

Embedded Switch Mode Power Supplies (SMPS)

FEATURES

- Universal 90 - 264V
AC Active PFC
- Compact size: 160 x 86 x 43mm
- Efficiency up to 93%
- Stand-by power consumption.
< 0.5W
- 500/550W
- 5V standby output, 12V fan
supply, power good signal
- Operating temperature range
- 40°C to +70°C
- Output short circuit, over-current,
over-voltage protection.
- Conformally coated
- EMI performance meets.
CISPR32 / EN55032 CLASS B
- Suitable for BF application

IEC/EN/UL62368-1,
IEC/EN60335-1,
IEC/EN61558-1, GB4943-1,
IEC/EN/ES60601-1 (2 x MOPP)

RS PRO Embedded Switch Mode Power Supplies

- **2367921**
- **2367925**
- **2367926**



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Embedded Switch Mode Power Supplies (SMPS)

Product Description

AC-DC enclosed power supply suitable for a wide range of Industrial, Medical and Dental applications. Featuring a universal AC input, this cost-effective, high-density design has double or reinforced insulation and is available in a range of standard outputs. Complying with International and European EMC and safety standards IEC/EN/UL62368, GB4943, IEC/EN60335, IEC/EN61558, IEC/EN/ES60601

General Specifications

| | |
|----------------------|---|
| Model | AC-DC 550W Medical / Industrial power supply |
| Mounting Type | Chassis Mount enclosed |
| MTBF | MIL-HDBK-217F@25°C > 200,000 h |
| Applications | Industrial control systems, instrumentation and medical equipment |

| RS Stock | Input Voltage | Output Voltage | Adj'range (V) | Output Current | Wattage | Efficiency (Typ) |
|----------------|---------------------------------|----------------|---------------|----------------|---------|------------------|
| 2367921 | 90 to 264V ac 127 to 370V dc | 12V DC | 11.4-12.6 | 41.6A | 500W | 91% |
| 2367925 | 90 to 264V ac 127 to 370V dc | 24V DC | 22.8-25.2 | 22.9A | 550W | 93% |
| 2367926 | 90 to 264V ac 127 to 370V dc | 36V DC | 34.2-37.8 | 15.3A | 550W | 94% |

Input Specifications

| Input Specification | |
|----------------------------------|---|
| Voltage Range | 90 to 264V ac, 127 to 370V dc |
| Frequency | 47 to 63Hz |
| Input Current | 6.5A/115V ac, 3A/230V ac |
| Inrush Current | 50A/ 115V ac, 80A / 230V ac |
| Leakage | <0.1mA contact leakage, <0.5mA Earth Leakage |
| Power Factor | 0.98 Full Load |
| Standby power consumption | 0.5W Room Temperature, 230Vac input (PS-ON Low potential) |

Output Specifications

| Output Specification | | | | | | |
|---|---|---|--------------|---|-----|----|
| | 2367921 | 2367925 | 2367926 | | | |
| Output voltage | 12V | 24V | 36V | | | |
| Adjustment range | 11.4-12.6V | 22.8-25.2V | 34.2 - 37.8V | | | |
| Rated Current (25CFM) | 41.6A | 22.9A | 15.3A | | | |
| Max Capacitive load μ F | 6000 μ F | 6000 μ F | 6000 μ F | | | |
| Ripple & Noise (max.) * | 200mVp-p | 200mVpp | 200mVpp | | | |
| Line Regulation typ. | \pm 0.5% | \pm 0.5% | \pm 0.5% | | | |
| Load Regulation typ. | \pm 1% | \pm 1% | \pm 1% | | | |
| Minimum Load | 0% | 0% | 0% | | | |
| Hold-up Time 25°C, 230VAC input | 10mS | 10mS | 10mS | | | |
| Short Circuit Protection | Recover time <5s after short circuit is removed (Hiccup, continuous, self-recover) | | | | | |
| Over-current Protection | \geq 105%Io, hiccup, self-recover | | | | | |
| Over Voltage Protection | 12V \leq 15.6VDC (Output voltage turn off, re-power on for recover) | | | | | |
| | 24V \leq 31.2VDC (Output voltage turn off, re-power on for recover) | | | | | |
| | 36V \leq 46.8VDC (Output voltage turn off, re-power on for recover) | | | | | |
| PS_ON Input Signal* | Power on | PS_ON High | 2 | - | 5 | V |
| | Power off | PS_ON Low | 0 | - | 0.5 | |
| PG Signal* | Power on | The PG signal goes high with 10ms to 500ms delay after power set up | 10 | - | 500 | mS |
| | Power off/Power fail | The TTL signal goes low at least 1ms before output below 90% of rated value | 1 | - | - | |
| | High level | High | 2 | - | 6 | V |
| | Low level | Low | 0 | - | 0.6 | |
| Remote Sense* | When RS+ and RS- are connected to the system, with function of remote voltage compensation, if not needed, left RS+ and RS open | | | | | |
| 5V Standby* | 5Vsb: The load capacity is 1A; tolerance 2%, ripple: 120mVp-p(max.) | | | | | |
| Over-temperature Protection* | Output voltage turn off, auto recover after the temperature drops | | | | | |
| Note: 1.*Output Voltage Accuracy : including setting error, line regulation, load regulation; 2.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47 μ F electrolytic capacitor (Low ESR) and 0.1 μ F ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information; 3.*Over- | | | | | | |

