



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Switching Power Supply Type SPP1 20W Enclosed type

CARLO GAVAZZI



- Universal AC input full range
- Short circuit protection
- Internal input filter
- High efficiency
- High average efficiency (meet ErP)
- Low stand-by power consumption
- CE, TUV, and cURus approved

Product Description

Enclosed Switching Power Supply meet your needs for AC DC and DC DC power requirements. SPP provide the most flexible OEM system power solutions from 5V to 24V at 20W for industrial control and automation applications. Most carry full certifications and offer wide range universal input, screw terminal connections. Especially designed where compact dimensions and performance are a must.

Ordering Key

SP P1 24 20 1 X

Model _____
 Mounting (P1 = Panel) _____
 Output voltage _____
 Output power _____
 Input Type _____
 Optional features _____

Input type: 1= single phase

Approvals



Output Performances

| MODEL NO. | INPUT VOLTAGE | OUTPUT POWER | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) | EFF. (avg.) |
|-----------------------------|---------------|--------------|----------------|----------------|-------------|-------------|-------------|
| Single Output Models | | | | | | | |
| SPP1 05201 | 88~264 VAC | 20 WATTS | + 5 VDC | 4000 mA | 81% | 83% | 80% |
| SPP1 12201 | 88~264 VAC | 20.4 WATTS | + 12 VDC | 1700 mA | 84% | 86% | 83% |
| SPP1 15201 | 88~264 VAC | 21 WATTS | +15 VDC | 1400 mA | 85% | 87% | 84% |
| SPP1 24201 | 88~264 VAC | 21.6 WATTS | +24 VDC | 900 mA | 85% | 87% | 84% |

Output Data All specifications are at nominal values, full load, 25°C unless otherwise noticed

| | |
|--|------------|
| Line regulation | ± 0.5% |
| Load regulation | ±1% |
| Minimum load | 0% |
| Turn on time (full resistive load) | |
| Vi nom, Io nom | 1000ms |
| Vi nom, Io nom with 3500µF | 1500ms |
| Transient recovery time | 2ms |
| Ripple and noise | 100mVpp |
| Output voltage accuracy | + 1% |
| Temperature coefficient | ± 0.03%/°C |
| Hold up time | |
| Vi= 115VAC | 15ms |
| Vi= 230VAC | 80ms |
| Voltage fall time (I _o nom, Vi nom) | 150ms |
| Voltage rise time | |
| Vi nom, Io nom (full resistive load) | 150ms |
| Vi nom, Io nom with 3500µF CAP | 500ms |

| | |
|--------------------------|------------------------------|
| Voltage trim range | |
| 5V Model | 4.5-5.5 VDC |
| 12V Model | 10.8-13.2 VDC |
| 15V Model | 13.5-16.5 VDC |
| 24V Model | 21.6-27.6 VDC |
| Rated continuous loading | |
| 5V Model | 4A @ 5VDC/3.6A @ 5.5VDC |
| 12V Model | 1.7A @ 12VDC/1.5A @ 13.2VDC |
| 15V Model | 1.4A @ 15VDC/1.25A @ 16.5VDC |
| 24V Model | 0.9A @ 24VDC/0.75A @ 27.6VDC |
| Reverse voltage | |
| 5V Model | 7.5VDC |
| 12V Model | 18VDC |
| 15V Model | 22VDC |
| 24V Model | 35VDC |
| Capacitor load | 3500µF |

Input Data All specifications are at nominal values, full load, 25°C unless otherwise noticed

| | | | | |
|--|----------------|--|---------------------|--------|
| Rated input voltage I_{nom} | 100 - 240VAC | Power dissipation (V_i : 230VAC, I_o nom) | 5V Model | 4.5W |
| Voltage range | | | 12V Model | 4W |
| AC IN | 88 - 264VAC | 15V Model | 4W | |
| DC IN | 120 - 375VDC | 24V Model | 4W | |
| Rated input current | | Frequency range | 47- 63Hz | |
| V_i: 115/230 VAC I_o nom | 390mA / 250 mA | Leakage current | Input-Output | 0.25mA |
| V_i: 88 VAC I_o nom | 250mA | | Input-FG | 3.5mA |
| Inrush current | | | | |
| V_i= 115VAC | 20A | | | |
| V_i= 230VAC | 40A | | | |

Controls and Protections All specifications are at nominal values, full load, 25°C unless otherwise noticed

| | | | | |
|-----------------------------|-----------------------------------|--------------------------------|-------------|-------------|
| Overload | 120 – 160% | Over voltage protection | VDC | |
| Input fuse | T2A/250VAC internal ¹⁾ | | Min. | Max. |
| Output short circuit | Hiccup mode | 5V Model | 5.75 | 6.75 |
| | | 12V Model | 13.8 | 16.2 |
| | | 15V Model | 17.25 | 20.25 |
| | | 24V Model | 28.8 | 32.4 |

