



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!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



12-15V adjustable, 180W

**PULS****SL10.104**

- Input: AC 230/115V, DC 240...375V
- Output: 12-15V/180W
- PULS Overload Design™: 20% Power boost up to 215W; high overload current, no switch-off
- Robust mechanics and EMC
- DC ok LED
- Inrush current limiting and Overtemperatur protection



**UL** US  
UL60950 E137006  
CUL/CSA-C22.2  
No 60950

**UL** US  
UL508 LISTED  
IND. CONT. EQ.  
18 WM, 60°C

**CE**  
EMC and  
Low Volt.  
Directive

**Input**

Input voltage AC100-120/210-240V (Manual Select),  
50-60 Hz  
(AC 85...132/176...264V, DC 240...375V,  
47-63 Hz)

Note: At DC input, always leave the switch in the 230V position

Input current  $I_n$  <5A (switch in 115V position)  
<2.3A (switch in 230V position)

	AC 100V	AC 120V	AC 230V
Inrush current $I_{pk}$	37A	45A	51A
Fuse loading $I^{2t}$	4.6A <sup>2s</sup>	6.8A <sup>2s</sup>	4.2A <sup>2s</sup>

at  $T_{amb} = +50^\circ\text{C}$ , cold start

Unit is internally fused (fuse not accessible). For external fusing of unit and for input line protection, use circuit breaker with B-characteristic 10A or slower action, or alternatively T10A HBC fuse.

	AC 100V	AC 120V	AC 230V
Power factor	0.67	0.64	0.54

Harmonic current emissions (PFC) see page 2

Transient handling Transient resistance acc. to VDE 0160 / W2  
(750V/1.3ms), for all load conditions.

Hold up time 45,7 / 84,6 / 81,3ms (bei AC 100/120/230V,  
12V/15A) (see Diagram overleaf)

IT Mains allowed

**Efficiency, Reliability etc.\***

Efficiency >87% (AC 230V, 12V/15A)

Losses <26.9W (AC 230V, 12V/15A)

MTBF 425.000h acc. to Siemensnorm SN 29500  
(12V/15A, AC 230V,  $T_{amb} = +40^\circ\text{C}$ )

Lifetime expectancy The unit uses longlife electrolytics, specified  
(electrolytics) for +105°C (cf. 'The SilverLine', p.2).

\* For further information see data sheets „The SilverLine“,  
„SilverLine Family Branches“ and mechanics data sheet

**Ordering information**

Order number	Description
SL10.104	SilverLine switched-mode power supply
SLZ14	Adapter for S7-300 rail
SLZ02	Wall mounting set

**Output**

Output voltage DC 12-15V, adjustable by (covered) front panel  
potentiometer; preset: 12V  $\pm$ 0.5%  
Adjustment range guaranteed

Rated continuous loading with convection cooling

- $T_{amb}=0^\circ\text{C} - 60^\circ\text{C}$  12V/15A (180W) resp. 15V/12A
- $T_{amb}=0^\circ\text{C} - 45^\circ\text{C}$  12V/18A (215W) resp. 15V/14.4A  
short-term also at 60°C (< 1 min)

Output is protected against short-circuit, open circuit and overload

Short-circuit current 21A min. ,28A max.

Ambient temperature range  $T_{amb}$  Operation:  $0^\circ\text{C}...+70^\circ\text{C}$  (>60°C: Derating)  
Storage:  $-40^\circ\text{C}...+85^\circ\text{C}$

Derating typ. 5 W/K (at  $T_{amb} = +60^\circ\text{C}...+70^\circ\text{C}$ )

Voltage regulation < - 150mV overall

Ripple / Noise <50mV<sub>pp</sub>, (20MHz bandw., 50 $\Omega$  measurement)

Serial operation not allowed

Parallel operation not allowed

Overvolt. protection typ. 19V

Power back immunity < 18V

Front panel indicator Green LED on front panel

**Construction / Mechanics\***

Housing dimensions and Weight

- W x H x D 120mm x 124mm x 102mm (+ DIN rail)
- Free space for above/below 25mm recommended  
ventilation left/right 15mm recommended
- Weight 980g

Connection Screw terminals, input=3, output=4

- Wire gauge 0,5...4mm<sup>2</sup> / 20...10 AWG
- Recomm. tightening 0,8Nm / 7lb.in  
torque
- Wire stripping length 7mm / 0,275"

Design advantages:

- All connection blocks are easy to reach as mounted at the front panel.

**Start / Overload Behaviour**

Startup delay	typ. 0,22s
Rise time	5...25ms, depending on load
<b>Overload Behaviour</b>	
<ul style="list-style-type: none"> <li>Special PULS Overload – no disconnection, no hiccup if overloaded Design (see diagram – high overload current (up to 2.2 I<sub>Nom</sub>), V<sub>out</sub> is gradually reduced with increasing current.</li> <li>20% power boost – 18A short-term, at 45°C or forced cooling even continuous</li> </ul>	
<b>Advantages:</b>	
<ul style="list-style-type: none"> <li>High short-circuit current, giving large 'start-up window': unit starts reliably even with heavy loads (DC-DC converters, motors).</li> <li>No 'sticking' such as can occur with fold-back characteristics</li> <li>Secondary fuses operate more reliably</li> </ul>	