Embedded Switch Mode Power Supplies (SMPS)

temperature Protection: use the discharge pen to release the input electrolytic charge completely, and then test the restart auto recover. 4.*For all the above test items, please refer to our company standard "AC-DC Black Box Test Specification" for specific test specifications and methods; 5.*For fan power connection method, please refer to 5, 6 in the external dimension drawing; 6.*For PS_ON, 5V standby connection method, please refer to CN6 in the external dimension drawing; 7.*For PG standby connection method, please refer to CN2 in the external dimension drawing.

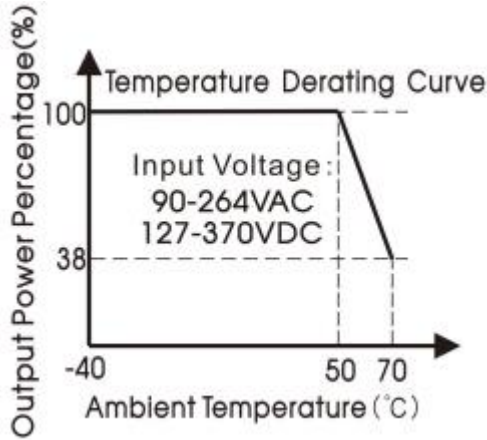
General Specifications

| Item | | Operating Conditions | | Min | Typ | Max | Unit |
|-----------------------|--------------------------------|---|----------------|-------------|-----|-----|---------|
| Isolation | Input-output | Electric strength test for 1min., leakage current <5mA | | 4000 | - | - | VAC |
| | Input-Earth | | | 2000 | - | - | |
| | Output-Earth | | | 1500 | - | - | |
| Insulation Resistance | Input-Earth | Environment temperature: 25±5°C, Relative humidity: <95%RH, non-condensing Testing voltage 500VDC | | 100 | - | - | MΩ |
| | Input-output | | | 100 | - | - | |
| | Output-Earth | | | 100 | - | - | |
| Isolation level | Input-output | | | 2 × MOPP | | | |
| | Input-Earth | | | 1 × MOPP | | | |
| | Output-Earth | | | 1 × MOPP | | | |
| Operating Temperature | | | | -40 | - | +70 | °C |
| Storage Temperature | | | | -40 | - | +85 | |
| Storage Humidity | | Non-condensing | | 10 | - | 95 | %RH |
| Operating Humidity | | | | 20 | - | 90 | |
| Power Derating | Operating temperature derating | LOF550-20B12-CF | +50°C to +70°C | 3.1 | | | % / °C |
| | | LOF550-20B24/36-CF | +50°C to +70°C | 3.25 | | | |
| | Input voltage derating | Input voltage derating | 90VAC - 115VAC | 1.0 | | | % / VAC |
| Safety Standard | | EN/UL62368/EN60601-1 Safety Approval & EN62368-1 (Report) | | | | | |
| Safety Class | | CLASS I | | | | | |
| MTBF | | MIL-HDBK-217F@25°C | | > 200,000 h | | | |

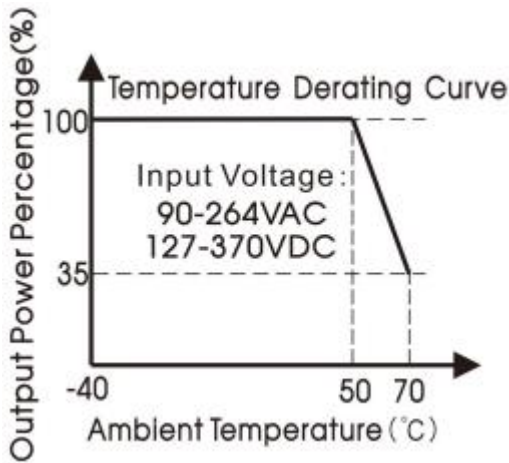
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Derating