¹⁾ Fuse not replaceable by user

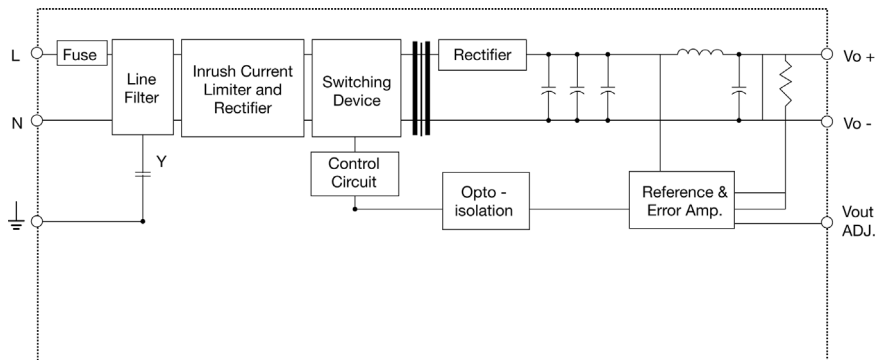
General Data All specifications are at nominal values, full load, 25°C unless otherwise noticed

| | | | | |
|-------------------------------------|----------------------|---|----------------------------|----------------------|
| Ambient temperature | -40°C to +71°C | MTBF (Bellcore issue 6 @ 40°C, GB) | 5V Model | 729000 Hours |
| Derating (>60°C to +71°C) | 2.5%/°C (see curve) | | 12V Model | 740000 Hours |
| Relative humidity | 20 ~ 95%RH | | 15V Model | 746000 Hours |
| Storage | -40°C to +85°C | | 24V Model | 772000 Hours |
| Protection degree | IP20 | | Case material | Plastic: PC, UL94-V0 |
| Cooling | Free air convection | Altitude IEC 60068-2-13 | 4850m | |
| Insulation voltage | | Stand-by power consumption | 0.3W | |
| Input-Output | 3.000VAC/4242VDC min | Dimensions LxWxD mm(inch) | 92(3.62)x54(2.13)x30(1.18) | |
| Input-FG | 1.500VAC/2121VDC min | Weight | 140g | |
| Insulation resistance I/O | 100MΩ min (@ 500VDC) | | | |
| Switching Frequency | 65 Khz | | | |

Norms and Standards

| | | | |
|-----------------------------|---|-----------|---|
| Vibration resistance | meet IEC 60068-2-6 (10-500Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis) | CE | EN 61000-6-3, EN 55022 |
| Shock resistance | meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 faces, 3 times for each face) | | Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, ENV 50204, EN 61204-3 |
| UL / cUL | UL60950-1, Recognized | | |
| TUV | EN 60950 -1 CB scheme | | |

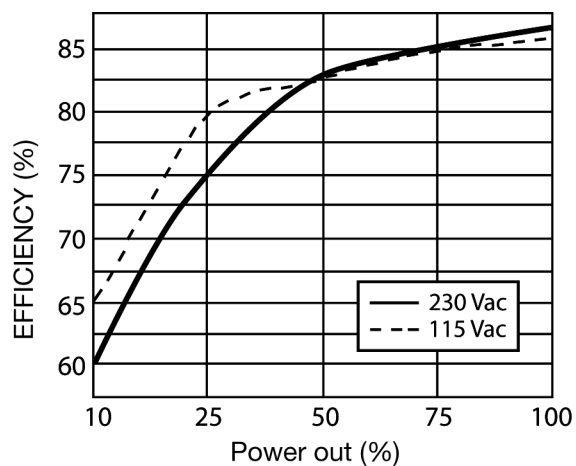
Block Diagrams



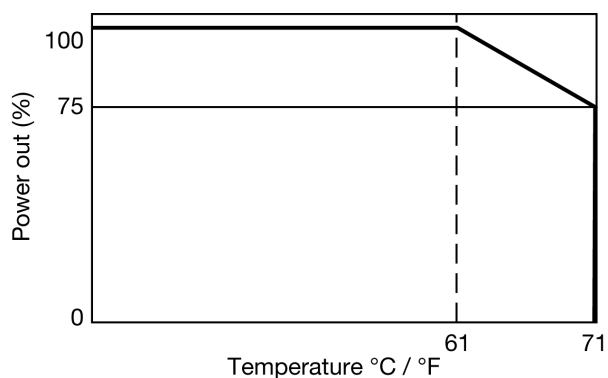
Pin Assignment and Front Controls

| Pin No. | Designation | Description |
|---------|-------------|--|
| 1 | L | Input terminals (phase conductor, no polarity at DC input) |
| 2 | N | Input terminals (neutral conductor, no polarity at DC input) |
| 3 | ⊕ | Ground this terminal to minimize high-frequency emissions |
| 4 | - | Negative output terminal |
| 5 | + | Positive output terminal |
| | Vout ADJ | Trimmer-potentiometer for Vout adjustment |
| | DC ON | Operation indicator LED |

