation and the on-board flyback converter provides the 12 V_{SB} output. The Flyback transformer's auxiliary winding supplies the V_{DD} voltage for the FAN9673 to power up the PFC stage.
3. PFC startup is controlled by the V_{EA} level. Prior to the soft-start voltage reaching 6 V, the V_{EA} level is limited by soft start.
4. After the bulk capacitor or PFC output voltage reaches the steady-state value, 392 V, the load condition of the electronic load can be changed to test system performance.

Hint:

1. It is recommended that an external fan be added to help dissipate the heat on the NTC, IGBT, diode, and bridge on the evaluation board.

9. Performance of Evaluation Board

9.1. AC Trim Up & Trim Down

Test Condition:

Switch the input voltage from 180 V to 264 V or from 264 V to 180 V, the output voltages should be normal and the output of PFC bus should be less than 450 V.

Test Result:

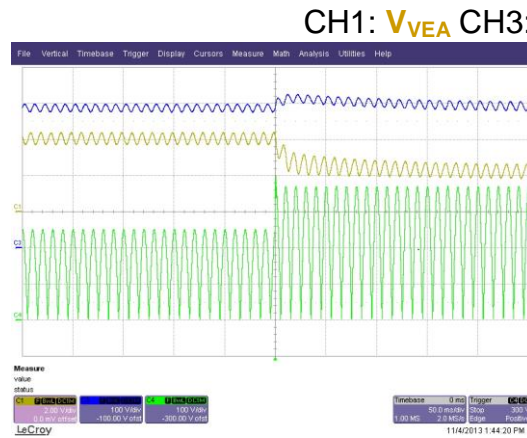


Figure 11. 180 V→264 V 5000 W Load

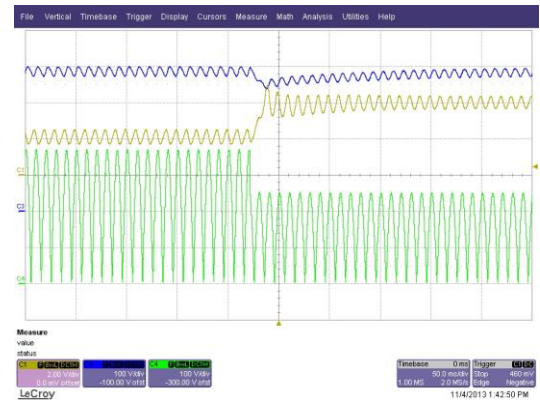


Figure 12. 264 V→180 V 5000 W Load

9.2. PFC ON / OFF & RDY

Test Result:

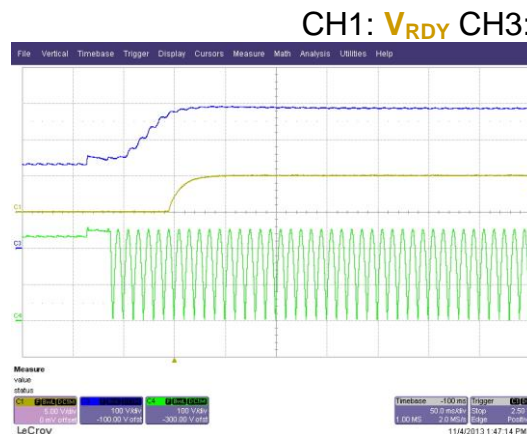


Figure 13. PFC ON

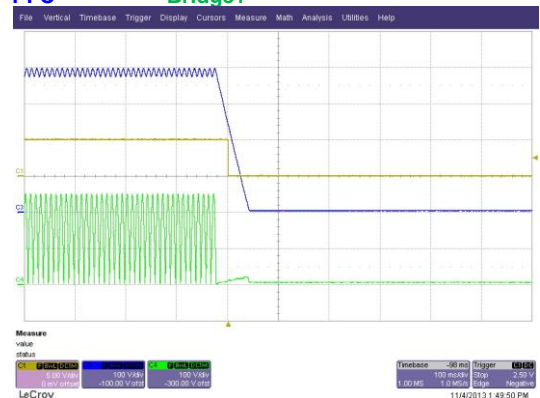


Figure 14. PFC OFF

9.3. Ripple & Noise

Test Result:

CH3: V_{PFC}

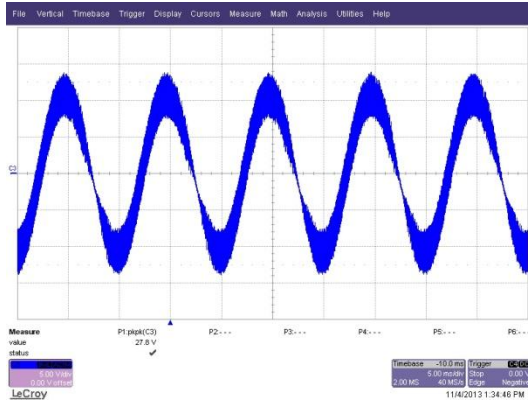


Figure 15. 180 V / 50 Hz

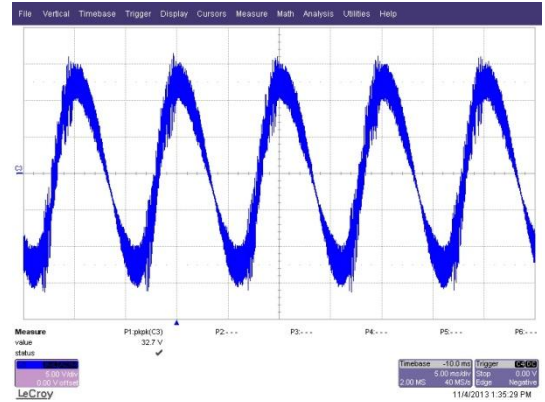


Figure 16. 264 V / 50 Hz

9.4. Efficiency

Test Condition:

Measure efficiency at min., mid., and max. loading.

Test Result:

| FAN9673 | Input Watts (W) | Output Watts (W) | Efficiency |
|--------------------------------|-----------------|------------------|------------|
| A. $V_{IN}=180$ V at 25% Load | 1295 | 1250 | 96.5% |
| B. $V_{IN}=180$ V at 50% Load | 2590 | 2500 | 96.5% |
| C. $V_{IN}=180$ V at 75% Load | 3885 | 3750 | 96.5% |
| D. $V_{IN}=180$ V at 100% Load | 5195 | 5000 | 96.2% |
| E. $V_{IN}=220$ V at 25% Load | 1288 | 1250 | 97.0% |
| F. $V_{IN}=220$ V at 50% Load | 2573 | 2500 | 97.1% |
| G. $V_{IN}=220$ V at 75% Load | 3856 | 3750 | 97.2% |
| H. $V_{IN}=220$ V at 100% Load | 5149 | 5000 | 97.1% |
| I. $V_{IN}=264$ V at 25% Load | 1280 | 1250 | 97.6% |
| J. $V_{IN}=264$ V at 50% Load | 2553 | 2500 | 97.9% |
| K. $V_{IN}=264$ V at 75% Load | 3836 | 3750 | 97.7% |
| L. $V_{IN}=264$ V at 100% Load | 5122 | 5000 | 97.6% |



9.5. Current Harmonic

Test Results:

| FAN9673 | | | |
|---------------|-----------|--------|---------|
| Input Voltage | Condition | PF | THD (%) |
| 180 V / 50 Hz | 25% Load | 0.9912 | 10.55 |
| | 50% Load | 0.9947 | 9.17 |
| | 75% Load | 0.9971 | 6.62 |
| | 100% Load | 0.9974 | 6.40 |
| 220 V / 50 Hz | 25% Load | 0.9800 | 14.32 |
| | 50% Load | 0.9868 | 14.36 |
| | 75% Load | 0.9905 | 12.55 |
| | 100% Load | 0.9924 | 11.26 |
| 264 V / 50 Hz | 25% Load | 0.9365 | 25.85 |
| | 50% Load | 0.9369 | 33.22 |
| | 75% Load | 0.9526 | 29.59 |
| | 100% Load | 0.9600 | 27.29 |



