

### 20W Single Output Switching Power Supply

# LPV-20 series



Features :

- Constant voltage mode power supply
- Universal AC input / Full range
- Fully encapsulated with IP67 level (Note.7)
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Over current / Over voltage
- Fully isolated plastic case
- Cooling by free air convection
- Small and compact size
- UL1310 Class 2 power unit
- Pass LPS
- 100% full load burn-in test
- · Low cost, high reliability
- Suitable for LED lighting and moving sign applications
- 2 years warranty

#### SPECIFICATION

| MODEL           |                                                                                                                                                                                                                                                                                             | LPV-20-5                                                                                                                                                                | LPV-20-12                                                                                                              | LPV-20-15                    | LPV-20-24                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------|
| OUTPUT          | DC VOLTAGE                                                                                                                                                                                                                                                                                  | 5V                                                                                                                                                                      | 12V                                                                                                                    | 15V                          | 24V                                                                             |
|                 | RATED CURRENT                                                                                                                                                                                                                                                                               | 3A                                                                                                                                                                      | 1.67A                                                                                                                  | 1.33A                        | 0.84A                                                                           |
|                 | CURRENT RANGE                                                                                                                                                                                                                                                                               | 0 ~ 3A                                                                                                                                                                  | 0~1.67A                                                                                                                | 0~1.33A                      | 0~0.84A                                                                         |
|                 | RATED POWER                                                                                                                                                                                                                                                                                 | 15W                                                                                                                                                                     | 20W                                                                                                                    | 20W                          | 20.2W                                                                           |
|                 | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                | 80mVp-p                                                                                                                                                                 | 120mVp-p                                                                                                               | 120mVp-p                     | 150mVp-p                                                                        |
|                 | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                    | ±5.0%                                                                                                                                                                   |                                                                                                                        |                              |                                                                                 |
|                 | LINE REGULATION                                                                                                                                                                                                                                                                             | ±1.0%                                                                                                                                                                   |                                                                                                                        |                              |                                                                                 |
|                 | LOAD REGULATION                                                                                                                                                                                                                                                                             | ±2.0%                                                                                                                                                                   |                                                                                                                        |                              |                                                                                 |
|                 | SETUP, RISE TIME Note.6                                                                                                                                                                                                                                                                     | 500ms, 20ms / 230VAC 500ms, 20ms / 115VAC at full load                                                                                                                  |                                                                                                                        |                              |                                                                                 |
|                 | HOLD UP TIME (Typ.)                                                                                                                                                                                                                                                                         | 50ms/230VAC 16ms/115VAC at full load                                                                                                                                    |                                                                                                                        |                              |                                                                                 |
| INPUT           | VOLTAGE RANGE Note.4                                                                                                                                                                                                                                                                        | 90 ~ 264VAC 127 ~ 370VDC                                                                                                                                                |                                                                                                                        |                              |                                                                                 |
|                 | FREQUENCY RANGE                                                                                                                                                                                                                                                                             | 47 ~ 63Hz                                                                                                                                                               |                                                                                                                        |                              |                                                                                 |
|                 | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                           | 77%                                                                                                                                                                     | 81%                                                                                                                    | 83%                          | 83%                                                                             |
|                 | AC CURRENT                                                                                                                                                                                                                                                                                  | 0.55A/115VAC 0.35A/230VAC                                                                                                                                               |                                                                                                                        |                              |                                                                                 |
|                 | INRUSH CURRENT(max.)                                                                                                                                                                                                                                                                        | COLD START 35A/115VAC                                                                                                                                                   | 70A/230VAC                                                                                                             |                              |                                                                                 |
|                 | LEAKAGE CURRENT                                                                                                                                                                                                                                                                             | 0.25mA / 240VAC                                                                                                                                                         |                                                                                                                        |                              |                                                                                 |
| PROTECTION      | OVER CURRENT                                                                                                                                                                                                                                                                                | 110 ~ 150% rated output power                                                                                                                                           |                                                                                                                        |                              |                                                                                 |
|                 |                                                                                                                                                                                                                                                                                             | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                                                  |                                                                                                                        |                              |                                                                                 |
|                 | OVER VOLTAGE                                                                                                                                                                                                                                                                                | 5.75 ~ 6.75V                                                                                                                                                            | 13.8 ~ 16V                                                                                                             | 17.5 ~ 21V                   | 28 ~ 32V                                                                        |
|                 | OVER VOLIAGE                                                                                                                                                                                                                                                                                | Protection type : Shut off o/p voltage, clamping by zener diode                                                                                                         |                                                                                                                        |                              |                                                                                 |
| ENVIRONMENT     | WORKING TEMP.                                                                                                                                                                                                                                                                               | -30 ~ +70 $^\circ C$ (Refer to output load derating curve)                                                                                                              |                                                                                                                        |                              |                                                                                 |
|                 | WORKING HUMIDITY                                                                                                                                                                                                                                                                            | 20 ~ 90% RH non-condensing                                                                                                                                              |                                                                                                                        |                              |                                                                                 |
|                 | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                     | -40 ~ +80°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 &<br>EMC | SAFETY STANDARDS                                                                                                                                                                                                                                                                            | UL879, UL1310 Class 2, CAN/CSA C22.2 No. 223-M91, IP67 approved ; design refer to TUV EN60950-1, EN61347-2-13                                                           |                                                                                                                        |                              |                                                                                 |
|                 | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                           | I/P-O/P:3KVAC                                                                                                                                                           |                                                                                                                        |                              |                                                                                 |
|                 | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                        | I/P-O/P:>100M Ohms / 500VDC / 25°C / 70% RH                                                                                                                             |                                                                                                                        |                              |                                                                                 |
|                 | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                  |                                                                                                                                                                         |                                                                                                                        |                              |                                                                                 |
|                 | HARMONIC CURRENT                                                                                                                                                                                                                                                                            | Compliance to EN61000-3-2 Class A, EN61000-3-3                                                                                                                          |                                                                                                                        |                              |                                                                                 |
|                 | EMS IMMUNITY                                                                                                                                                                                                                                                                                | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A                                                                             |                                                                                                                        |                              |                                                                                 |
| OTHERS          | MTBF                                                                                                                                                                                                                                                                                        | 786.5Khrs min. MIL-HDBK-217F (25°C)                                                                                                                                     |                                                                                                                        |                              |                                                                                 |
|                 | DIMENSION                                                                                                                                                                                                                                                                                   | 118*35*26mm (L*W*H)                                                                                                                                                     |                                                                                                                        |                              |                                                                                 |
|                 | PACKING                                                                                                                                                                                                                                                                                     | 0.22Kg; 60pcs/14.2Kg/0.62CUFT                                                                                                                                           |                                                                                                                        |                              |                                                                                 |
| NOTE            | <ol> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> </ol> |                                                                                                                                                                         |                                                                                                                        |                              |                                                                                 |
|                 | <ol> <li>Tolerance : includes set up</li> <li>Derating may be needed ur</li> <li>The power supply is consid<br/>complete installation, the fir</li> <li>Length of set up time is me</li> </ol>                                                                                              | tolerance, line regulation and<br>nder low input voltage. Please<br>ered as a component that will<br>hal equipment manufacturers n<br>asured at first cold start. Turni | load regulation.<br>check the static charac<br>be operated in combin<br>nust re-qualify EMC Dir<br>ng ON/OFF the power | cteristics for more details. | EMC performance will be affected by the n again.<br>n again.<br>ne set up time. |



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