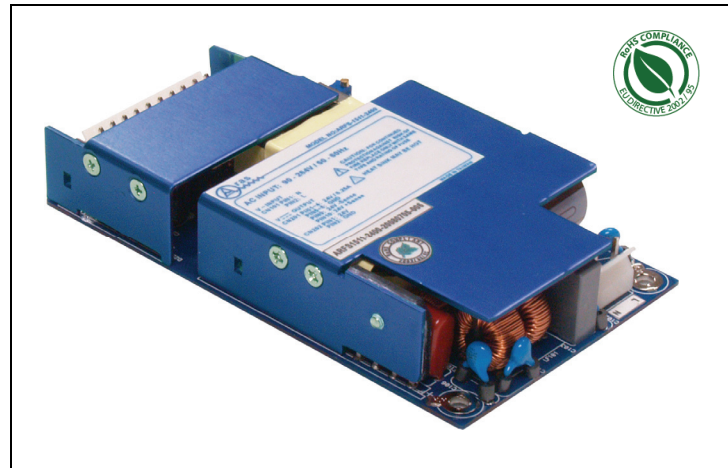


## Switching Power Supply

### 120 Watt / Single Output

#### Key Features:

- 120 Watts output Power
- 12 / 24 VDC Single Output Models
- Open Frame Package measuring only 3 x 5 x 1.08"
- High Density
- >90% Efficiency
- High Reliability in excess of 220,000 Hours
- 1+1 Redundant Operation with Integrated OR'ng Diodes
- International Safety Approvals
- Class B Emissions
- 3 Year Warranty



#### Design Standards:



The ARFS-1211 series of AC/DC Power Supplies are intended for general use in ITE Applications. Designed with Universal Input and qualified to meet International Safety Approval and Emission Standards, these supplies can be utilized in a wide array of applications around the globe.

The high efficiency operation of these supplies allow for full-load convection-cooled operation, substantially reducing system costs.

**Input:**

(TA = +25C Unless otherwise specified)

| Characteristic               | Min  | Typ | Max.        | Units      | Note  |
|------------------------------|------|-----|-------------|------------|---|
| Input Voltage                | 90   | -   | 264         | VAC        |   |
| Input Frequency              | 47   | -   | 63          | Hz         |   |
| Inrush Current               | -    | -   | 30<br>50    | A<br>A     | 115 VAC Operation<br>230 VAC operation              |
| Input Current                | -    | -   | 2.50        | A          | 90 VAC Operation                                    |
| Input Protection             | -    | -   | 5.00<br>250 | A<br>VAC   | Single Fused Input Protection                       |
| Leakage Current              | -    | -   | 300         | μA         | 264 VAC   |
| Turn-On Voltage              | 85   | -   | -           | VAC        |   |
| Turn-Off Voltage             | -    | -   | 80          | VAC        |   |
| Lightning Surge / Transients | -    | -   | ±2k<br>±1k  | VAC<br>VAC | Line-Earth (EN61000-4-5)<br>Line-Line (EN61000-4-5) |
| Voltage Dips                 | -    | -   | 95<br>30    | %<br>%     | 10ms (per EN61000-4-10)<br>500ms (per EN61000-4-10) |
| Fluctuations / Flicker       | -    | -   | -           | -          | Per EN61000-3-3                                     |
| Voltage Interruptions        | -    | -   | -           | -          | Per EN61000-4-11                                    |
| Harmonics                    | 0.95 | -   | -           | pf         | Per EN6100-3-2 Class D                              |
| Hold-Up Time                 | 16   | -   | -           | ms         | 90~264 VAC / Full Load (See figure 1)               |

**Output:**

(TA = +25C Unless otherwise specified)

| Characteristic           | Min   | Typ   | Max.  | Units | Note   |
|--------------------------|-------|-------|-------|-------|--|
| Voltage Setpoint:        |       |       |       |       |  |
| ARFS-1211-1200           | 11.40 | 12.00 | 12.60 | VDC   |  |
| ARFS-1211-2400           | 23.76 | 24.00 | 24.24 | VDC   |  |
| Output Current:          |       |       |       |       |  |
| ARFS-1211-1200           | 0.5   | -     | 10.00 | Amps  |  |
| ARFS-1211-2400           | 0.5   | -     | 5.00  | Amps  |  |
| Adjustment Range:        |       |       |       |       |  |
| ARFS-1211-1200           | 11.40 | -     | 12.60 | VDC   |  |
| ARFS-1211-2400           | 22.80 | -     | 25.20 | VDC   |  |
| Ripple / Noise           |       |       | 1     | %     | Pk-pk max, 20MHz, measured at output connectors  |
| Regulation               | -     | -     | 1     | %     | Max Line, Load & Temp  |
| Dynamic Load:            |       |       |       |       |  |
| Deviation                |       |       | 5     | %     | 20% Step Load  |
| Recovery                 |       |       | 10    | ms    |  |
| Output Rise Time         |       |       | 10    | ms    | 10~90% of Rated VDC, Full Load (See figure 1)  |
| Turn-On Delay            |       |       | 10    | ms    | (See figure 1)   |
| Over-Voltage Protection  | 1     |       | 150   | %     | of Rated Voltage, Latching (Recycle input to reset)  |
| Over-Current Protection  | 115   |       | 140   | %     | Total Power limited (Auto-Recovery)  |
| Short Circuit Protection | -     | -     | -     |       | Continuous (auto-recovery). An output short circuit is defined as any load impedance of less than 0.1 ohms |
| Current Share Accuracy   | -20   |       | +20   | %     | Droop Method. If a power supply fails the output voltage dip should be less than 100mV.                    |
| Redundant Operation      |       |       |       |       | All power supplies have an O-Ring diode to prevent one power supply failure from bringing down the system  |
| Remote Sense             |       |       | 250   | mV    |  |