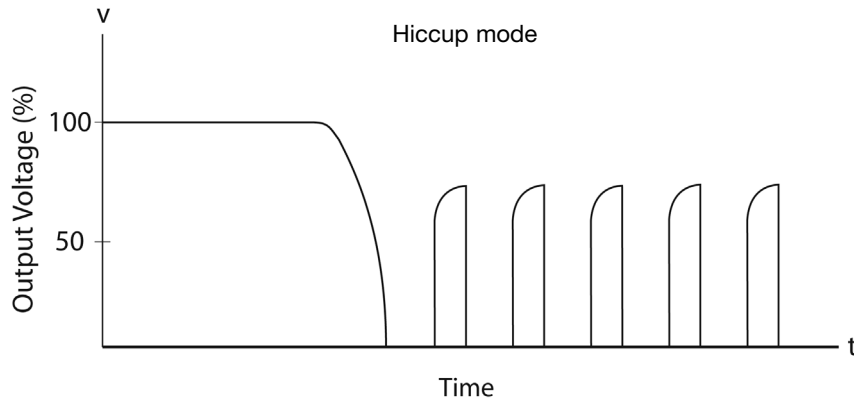
Typ. Efficiency Curve



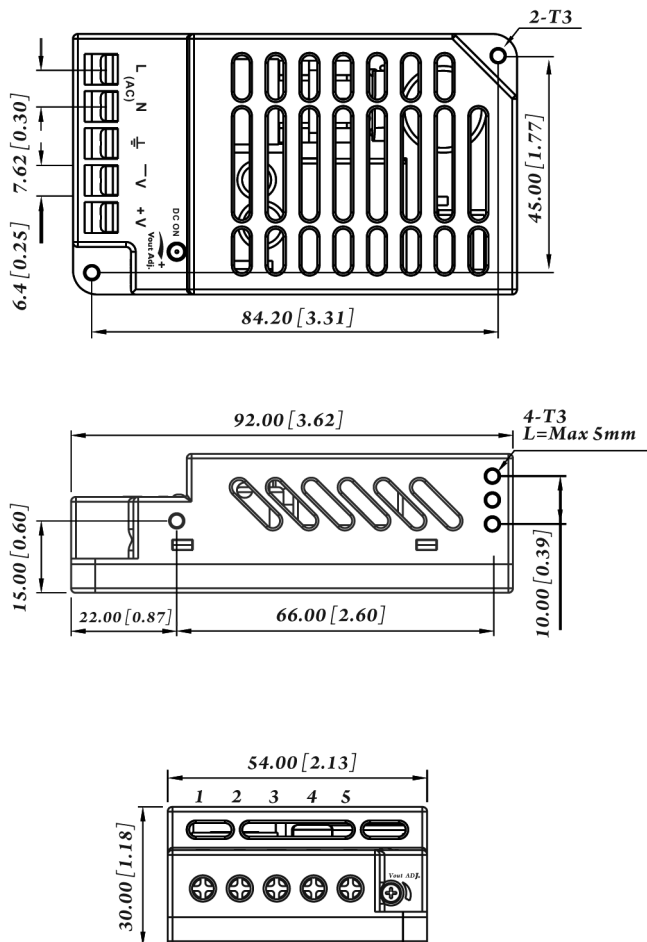
Derating Diagram



Typ. Current Limited Curve



Mechanical Drawings mm (inches)



Installation

| | |
|---|---|
| Ventilation and cooling | Ventilation/Cooling Normal convection |
| Connector size range Spring terminal | AWG22-12 (0.2~2.5mm ²) flexible/solid cable, 10mm stripping at cable connector can withstand torque at maximum 0.90 Nm (8 pound-inches) |
| General tolerances mm(in.) | |
| 0.00 (0.00) ÷ 30.00 (1.18) | ±0.30 (0.01) |
| 30.00 (1.18) ÷ 120.00 (4.72) | ±0.50 (0.02) |