

RS PRO 90W

Mount Switch Mode Power Supplies

Features

- Universal 80 - 305VAC and 110 - 430VDC
- Efficiency up to 93%
- High I/O isolation test voltage up to 4200VAC
- Operating temperature range - 40°C to +85°C
- 4000m altitude operation
- No-load power consumption < 0.21W
- Compact size, high power density. (87.00 x 52.00 x 29.50 mm)
- Over-voltage category OVC 111 (meet EN61558, 2000m)
- EMI performance meets. CISPR32 / EN55032 CLASS B EN55014
- IEC/EN/UL62368-1, EN61558-1 safety approval

2761489

2761491

2761493

2761495



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.

Product Description

Switching Power Supplies



AC-DC PCB mount power supply suitable for a wide range of industrial, consumer and telecom instruments and applications.

This compact, high efficiency series provides reinforced insulation and excellent EMC performance.

The converters meet UL/IEC/EN/BS EN62368, IEC/EN60335, EN61558 standards and perform within the CLASS B limits of CISPR32 / EN55032 without external components.

Model	AC-DC 90W power supply
Mounting Type	PCB mount
Package Type	Black plastic, flame-retardant and heat-resistant (UL94V-0)
MTBF	MIL-HDBK-217F@25°C > 500,000 h
Applications	Industrial control systems, instrumentation, and electrical equipment

RS Item No.	Input Voltage	Output Voltage	Output Current	Wattage	Efficiency (Typ)
2761489	85 to 305V ac 100 to 430V dc	12V DC	6.7A	80.4W	92%
2761491	85 to 305V ac 100 to 430V dc	15V DC	5.67A	85.05W	92.5%
2761493	85 to 305V ac 100 to 430V dc	24V DC	3.75A	90W	93%
2761495	85 to 305V ac 100 to 430V dc	48V DC	1.875A	90W	93%

Input Specifications

Input Specification	
Voltage Range	80 to 305V ac, 110 to 430V dc
Frequency	47 to 63Hz
AC Current Rating	2A/115V ac, 1.1A/230V ac
Inrush Current	35A / 115 ac, 65A / 230V ac
Input Protection	3.15A/300V, slow-blow, required

Output Specifications

Switching Power Supplies



Item	Operating Conditions		Min	Typ	Max.	Unit
Output Voltage Accuracy			-	±2	-	%
Line Regulation	Full Load		-	±0.5	-	
Load Regulation	0% - 100% load		-	±1	-	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V	-	-	120	mV
		24V	-	-	200	
		48V	-	-	240	
Standby Power Consumption	230VAC		-	-	0.21	W
Minimum Load			0	-	-	%
Hold-up Time	115VAC		-	10	-	ms
	230VAC		-	30	-	
Temperature Coefficient			-	-	0.21	%/°C
Short Circuit Protection			Hiccup, continuous, self-recover			
Over-current Protection			≥110% Io, self-recovery			
Over-voltage Protection	12V		≤16VDC (Hiccup or clamp)			
	15V		≤25VDC (Hiccup or clamp)			
	24V		≤35VDC (Hiccup or clamp)			
	48V		≤60VDC (Hiccup or clamp)			
Note: *The “Tip and barrel method” is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information.						

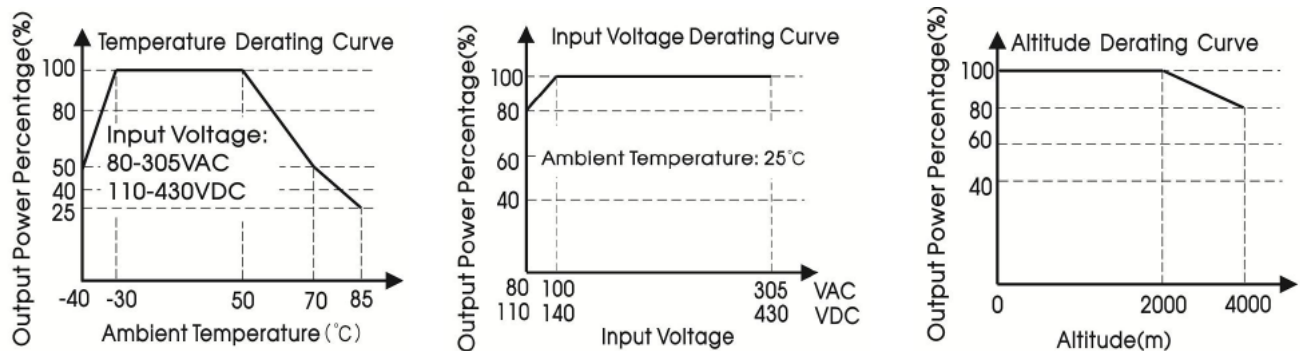
General Specifications

Item	Operating Conditions		Min	Typ	Max.	Unit
Isolation	Input-output	Electric Strength Test for 1min, leakage current <5mA	4200	-	-	VAC
Insulation Resistance	Input - output	At 500VDC	100	-	-	M Ω
Operating Temperature			-40	-	+85	°C
Storage Temperature			-40	-	+85	
Storage Humidity			-	-	95	%RH
Soldering Temperature	Wave-soldering		260 ± 5 °C; time: 5 - 10s			
	Manual-welding		360 ± 10 °C; time: 3 - 5s			
Switching Frequency			-	75	-	KHz
Power Derating	-40°C to -30°C		5.0	-	-	%/°C
	+50°C to +70°C		2.50	-	-	
	+70°C to +85°C		1.66	-	-	
	85VAC - 100VAC		1.0	-	-	%/VAC
Operating Altitude Derating	2000m-4000m		10.0	-	-	%/Km