**General:**

| Characteristic          | Min  | Typ | Max. | Units | Note   |
|-------------------------|------|-----|------|-------|--|
| Temperature             |      |     |      |       |  |
| Operating               | 0    |     | +70  | °C    | Derate 2.5% per °C above 50°C  |
| Storage                 | -40  |     | +85  | °C    |  |
| Cooling                 | 10   |     |      | cfm   |  |
| Humidity                |      |     |      |       |  |
| Operating               | 0    |     | 95   | %     | Non-Condensing   |
| Storage                 | 0    |     | 95   | %     | Non-Condensing   |
| Shock                   |      |     |      |       |  |
| Operating               | 10   |     |      | G     | 11msec, half-sine wave pulse, in both directions, on three mutually perpendicular axes |
| Storage                 | 40   |     |      | G     |  |
| Vibration               | 0.25 |     |      | G     | 10-250hz, 1 octave/min, 15 min dwell, 3 axes   |
| Efficiency              |      | 90% |      |       |  |
| Temperature Coefficient |      |     |      |       |  |
| Reliability             | 200  |     |      | kHrs  | MIL-HBK-217D (Full Load, 110V AC Input; Ground Benign; 25°C ambient)                   |
| Isolation (Hi-Pot)      | 1500 |     |      | VAC   | Primary to ground: 1500Vac/50Hz, 3 sec, Cut-off current:10mA                           |

**Electromagnetic Compatibility:**

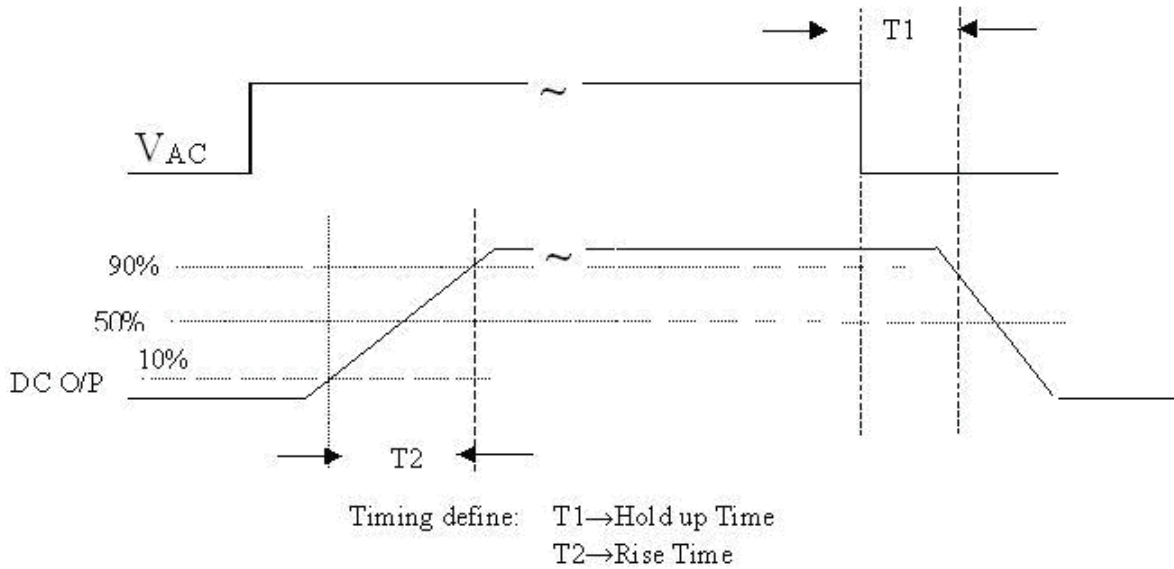
| Characteristic          | Description  |
|-------------------------|--|
| Line Conducted EMI      | FCC Class B / EN55022 Class B under all rated input and load conditions  |
| Electrostatic Discharge | EN61000-4-2: Contact Discharge- Contact discharge in 2kV increments to 6kV for metallic surfaces including connector bodies. 10 discharges pretest point at each voltage: 5 positive polarity and 5 negative polarity. Air discharge – Air discharge in 2kV increments to 8kV for scams and non-metallic user accessible surfaces. 10 discharges pretest point at each voltage: 5 positive polarity and 5 negative polarity. |
| Radiated Susceptibility | EN61000-4-3: Electromagnetic Field Strength 3V/m   |
| EFT / Bursts            | EN61000-4-4: Direct Coupling Line to Ground Reference Plane: 1kV increments up to 2kv for a minimum of 1 min. at each voltage. Direct Coupling Neutral to Ground Reference Plane: 1kV increments up to 2kV for a minimum of 1 min. at each voltage. Direct Coupling Ground to Ground Reference Plane: 1kV increments up to 2kV for a minimum of 1 min. at each voltage   |
| Surges                  | EN61000-4-5: The peak value of the bi-directional surge waveform shall be 2kV for common mode and 1kV for differential modes of transient surge injection. No unsafe operation or no user noticeable degradation is allowed under any condition.   |
| Conducted Immunity      | EN610000-4-6: 0.15~800MHz, 10V, 80% AM   |
| Voltage Dips            | EN61000-4-10: 95% Dip & 10ms, 30% Dip & 500mS  |
| Voltage Interruptions   | EN61000-4-11, 95% reduction, 5s  |
| Fluctuations & Flicker  | EN61000-3-3  |
| Harmonic Distortion     | EN61000-3-2 Class D  |