180 V / 50 Hz Input Current Waveform & Harmonic

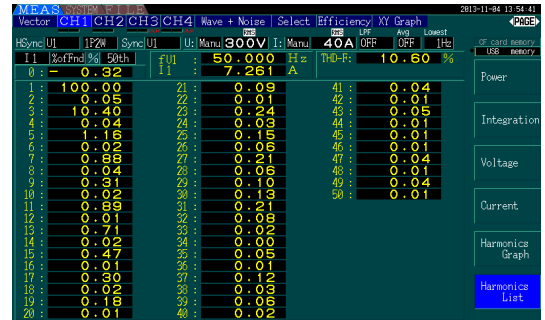
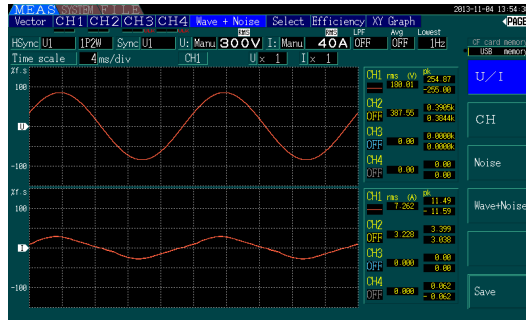


Figure 17. 25% Load

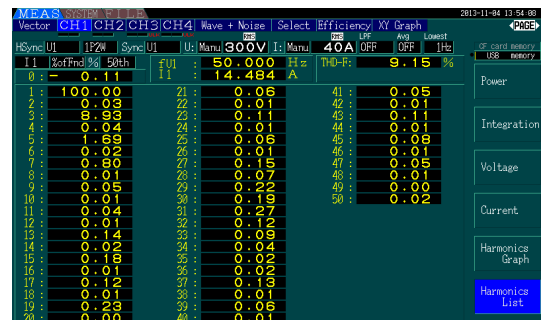
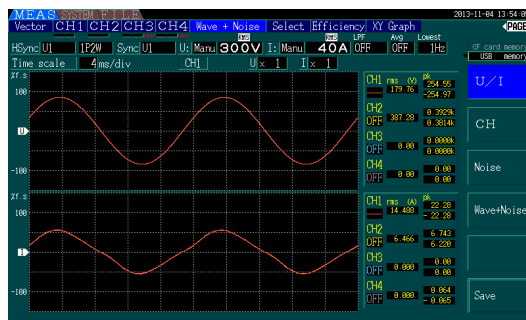


Figure 18. 50% Load

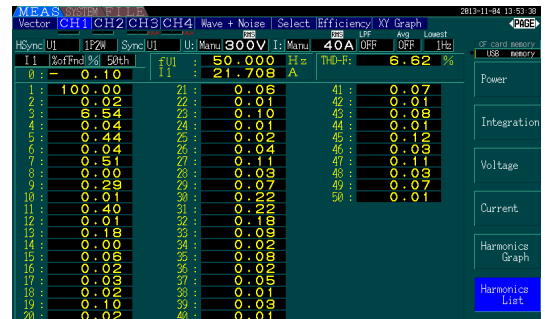
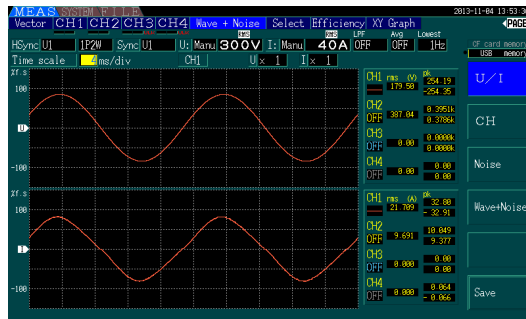


