

EMC Filter



RoHS



FEATURES

- Ultra wide input voltage range: 0-305VAC / 0-430VDC
- Operating ambient temperature range: -40°C to +105°C
- EMC compliance : IEC/EN61000-4、CISPR32/EN55032
- High surge suppression capability: ±2kV/4kV
- Insertion loss DM & CM up to 70dB @ 1MHz
- Compliance with safety standards IEC62368

The model FC-L15D series developed for the first time belongs to the EMC auxiliary device supporting our LBF1000 series AC/DC brick power supply. The maximum input voltage of the power supply should not be greater than the maximum operating voltage of the auxiliary power supply, and the maximum input current should not be greater than the maximum operating current of the filter.

Selection Guide

| Model | Operating Voltage(VAC) | | Operating Current(A) | | Surge Performance | Matching The Power Model** |
|---------|------------------------|------|----------------------|------|--------------------------------|----------------------------|
| | Typ. (Range) | Max* | Typ. | Max | | |
| FC-L15D | 230 (0-305) | 310 | - | 15.0 | Line-Line ±2kV Line-PE ±4kV | LBF1000-13B28-NS |

Note: 1. *Input voltage should not exceed this value, otherwise permanent irreparable damage may be caused.

2.** You can apply for the FC-L15D with LBF1000-13B28-NS peripheral test board simultaneously.