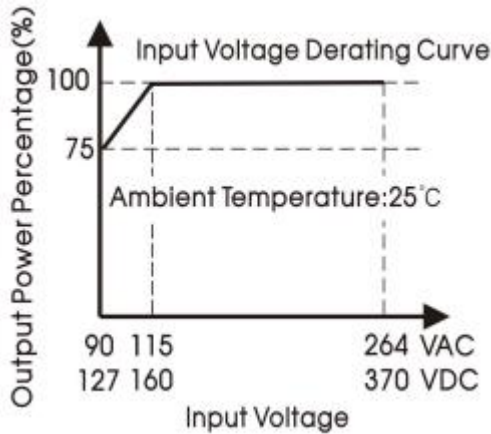
2367921



2367925, 2367926



2367921, 2367925, 2367926 Input Voltage Derating Curve



Embedded Switch Mode Power Supplies (SMPS)

EMC Specifications

| | | | |
|--|------------------|---|------------------|
| Emissions | CE | EN55032(CISPR32)/EN55011(CISPR11) CLASS B | |
| | RE | EN55032(CISPR32)/EN55011(CISPR11) CLASS B | |
| | Harmonic Current | IEC/EN61000-3-2 CLASS A and CLASS D | |
| | Flicker | IEC/EN61000-3-3 | |
| Immunity | ESD | IEC/EN 61000-4-2 Contact $\pm 8\text{KV}$ /Air $\pm 15\text{KV}$ | Perf. Criteria A |
| | RS | IEC/EN 61000-4-3 10V/m | Perf. Criteria A |
| | EFT | IEC/EN 61000-4-4 $\pm 2\text{KV}$ | Perf. Criteria A |
| | Surge | IEC/EN61000-4-5 line to line $\pm 2\text{KV}$, line to ground $\pm 4\text{KV}$ | Perf. Criteria A |
| | CS | IEC/EN61000-4-6 10Vr.m.s | Perf. Criteria A |
| | DIP | IEC/EN61000-4-11 0%, 70% | Perf. Criteria B |
| <p>Note: *The power supply should be considered as a part of the components in the system. All EMC measurements have been completed on a metal plate (LxWxH, 360mm x 360mm x 1mm). The power supply must be combined with final equipment for EMC confirmation</p> | | | |

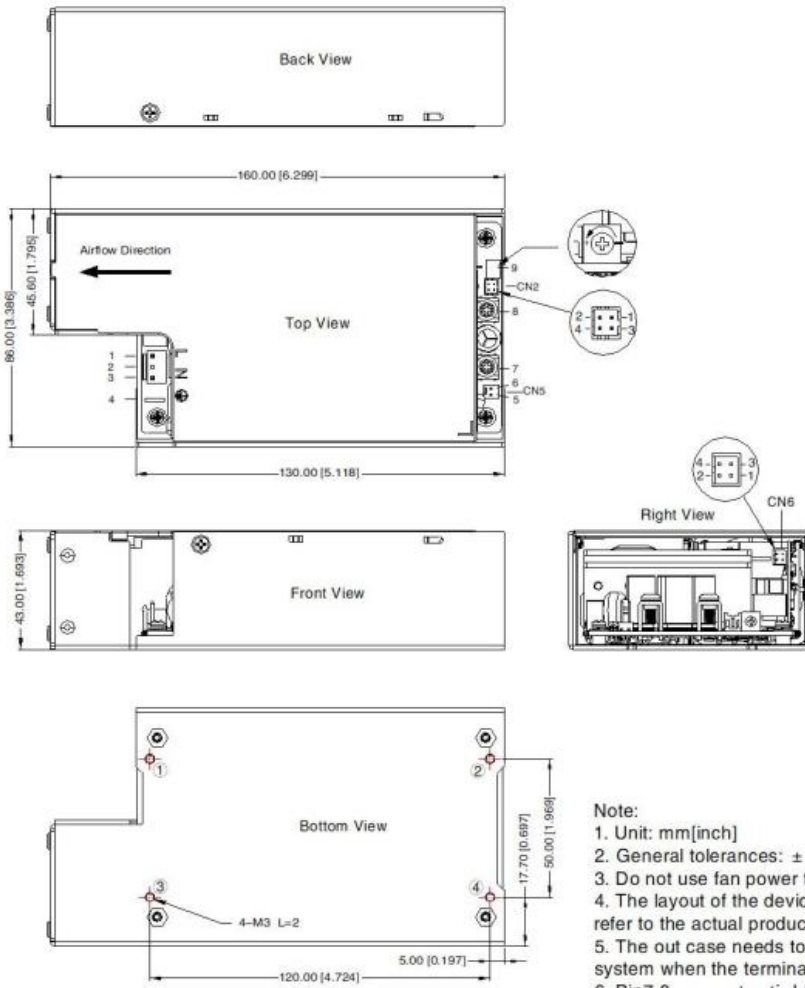
Mechanical Specifications

| | |
|-----------------------|------------------------|
| Case Material | Metal (AL5052, SUS304) |
| Dimensions | 160 x 86 x 43mm |
| Weight | 645g (Typ.) |
| Cooling Method | Built in fan |