Figure 19. 75% Load

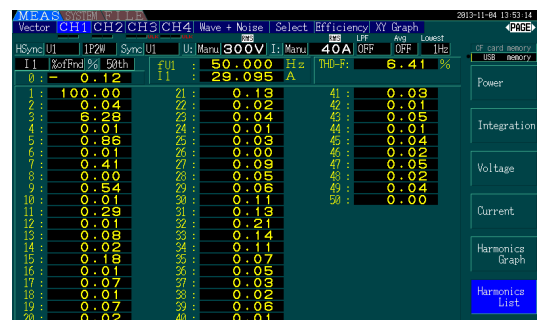
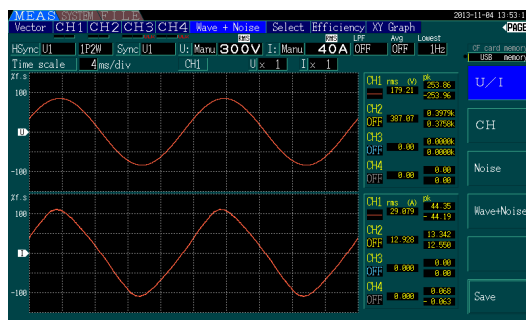


Figure 20. 100% Load



220 V / 50 Hz Input Current Waveform & Harmonic

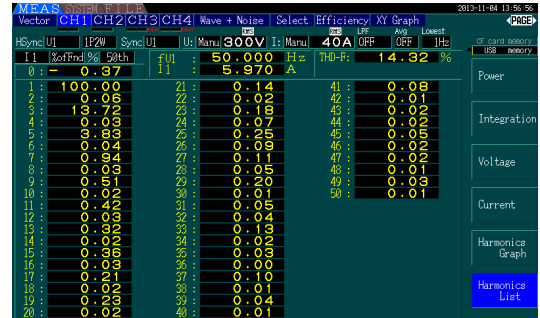
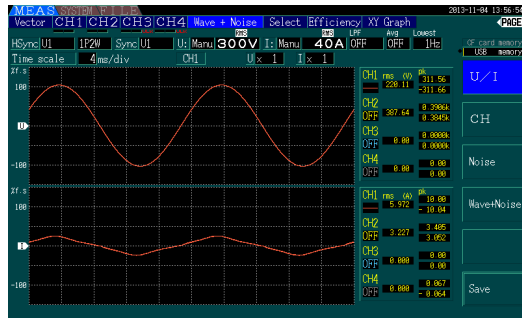


Figure 21. 25% Load

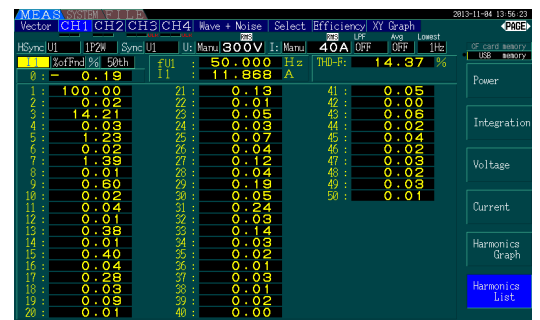
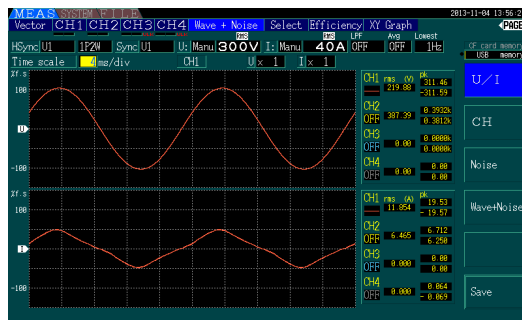