**Electromagnetic Compatibility (EMC)**

<b>Emissions</b>	
<ul style="list-style-type: none"> <li>EN 61000-6-4, Class B (EN 55011, EN 55022)</li> <li>EN 61000-3-3</li> <li>Output power less than 98W: EN 61000-3-2 Class A and EN 61000-6-3 are fulfilled.</li> <li>Output power more than 98W: EN 61000-3-2 Class A and EN 61000-6-3 are <b>not</b> fulfilled.</li> </ul>	
<b>Immunity</b>	
<ul style="list-style-type: none"> <li>Electrostatic Discharge (ESD) EN 61000-4-2, Level 4 (15kV; 8kV)</li> <li>Electromagnetic radiated fields EN 61000-4-3, Level 3 (10V/m)</li> <li>Burst, coupled to:                             <ul style="list-style-type: none"> <li>ACin-lines EN 61000-4-4, Level 4 (4kV)</li> <li>DCout-lines EN 61000-4-4, Level 3 (2kV)</li> </ul> </li> <li>Surge transients                             <ul style="list-style-type: none"> <li>(L -&gt; PE) EN 61000-4-5 Installation class 4 (4kV)</li> <li>(N -&gt; PE) EN 61000-4-5 Installation class 4 (4kV)</li> <li>(L -&gt; N) EN 61000-4-5 Installation class 4 (2kV)</li> </ul> </li> <li>Conducted noise immunity EN 61000-4-6, Level 3 (10V, 150kHz - 80MHz)</li> <li>Voltage Dips EN 61000-4-11</li> <li>Transient immunity Transient resistance acc. to VDE 0160/W2 over entire load range</li> </ul>	

**Further information**

For further information, especially about

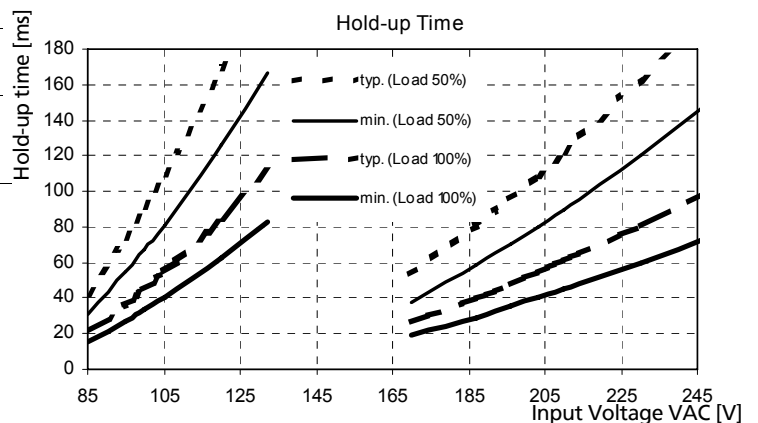
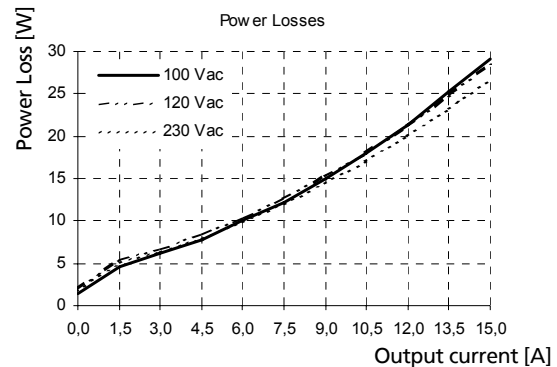
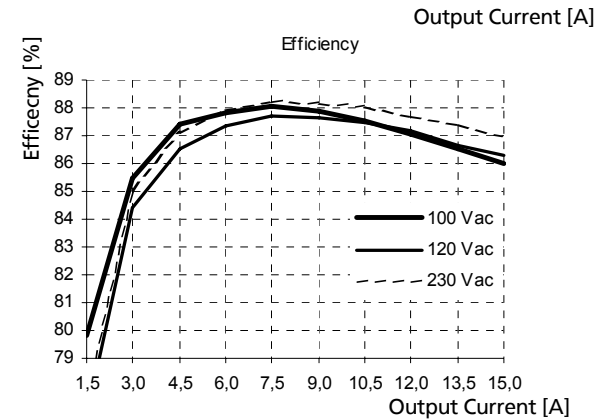
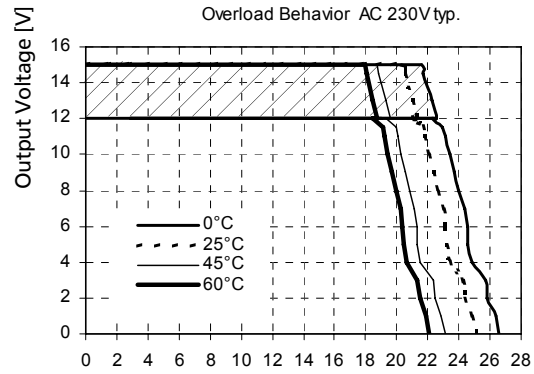
- EMC
- Connections
- Safety, Approvals
- Mechanics und Mounting,

see page 2 of the „The SilverLine“ data sheet.

**For detailed dimensions**  
see SilverLine mechanics data sheet SL2.5/ SL5/ SL10

Unless otherwise stated, specifications are valid for AC 230V input voltage, +25°C ambient temperature, and 5 min. run-in time. They are subject to change without prior notice.

**Your partner in power supply:**



**PULS GmbH**  
 Arabellastraße 15  
 D-81925 München  
 Tel.: +49 89 9278-0  
 Fax: +49 89 9278-199  
 www.puls-power.com