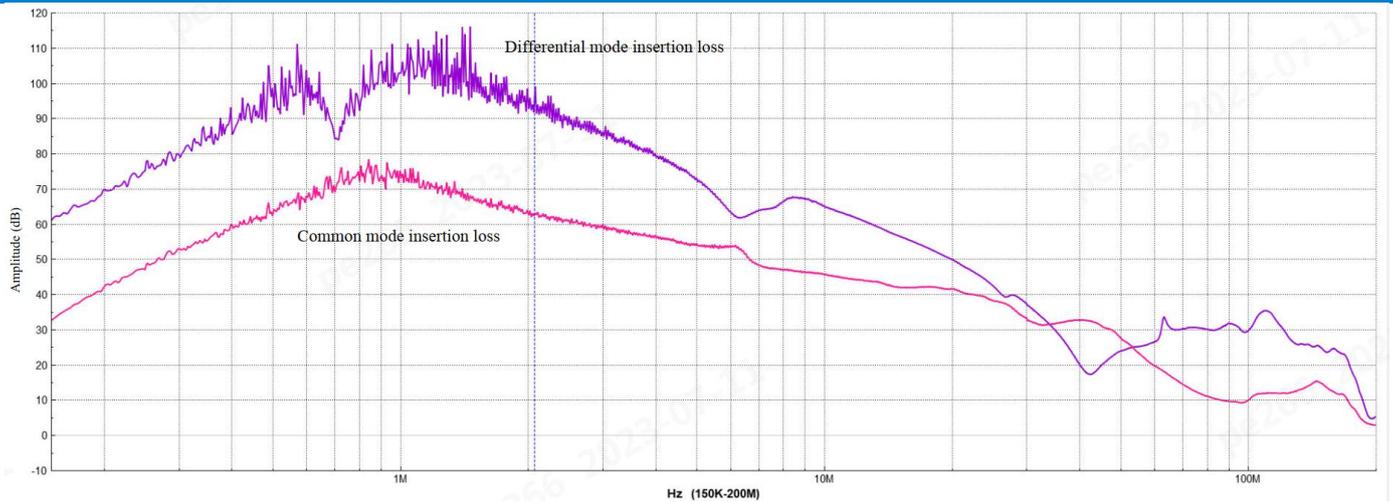
General Specifications

| Item | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------|---|--|------|------|------|
| Operating Temperature | | -40 | -- | +105 | °C |
| Storage Temperature | | -40 | -- | +105 | |
| Welding Temperature | Wave soldering welding, 10 seconds MAX | +255 | +260 | +265 | |
| Storage Humidity | Non-condensing | -- | -- | 95 | %RH |
| Isolation Voltage | IN(L) ~ PE, IN(N) ~ PE, test time 1 minute, leakage current < 5mA | 2500 | -- | -- | VAC |
| Insertion Loss (CM/DM) | 150KHz~1MHz | 35 | 40 | - | dB |
| | 1MHz~10MHz | 35 | 40 | - | dB |
| | 10MHz~30MHz | 18 | 20 | - | dB |
| Impact and Vibration test | | 10-500Hz, 2G, 10 Min. along X, Y and Z | | | |
| MTBF | | MIL-HDBK-217F@25°C≥300,000 h | | | |
| Altitude | | ≤5000m | | | |
| Warranty | | 3 years | | | |

Physical Characteristics

| | |
|----------------|--|
| Case Material | Black plastic, flame-retardant and heat-resistant (UL94 V-0) |
| Dimension | 87.00mm x 52.00mm x 29.50mm |
| Weight | 220g(Typ.) |
| Cooling Method | Free air convection |

FC-L15D Insertion Loss Specifications

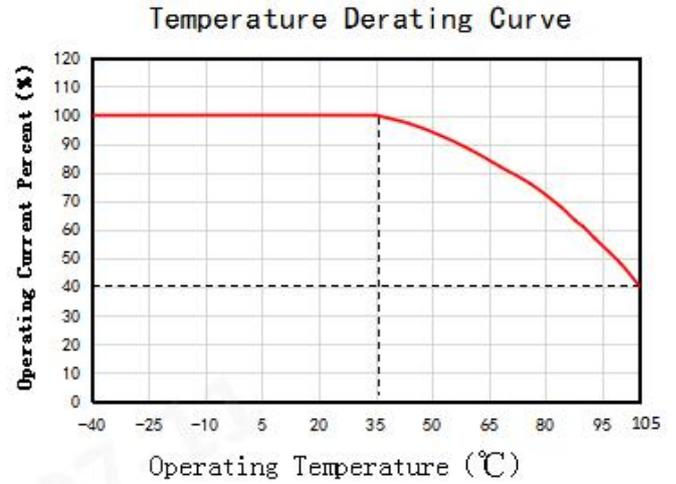
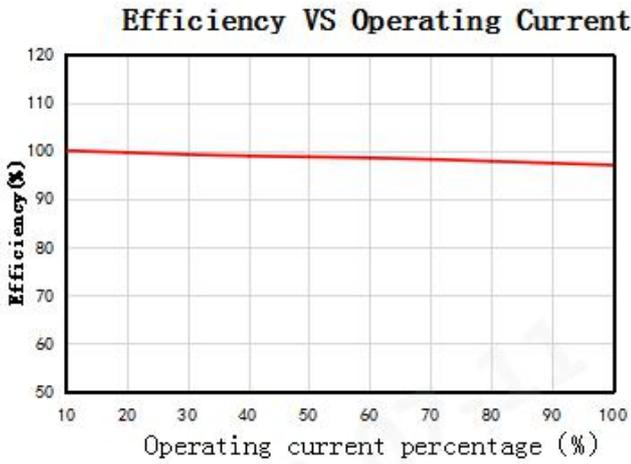


EMC Characteristics

| | | | | |
|-----|-------|-----------------|--|------------------|
| EMI | CE | CISPR32/EN55032 | CLASS A | (See figure 1) |
| | | GJB 151B | CE102 | (See figure 2) |
| | RE | CISPR32/EN55032 | CLASS A | (See figure 1) |
| EMS | ESD | IEC/EN61000-4-2 | Contact ±6kV Air ±8kV | perf. Criteria A |
| | RS | IEC/EN61000-4-3 | 10V/m | perf. Criteria A |
| | EFT | IEC/EN61000-4-4 | ±4kV | perf. Criteria A |
| | CS | IEC61000-4-6 | 10V r.m.s | perf. Criteria A |
| | PFMF | IEC61000-4-8 | 50/60Hz 30A/m | perf. Criteria A |
| | Surge | IEC/EN61000-4-5 | Line-Line ±2kV Line-PE ±4kV (See figure 1) | perf. Criteria A |

Note: * Matching FC-L15D to the front end of the LBF1000-13B28-NS power supply can make the power module meet above EMC characteristics.