Figure 22. 50% Load

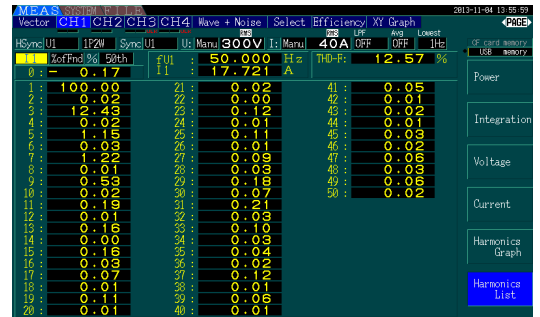
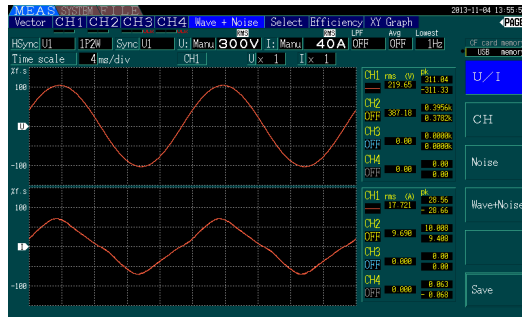


Figure 23. 75% Load

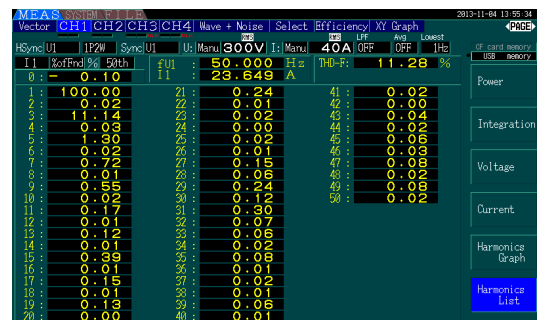
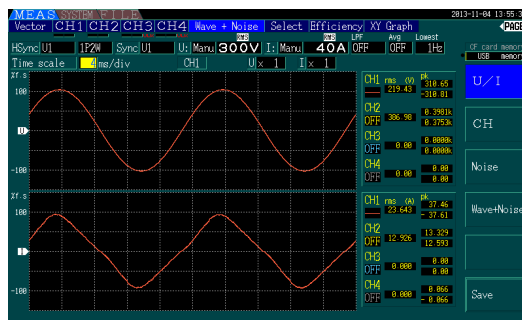


Figure 24. 100% Load



264 V / 50 Hz Input Current Waveform & Harmonic

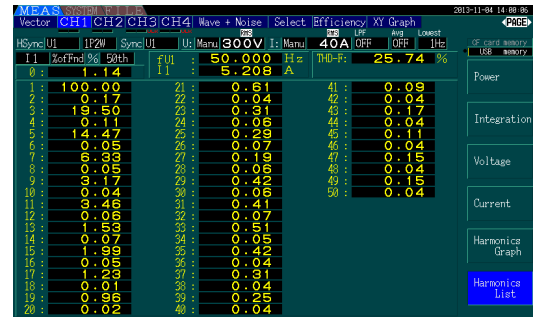
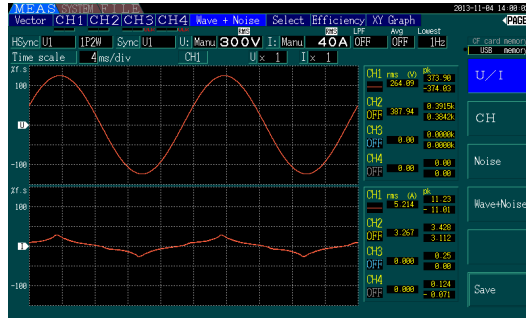


