FEATURES

- Universal 85 - 264V AC and 100 - 370V DC Input
- High efficiency, 4KVAC high isolation voltage
- Operating temperature range -40°C to +70°C
- Output short circuit, over-current, over-voltage protection
- Regulated output, low output ripple & noise
- High efficiency, high reliability
- Plastic case meets UL94V-0 flammability
- EMI performance meets CISPR32 / EN55032 CLASS B
- IEC/EN/UL62368 and IEC/EN60335 safety approval

RS PRO Embedded Switch Mode Power Supplies

- RS Stock No: 2067684, 1812114, 1812115, 1812116, 1812117, 1812118

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 PCB mount power supply suitable for a wide range of industrial, consumer and telecom instruments and applications. This compact, high efficiency series provides double or reinforced insulation and excellent EMC performance. The converters are approved to UL62368, EN62368, EN60335, IEC62368 and perform with the CLASS B limits of CISPR32 / EN55032 without external components.

General Specifications

Model	AC-DC 10W power supply
Mounting Type	PCB mount
Package Type	Encapsulated Black plastic, flame-retardant and heat-resistant (UL94V-0)
MTBF	MIL-HDBK-217F@25°C > 300,000 h
Applications	Industrial control systems, instrumentation and electrical equipment

RS Item No.	Input Voltage	Output Voltage	Output Current	Output Wattage	Efficiency (Typ)
1812114	85 to 264V ac 100 to 370V dc	+ 3.3V DC	2000mA	6.6W	71%
1812115	85 to 264V ac 100 to 370V dc	+ 5V DC	2000mA	10W	76%
1812116	85 to 264V ac 100 to 370V dc	+ 9V DC	1100mA	10W	80%
1812117	85 to 264V ac 100 to 370V dc	+ 12V DC	900mA	10W	81%
2067684	85 to 264V ac 100 to 370V dc	+ 15V DC	700mA	10W	81%
1812118	85 to 264V ac 100 to 370V dc	+ 24V DC	450mA	10W	83%

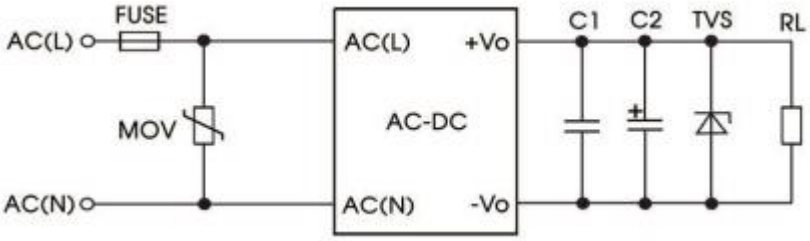
Electrical Specifications

Input Specification	
Voltage Range	85 to 264V ac, 100 to 370V dc
Frequency	47 to 63Hz
AC Current Rating	0.23A/115V ac, 0.15A/230V ac
Inrush Current	30A / 230V ac
Input Protection	Recommend external 2A/250V, slow blow, required

Output Specification						
Output voltage	3.3V	5V	9V	12V	15V	24V
Rated Current	2A	2A	1.1A	0.9A	0.7A	0.45A
Ripple & Noise (typ.)	50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p
Ripple & Noise (max.)	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p
Rated Power	6.6W	10W	10W	10W	10W	10W
Max. Capacitor Load	26400uF	9440uF	3600uF	2000uF	1170uF	370uF
Voltage Tolerance	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%
Line Regulation typ.	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Load Regulation typ.	±1%	±1%	±1%	±1%	±1%	±1%
Minimum Load	0%	0%	0%	0%	0%	0%

Hold Up Time	80ms/230V ac, 15ms/115V ac
Over Voltage Protection	3.3/5V output ≤ 7.5 V (Output voltage clamp or hiccup)
	9V output ≤ 15 V (Output voltage clamp or hiccup)
	12/15V output ≤ 20 V (Output voltage clamp or hiccup)
	24V output ≤ 30 V (Output voltage clamp or hiccup)
Over-current Protection	≥110-300%Io self-recovery
Short Circuit Protection	Hiccup, continuous, self-recovery
Switching Frequency	100KHz
Isolation	4KVAC

Typical application



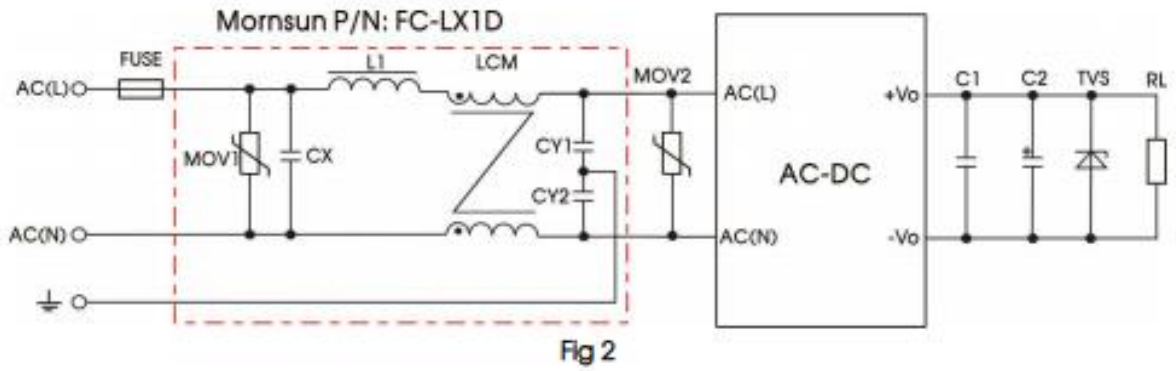
RS Item No.	C1(μF)	C2(μF)	FUSE	MOV	TVS
1812114	1μF/50V	220μF /10V	2A/250V slow-blow required	S14K300	SMBJ7.0A
1812115		220μF /10V			SMBJ7.0A
1812116		120μF /25V			SMBJ12A
1812117		120μF /25V			SMBJ20A
2067684		120μF /25V			SMBJ20A
1812118		68μF /35V			SMBJ30A