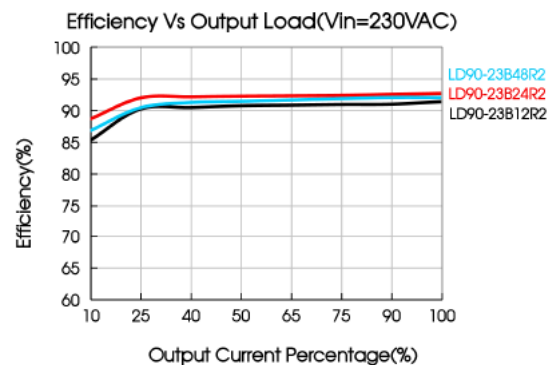
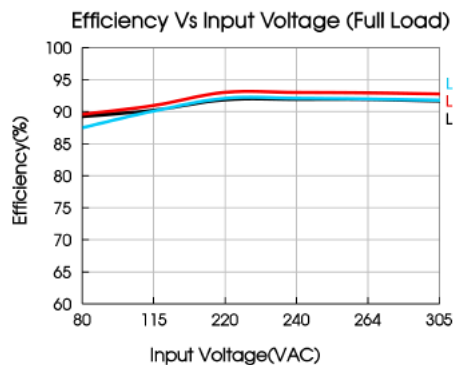
Switching Power Supplies

Safety Standard		IEC/UL62368-1, EN60335-1, EN61558-1 safety approved & EN/BS EN62368-1(Report)
Safety Class		CLASS II
Vibration		10 - 500Hz, 2G 10min./1cycle, period for 60min. Each along X, Y, Z axes
MTBF	MIL-HDBK-217F@25°C	500,000 h

Product Characteristic Curves



Note: ① With an AC input between 80-100VAC and a DC input between 110-140VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.



EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A	
Immunity	ESD	IEC/EN 61000-4-2 Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	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 $\pm 2\text{KV}$	Perf. Criteria A
		IEC/EN61000-4-5 line to line $\pm 2\text{KV}$ (See Fig.2 for recommended circuit)	Perf. Criteria B
	CS	IEC/EN61000-4-6 10 Vr.m.s	Perf. Criteria A
	PFM	IEC/EN61000-4-8 30A/m	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

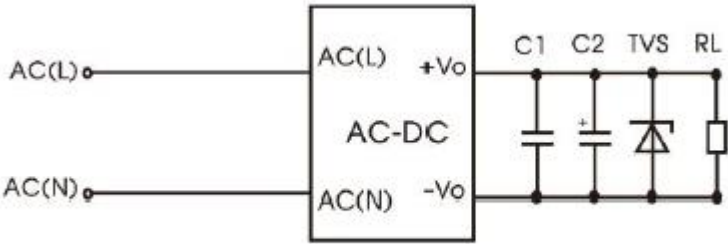


Fig. 1: Typical circuit diagram

RS Item No.	C1(μF)	C2(μF)	TVS
2761489	1 μF /100V	330 μF /35V	SMBJ20A
2761491		330 μF /35V	SMBJ20A
2761493		200 μF /35V	SMBJ30A
2761495		100 μF /63V	SMBJ60A

Recommended circuit for IEC/EN61000-4-4 $\pm 4\text{KV}$ and IEC/EN61000-4-5 line to line $\pm 2\text{KV}$ /line to PE $\pm 4\text{KV}$. Can also be used for Class I equipment should this be required.