Product Characteristic Curve



Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

Design Reference

Typical application

Note: Matched the mornsun LBF1000-13B28-NS series AC power module supply;

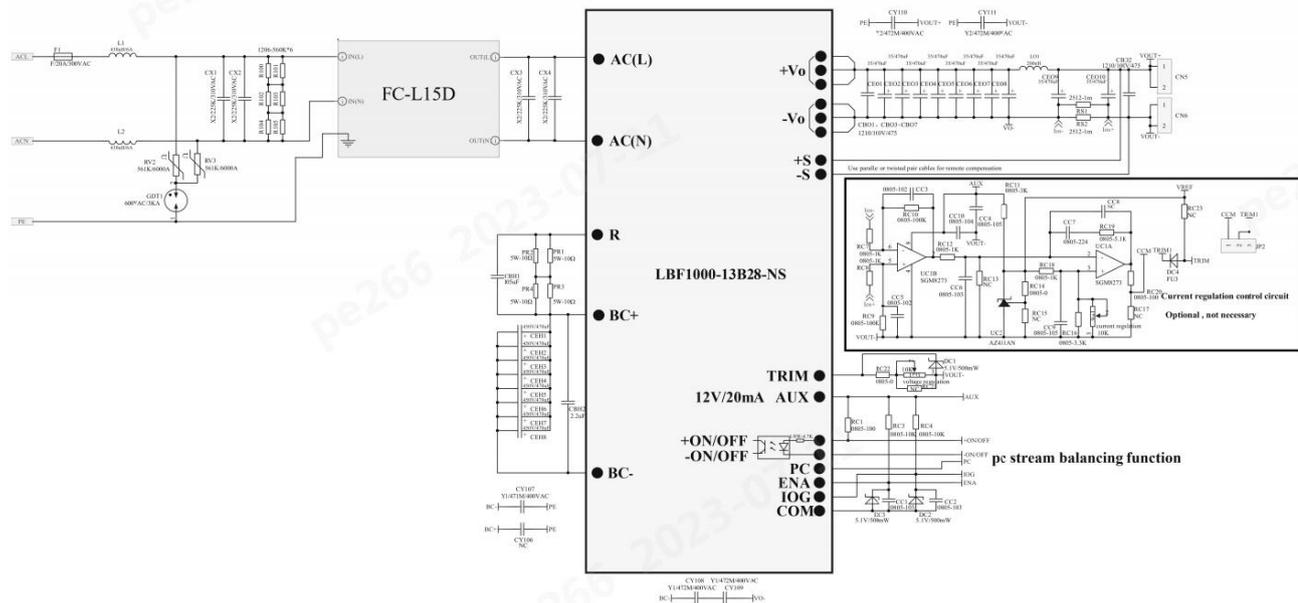


Fig.1

Note: For the decomposition diagram in Figure 1 and detailed device parameters, refer to LBF1000-13B28-NS technical manual recommended peripheral circuits