**Safety Standards:**

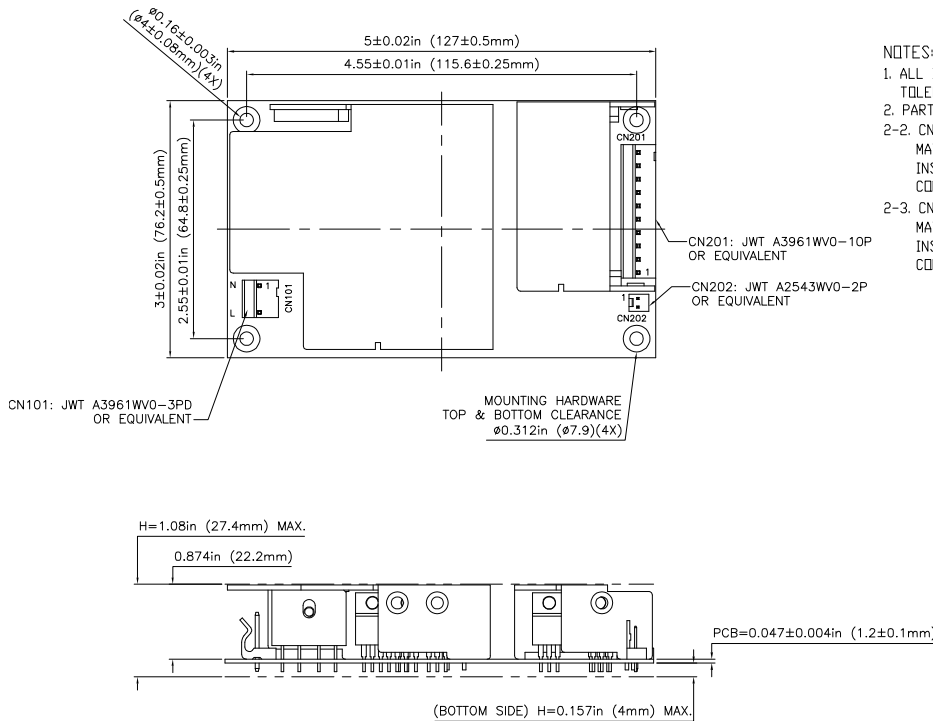
UL/cUL 60950-1, (pending)  
 TUV EN60950-1, (pending)  
 CB Report IEC60950-1, (pending)  
 CE Mark (Low Voltage Directive) (pending)



**Turn-On / Turn Off Characteristics:**



**Outline Drawing:**



NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL DIMENSION ARE IN mm. TOLERANCES TO BE ±0.5 mm
2. PARTS SPECIFIED AS FOLLOWS:  
 2-2. CN101, CN201 SOCKET:  
 MATERIAL:  
 INSULATOR: NYLON 66 UL 94V-0  
 CONTACT: 1.14mm SQUARE PIN, BRASS, TIN PLATED  
 2-3. CN202 SOCKET:  
 MATERIAL:  
 INSULATOR: NYLON 66 UL 94V-0  
 CONTACT: 0.64mm SQUARE PIN, BRASS, TIN PLATED

| CN101 |            |
|-------|------------|
| PIN1  | AC Neutral |
| PIN2  | AC Line    |

| CN201  |            |
|--------|------------|
| PIN1~4 | 24V/6.25A  |
| PIN5~8 | GND        |
| PIN9   | 24V -Sense |
| PIN10  | 24V +Sense |

| CN202 |     |
|-------|-----|
| PIN1  | 24V |
| PIN2  | GND |