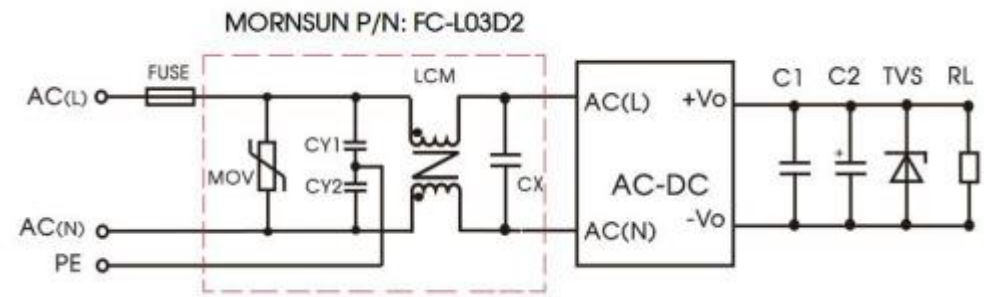


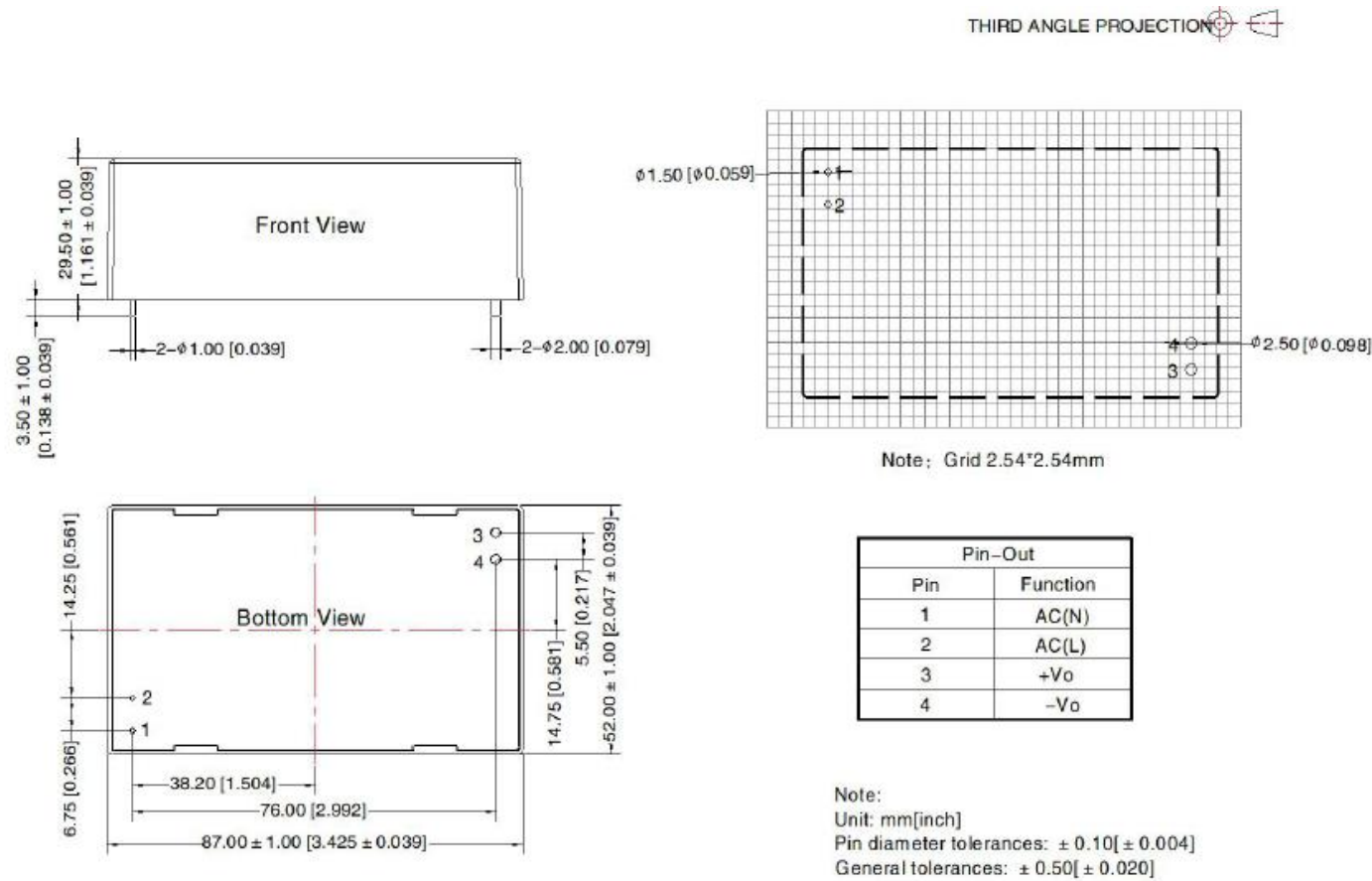
Fig. 2: EMC application circuit with higher requirements

Component	Recommended value
FUSE	6.3A/300V, slow-blow, required
MOV1	S14K350
CY1/CY2	1nF/400VAC
CX	684K/310V
LCM	10mH, P/N: FL2D-Z5-103 is recommended

Mechanical Specifications

Case Material	Black plastic, flame-retardant and heat-resistant (UL94V-0)
Dimensions	87.00 x 52.00 x 29.50 mm
Weight	200g (Typ.)
Cooling Method	Free air convection

Dimensions and recommended layout



Approvals

Safety Standard	IEC/UL62368-1, EN60335-1, EN61558-1 safety approved & EN/BS EN62368-1(Report)
Safety Class	CLASS II
Declaration	CE and UKCA

Additional Information

Custom Tariff Number	85044095
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Notes

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet.
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load.
3. All index testing methods in this datasheet are based on our Company's corporate standards.
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.