Output Filter Components: We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a Capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
Immunity	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC/EN 61000-4-3 10V/m	Perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV	Perf. Criteria B
		IEC/EN 61000-4-4 ±4KV (See Fig. 2 for recommended circuit)	
	Surge	EC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV (See Fig. 2 for recommended circuit)	Perf. Criteria B
	CS	IEC/EN61000-4-6 10 Vr.m.s	Perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B

Fig 2 Recommended circuit compliance IEC/EN61000-4-4 ±4kV and IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV

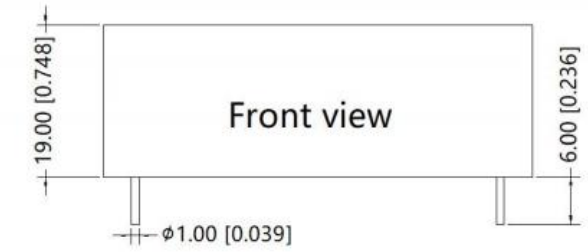


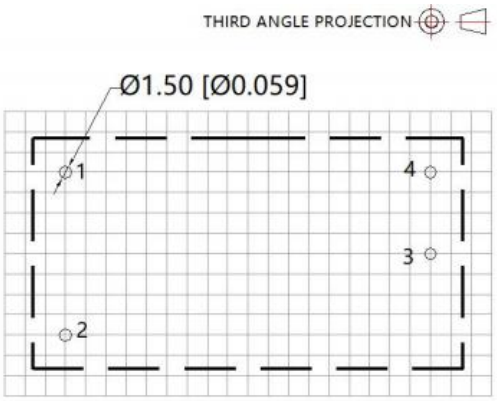
Component		Recommended value
FUSE		3.15A/250V slow-blow required
MOV1	FC-LX1D (2KV/4KV EMC Filter)	S14K350
CY1, CY2		1000pF/400VAC
CX		0.1uF/275VAC
L1		4.7uH/2A
LCM		10mH 0.5A
MOV2		S10K300

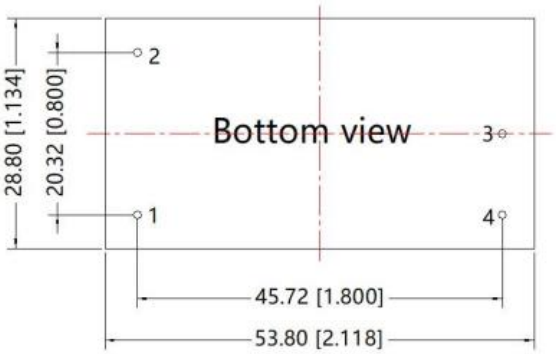
Mechanical Specifications

Overall Length	53.8mm
Overall Depth	19mm
Overall Width	28.80mm
Weight	48g (Typ.)

Dimensions and recommended layout







Note:
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

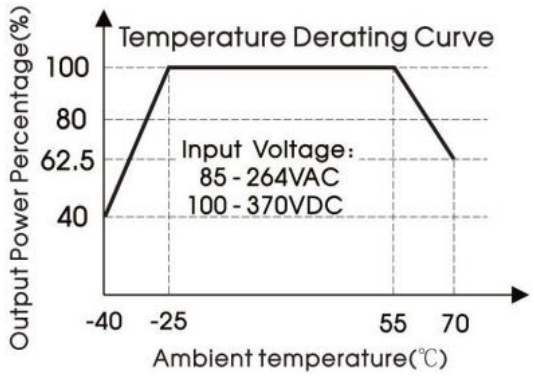
Note : Grid 2.54*2.54mm

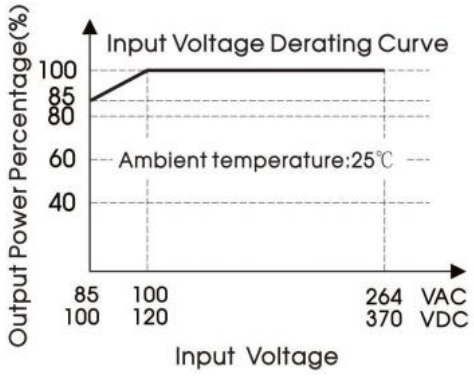
Pin-Out	
Pin	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo

Operation Environment Specifications

Storage Humidity	95% RH
Cooling	Natural convection
Operating Temperature Range	-40 to 70°C
Storage Temperature Range	-40 to 105°C
Power Derating	-40 to -25°C 4% /°C
	55 to 70°C 2.5% /°C
	85Vac to 100Vac 1% /VAC

Derating





Approvals

Safety Standard	UL62368/EN62368/EN60335/IEC62368/IEC60335
Safety Certificate	UL62368/EN62368/EN60335/IEC62368/IEC60335
Safety Class	CLASS II

Additional Information

Custom Tariff Number	85044030

Notes

1. **Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load.**
2. **All index testing methods in this datasheet are based on our Company's corporate standards.**
3. **Products are related to laws and regulations: see "Features" and "EMC"**
4. **Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units**