Figure 25. 25% Load

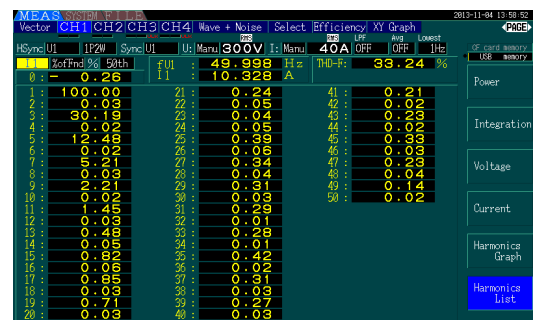
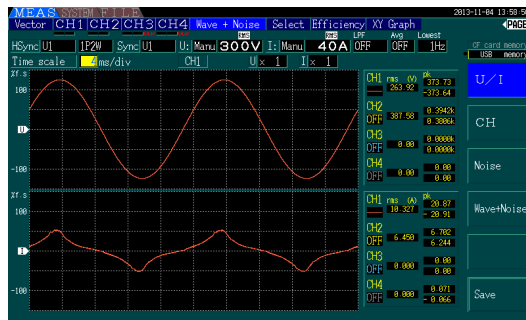


Figure 26. 50% Load

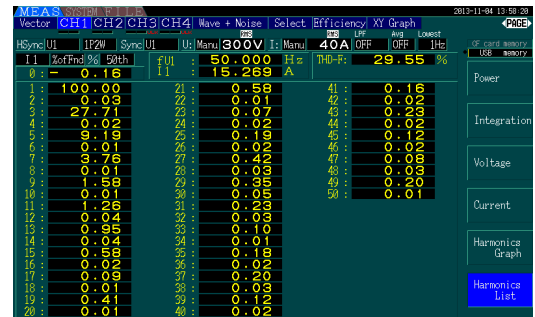
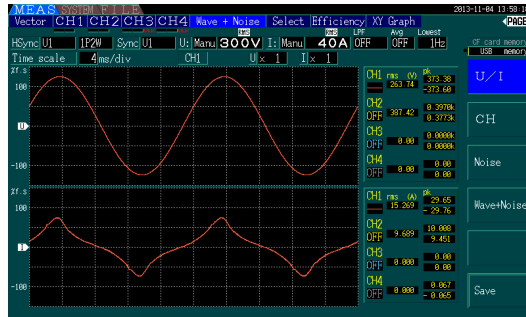


Figure 27. 75% Load

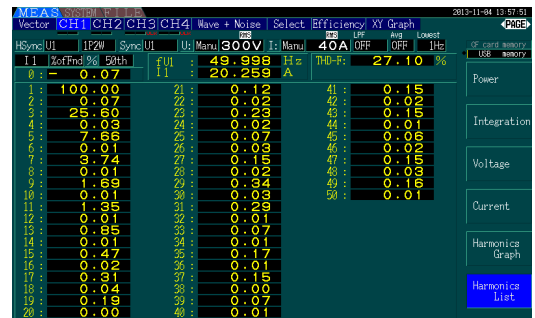
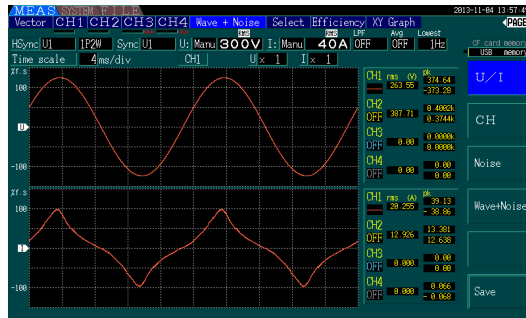


Figure 28. 100% Load

10. Notice Letter

To properly operate the high-power interleaved CCM PFC evaluation board, cooling fans must be enabled to remove the heat from switching IGBTs and diodes. The fans are usually set up as shown in the following picture.

