



20W Output Switching Power Supply

**PM-20** series



■ Features :

- Universal AC input / Full range
- Low leakage current <200uA
- Protections: Short circuit / Overload / Over voltage
- Ultra-miniature size, light weight
- Cooling by free air convection
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption<0.75W
- 100% full load burn-in test
- Fixed switching frequency at 90KHz
- High reliability
- 3 years warranty



**SPECIFICATION**

| MODEL                 | PM-20-3.3                            | PM-20-5   | PM-20-12     | PM-20-15     | PM-20-24       |              |
|-----------------------|--------------------------------------|---|--------------|--------------|----------------|--------------|
| OUTPUT                | DC VOLTAGE                           | 3.3V  | 5V           | 12V          | 15V            | 24V          |
|                       | RATED CURRENT                        | 4.5A  | 4.4A         | 1.8A         | 1.4A           | 0.92A        |
|                       | CURRENT RANGE                        | 0 ~ 4.5A  | 0 ~ 4.4A     | 0 ~ 1.8A     | 0 ~ 1.4A       | 0 ~ 0.92A    |
|                       | RATED POWER                          | 14.85W  | 22W          | 21.6W        | 21W            | 22.08W       |
|                       | RIPPLE & NOISE (max.) Note.2         | 80mVp-p   | 80mVp-p      | 150mVp-p     | 150mVp-p       | 240mVp-p     |
|                       | VOLTAGE TOLERANCE Note.3             | ±3.0%   | ±2.0%        | ±2.0%        | ±2.0%          | ±2.0%        |
|                       | LINE REGULATION                      | ±1.0%   | ±1.0%        | ±0.5%        | ±0.5%          | ±0.5%        |
|                       | LOAD REGULATION                      | ±1.5%   | ±1.5%        | ±1.0%        | ±1.0%          | ±0.5%        |
|                       | SETUP, RISE TIME                     | 500ms, 20ms/230VAC 500ms, 20ms/115VAC at full load  |              |              |                |              |
| HOLD UP TIME (Typ.)   | 50ms/230VAC 16ms/115VAC at full load |   |              |              |                |              |
| INPUT                 | VOLTAGE RANGE                        | 85 ~ 264VAC 120 ~ 370VDC  |              |              |                |              |
|                       | FREQUENCY RANGE                      | 47 ~ 440Hz  |              |              |                |              |
|                       | EFFICIENCY (Typ.)                    | 71%   | 75%          | 81%          | 83%            | 84%          |
|                       | AC CURRENT (Typ.)                    | 0.6A/115VAC 0.4A/230VAC   |              |              |                |              |
|                       | INRUSH CURRENT (Typ.)                | COLD START 30A/115VAC 65A/230VAC  |              |              |                |              |
| LEAKAGE CURRENT       | <200uA / 240VAC                      |   |              |              |                |              |
| PROTECTION            | OVERLOAD                             | Above 105% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed   |              |              |                |              |
|                       | OVER VOLTAGE                         | 3.8 ~ 4.46V   | 5.75 ~ 6.75V | 13.8 ~ 16.2V | 17.25 ~ 20.25V | 27.6 ~ 32.4V |
| ENVIRONMENT           | WORKING TEMP.                        | -20 ~ +60°C (Refer to output load derating curve)   |              |              |                |              |
|                       | WORKING HUMIDITY                     | 20 ~ 90% RH non-condensing  |              |              |                |              |
|                       | STORAGE TEMP., HUMIDITY              | -40 ~ +85°C, 10 ~ 95% RH  |              |              |                |              |
|                       | TEMP. COEFFICIENT                    | ±0.03%/°C (0 ~ 50°C)  |              |              |                |              |
|                       | VIBRATION                            | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes   |              |              |                |              |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS                     | UL60601-1, TUV EN60601-1, IEC60601-1 approved   |              |              |                |              |
|                       | WITHSTAND VOLTAGE                    | I/P-O/P:4KVAC I/P-FG:1.5KVAC O/P-FG:1.5KVAC   |              |              |                |              |
|                       | ISOLATION RESISTANCE                 | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC  |              |              |                |              |
|                       | EMI CONDUCTION & RADIATION           | Compliance to EN55011(CISPR11),EN55022 (CISPR22) Class B  |              |              |                |              |
|                       | HARMONIC CURRENT                     | Compliance to EN61000-3-2, -3   |              |              |                |              |
| OTHERS                | EMS IMMUNITY                         | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A  |              |              |                |              |
|                       | MTBF                                 | 487.8Khrs min. MIL-HDBK-217F (25°C)   |              |              |                |              |
|                       | DIMENSION                            | 94*56*22.7mm (L*W*H)  |              |              |                |              |
| NOTE                  | PACKING                              | 0.18Kg; 90pcs/17.2Kg/0.97CUFT   |              |              |                |              |
|                       |                                      | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. |              |              |                |              |

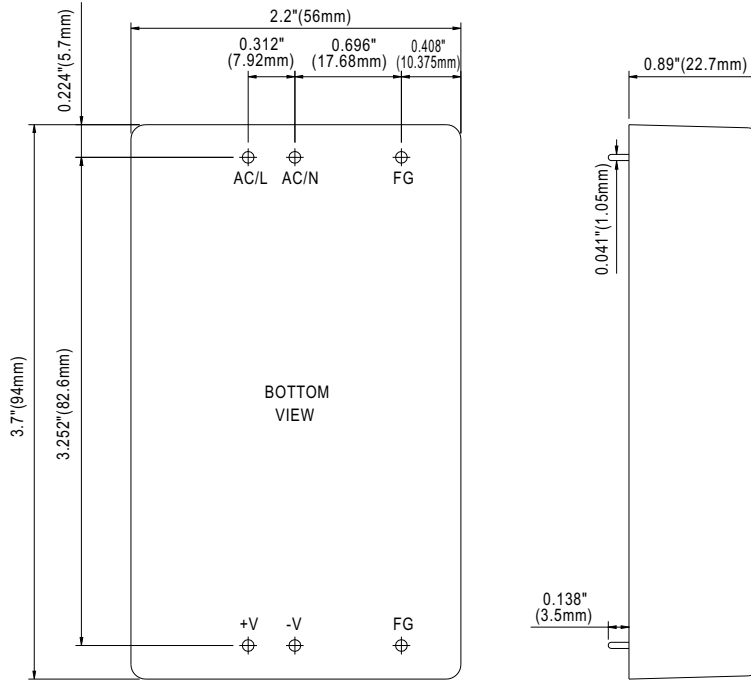


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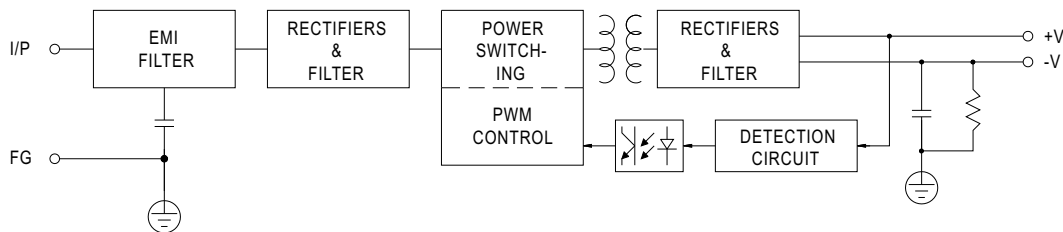
**Mechanical Specification**

Case No. 951A Unit:inch(mm)



**Block Diagram**

fosc : 90KHz



**Derating Curve**

**Output Derating VS Input Voltage**