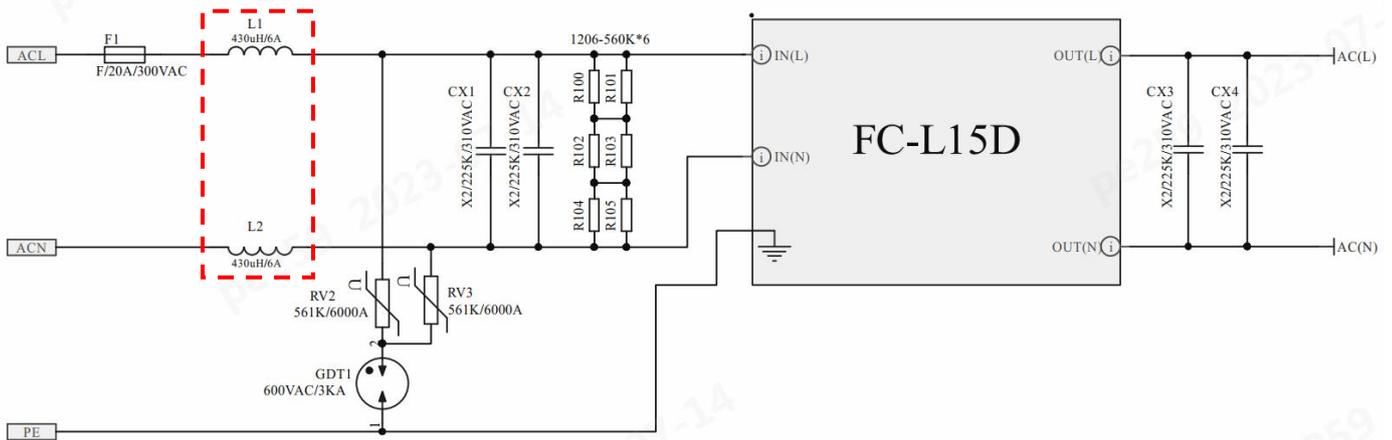
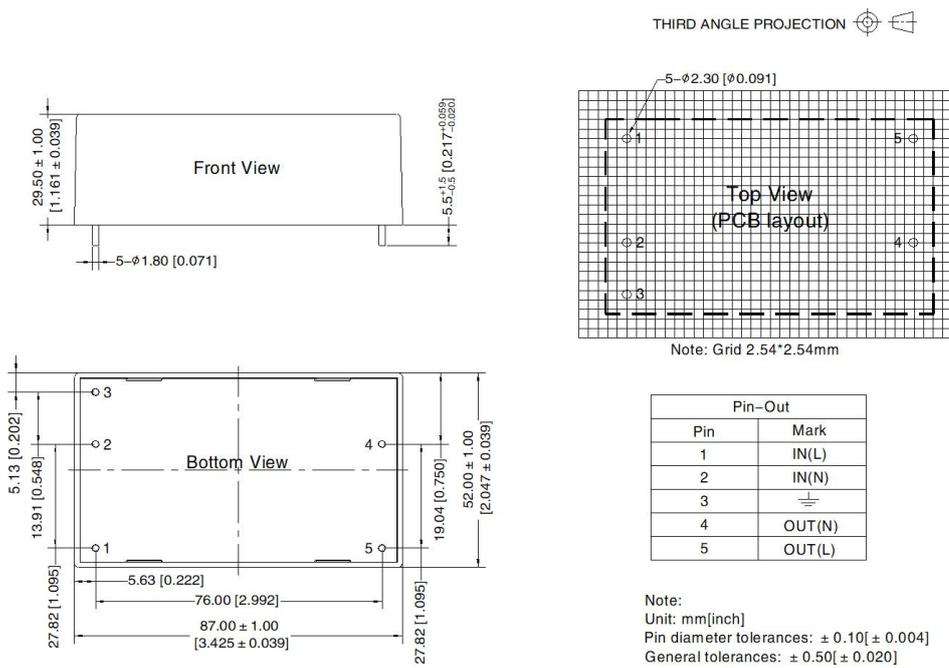


Fig.2

| Components | Value | Brand |
|-------------------------------|----------------|----------------------------|
| F1 | 300VAC/25A | Time-Delay-Fuse Betterfuse |
| L1、L2* | FD2D -60-431 | MORNSUN |
| RV2/RV3 | 14D561K/6000A | WMEC Electronic |
| GDT1 | 600V/3KA | Bencent |
| CX1/CX2/CX3/CX4 | X2/225K/310VAC | NISTRONICS |
| R100/R101/R102/R103/R104/R105 | 560K/1206 | FENGHUA |

Note: * Added L1 and L2 to meet the military standard GJB151B CE102.

FC-L15D Dimensions and Recommended Layout



Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220019;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25°C, humidity<75%RH with nominal input voltage and rated load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;

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