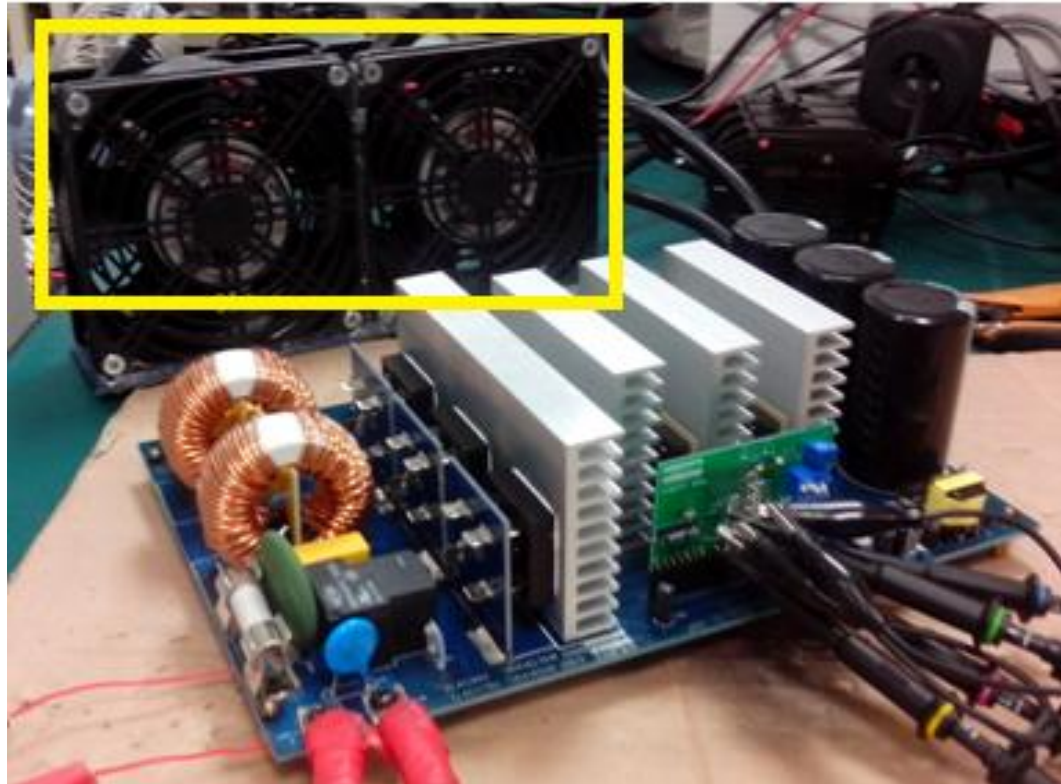


Figure 29. Recommended Fan Setup

Note:

2. Fans are not provided with the evaluation board. Supply fans for testing.

11. Safety Precautions



Before applying power to the FEBFAN9673Q_B1H5000A evaluation board, it is imperative that all involved personnel read and understand the safety precautions and understand the power on/off procedures.

The FEBFAN9673Q_B1H5000A evaluation board operates at lethal voltages and has bulk capacitors that store significant charge. Accidental contact can lead to lab equipment damage, personnel injury, and may be fatal. Be exceptionally careful when probing and handling this board. Always observe normal laboratory precautions, including:

- A. All connected computers and measurement equipment **MUST** be isolated from the AC mains before operating voltages are applied to the board. Alternatively, AC/DC power to the board may be isolated.
- B. When using an oscilloscope with this board, it must be isolated from the AC line. Alternatively, high-voltage (700 V+) isolated probes may be utilized.
- C. Start with a clean working surface, clear of any conductive material.
- D. Be careful while turning on the power switch to the AC source.
- E. Never probe or move a probe on the board while the AC line voltage is present.
- F. Ensure the bulk capacitors are discharged before disconnecting the high power load.

Note:

3. Even when a computer is isolated from AC mains through external supply, a connection to earth-potential may exist through LAN, VGA, or other connections to peripherals.



12. Revision History

| Rev. | Date | Description |
|-------|------------|---|
| 1.0.0 | Jan 2014 | Initial release |
| 1.0.1 | April 2014 | Update to BOM |
| 1.0.2 | July 2014 | Update to BOM |
| 1.3 | March 2014 | Updated Part number to FEBFAN9673Q_B1H5000A |

WARNING AND DISCLAIMER

Replace components on the Evaluation Board only with those parts shown on the parts list (or Bill of Materials) in the Users' Guide. Contact an authorized Fairchild representative with any questions.

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