Embedded Switch Mode Power Supplies (SMPS)



THIRD ANGLE PROJECTION



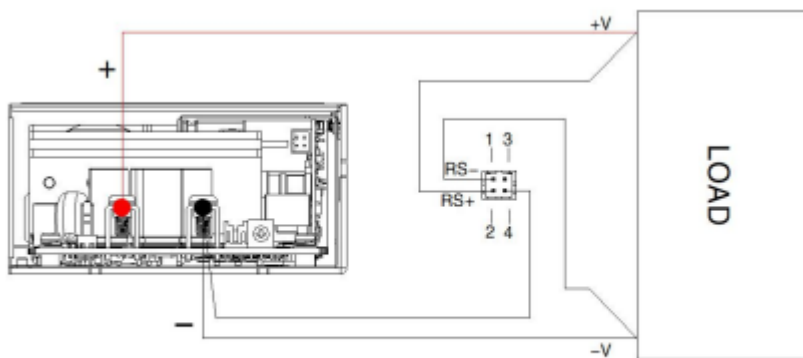
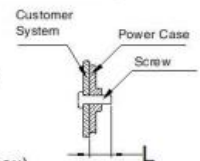
| Pin-Out | | Customer Connector |
|---------|-----------------------------------|--|
| Pin | Mark | |
| 1 | AC(L) | Housing: JST VHR or equivalent Contact: JST SVH-21T-P1.1 or equivalent |
| 2 | NC | |
| 3 | AC(N) | |
| 4 | | |
| 5 | FAN+ | CN5: Fan power output port Housing: TKP 2502 or equivalent Contact: TKP 8811 or equivalent |
| 6 | FAN- | |
| 7 | +Vo | |
| 8 | -Vo | |
| 9 | ADJ Output adjustable resistor | |

| Pin-Out | | Customer Connector |
|---------|-------|--|
| Pin | Mark | |
| 1 | +5V | Housing: JST PHD-2*2Y or equivalent Contact: JST PHD-TE or equivalent |
| 2 | GND | |
| 3 | PS-ON | |
| 4 | GND | |

| Pin-Out | | Customer Connector |
|---------|------|--|
| Pin | Mark | |
| 1 | RS- | Housing: JST PHD-2*2Y or equivalent Contact: JST PHD-TE or equivalent |
| 2 | RS+ | |
| 3 | GND | |
| 4 | PG | |

| Position | Screw Spec. | L(max) | Torque(max) |
|----------|-------------|--------|-------------|
| ① - ④ | M3 | 2mm | 0.4N·m |

- Note:**
1. Unit: mm[inch]
 2. General tolerances: $\pm 1.00[\pm 0.039]$
 3. Do not use fan power to power other devices
 4. The layout of the device is for reference only, please refer to the actual product
 5. The out case needs to be connected to the earth of system when the terminal
 6. Pin7,8 connector tightening torque: M4, 1.2N · m(max)



Remote sensing function wiring diagram

- Note:**
1. RS - and RS + cannot be shorted or reversed, otherwise the power module will be damaged;
 2. The remote compensation function can compensate the voltage drop on the output cable, which includes the sum of the cable drop connected to the output positive terminal and the output negative terminal;
 3. If you need to use remote compensation function, the signal pin needs to be connected with the load and with a twisted pair, otherwise



Approvals

| | |
|-----------------------------|--|
| Safety Standard | EN/UL62368/EN60601-1 Design refer to IEC/CB 62368-1/GB4943/EN60335-1 |
| Safety Certification | EN/UL62368/EN60601 Safety Approval |
| Safety Class | Class I (PE and must be connected) |

Additional Information

| | |
|-----------------------------|----------|
| Custom Tariff Number | 85044030 |
|-----------------------------|----------|

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75%RH with nominal input voltage and rated output load.
2. All index testing methods in this datasheet are based on our company corporate standards.
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
4. Products are related to laws and regulations: see "Features" and "EMC".
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.
6. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing."/"/ ATTENTION: Double pôle/fusible sur le neutre. Débrancher l'alimentation avant l'entretien;
7. The power supply is considered a component which will be installed into a terminal.