5ACFE2W_4 series

5W - Single Output AC-DC Converter



AC-DC Converter 5 Watt

- Input voltage range: 85-305VAC and 100-430VDC
- SIP package style
- Operating temperature range: -40°C to +85°C
- 4000VAC isolation voltage
- Up to 81% efficiency
- Short circuit protection (SCP)
- Over current protection
- Meets safety standards: IEC/EN61558, IEC/EN60335
- MTBF: 1,000,000 hours

Introducing our new 5ACFE2W_4 series AC-DC power supplies in a compact SIP package, designed for reliable performance across a wide range of industrial and electronic applications. The series supports a broad input voltage range of 85–305VAC / 100–430VDC and operates over an extended temperature range from -40°C to +85°C. With efficiency of up to 81% and a high 4000VAC isolation voltage, the 5ACFE2W_4 series combines dependable power conversion with enhanced electrical safety.

Integrated short-circuit and overcurrent protection help ensure stable and reliable operation under demanding conditions. The series is designed to meet IEC/EN 61558 and IEC/EN 60335 safety standards and offers an MTBF of 1,000,000 hours, supporting long-term reliability and robust system performance.

UL62368-1 - Pending

Common specifications

Short circuit protection	Continuous, self recovery
Over current protection	110 (typ.) %Io
Over temperature protection	Shut down output voltage; recovers automatically after temperature decreases.
Power derating	+55°C - +85°C 2.50 %/°C 85VAC - 100VAC 1.00 %/VAC 277VAC - 305VAC 0.536 %/VAC
Operating temperature	-40°C - +85°C (with derating)
Storage temperature	-50°C - +105°C
Soldering profile	Wave soldering: 260°C (±5°C); time: 5 - 10s Manual welding: 360°C (±5°C); time: 3- 5s
Product certification	UL - 62368-1:CB - 62368-1:CE - 62368-1
Safety standard	IEC/UL62368-1, IEC/EN60335-1, IEC/EN61558-1
Safety class	CLASS II
MTBF	>1,000,000 h (MIL-HDBK-217F@25°C)
Hot plug	Unavailable
Package dimensions	26.40 x 11.00 x 17.60mm
Weight	5.01g (typ.)
Cooling method	Free air convection

Input specifications

Item	Operating condition	Min	Typ	Max	Units
Input voltage	AC Input DC Input	85 100		305 430	VAC VDC
Input current	115VAC 230VAC			0.15 0.10	A
Input frequency		47		63	HZ
Fuse	1A, slow-blow, required				

Example:
5ACFE2W_09S4
5 = 5Watt; AC = AC-DC; F = Open Frame; E2 = Series ; W = Wide input range; 09 = 9Vout; S = Single output; 4 = 4kVAC isolation

Output specifications

Item	Operating condition	Min	Typ	Max	Units
Output voltage accuracy	10% - 100% load		±5		%
Linear regulation (rated load)	3.3V Other voltages		±2.5 ±1.5		%
Load regulation	10% - 100% load		±3		%
Ripple & noise	20MHz bandwidth, 10% - 100% load		80	180	mV
Temperature coefficient			±0.15		%/°C
Stand-by power consumption	230VAC		0.10		W
Minimum load		10			%Io
Over current protection		110			%Io

Note: The test method of ripple and noise adopts the measurement method, and the output is in parallel with 10uF electrolytic capacitor and 1uF.

Isolation specifications

Item	Operating Conditions	Min	Typ	Max	Units
Isolation voltage	Input-output, test time 1 minute, leakage current less than 5mA	4000			VAC

1. The input voltage should not exceed the specified range value, otherwise it may cause permanent and irreparable damage;
2. It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product;
3. The maximum capacitive load is tested within the input voltage range and under full load conditions;
4. Unless otherwise specified, all indicators in this datasheet are measured at Ta = 25°C, humidity <75% RH, nominal input voltage, and output rated load;
5. All indicator testing methods in this datasheet are based on our company's standards;
6. For specific requirements please contact our technical team directly;
7. Product specifications are subject to change without prior notice.

GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com

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EMC specifications			
EMI	CE	CISPR32/EN55032 CLASS A (typical application circuit) CISPR32/EN55032 CLASS B (EMC recommended circuit)	
EMI	RE	CISPR32/EN55032 CLASS A (typical application circuit) CISPR32/EN55032 CLASS B (EMC recommended circuit)	
EMS	RS	IEC/EN61000-4-3 10V/m	perf. criteria A
EMS	EFT	IEC/EN61000-4-4 ±2kV (typical application circuit) IEC/EN61000-4-4 ±4kV (EMC recommended circuit)	perf. criteria B perf. criteria B
EMS	Surge	IEC/EN61000-4-5 line to line ±1kV (typical application circuit) IEC/EN61000-4-5 line to line ±2kV (EMC recommended circuit)	perf. criteria B perf. criteria B
EMS	CS	IEC/EN61000-4-6 10Vr.m.s	perf. criteria A
EMS	ESD	IEC/EN61000-4-2 Contact ±6kV / Air ±8kV	perf. criteria B

Product Selection Guide

Approval	Part number	Input Voltage (VAC)	Out Power (W)	Out Voltage (VDC)	Out Current (mA) max.	Full Load Efficiency % (230VAC, typ.)	Capacitive Load (µF) max.
	5ACFE2W_03S4	85-305	3.3	3.3	1000	73	1500
	5ACFE2W_05S4	85-305	5	5	1000	76	1500
	5ACFE2W_09S4	85-305	5	9	560	77	680
	5ACFE2W_12S4	85-305	5	12	420	78	470
	5ACFE2W_15S4	85-305	5	15	340	79	330
	5ACFE2W_24S4	85-305	5	24	210	81	100
	5ACFE2W_18S4	85-305	5	18	277	80	330

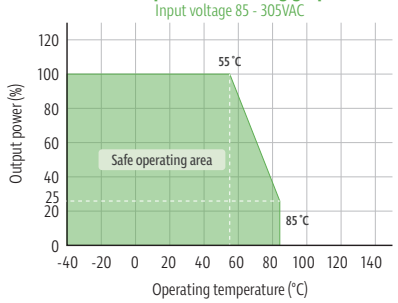
Note:

1. All the above data were tested within the parameter range of typical application circuits.
2. All models are without conformal paint protection on the surface.
3. Please add suffix „-F" for 90° bent pins models (5ACFE2W_18S4/F)
4. If the product is used in a high vibration environment, it needs to be dispensed to fix its body.
5. The product images are for reference only. Please refer to the actual product for details

Typical characteristics

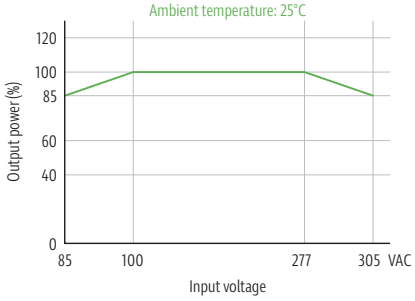
Temperature derating graph

Input voltage 85 - 305VAC



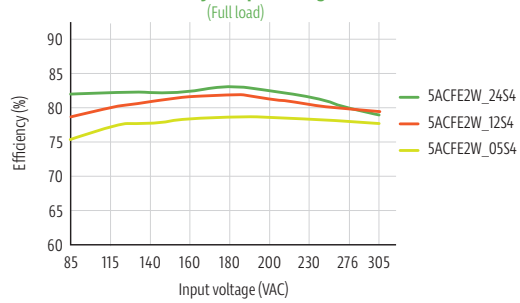
Input voltage derating curve

Ambient temperature: 25°C



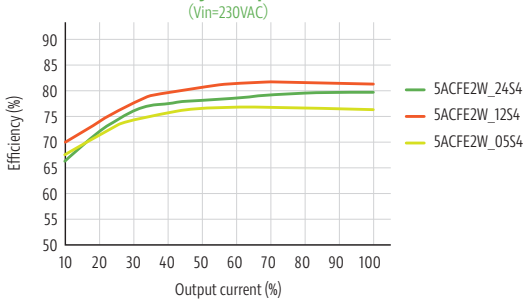
Efficiency vs input voltage

(Full load)

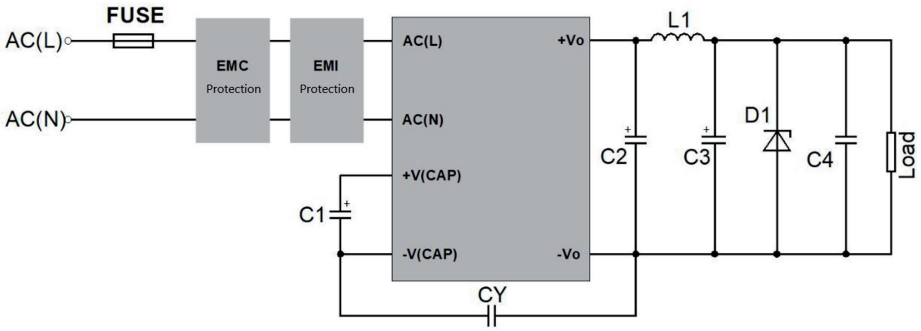


Efficiency vs output load

(Vin=230VAC)



Application circuit

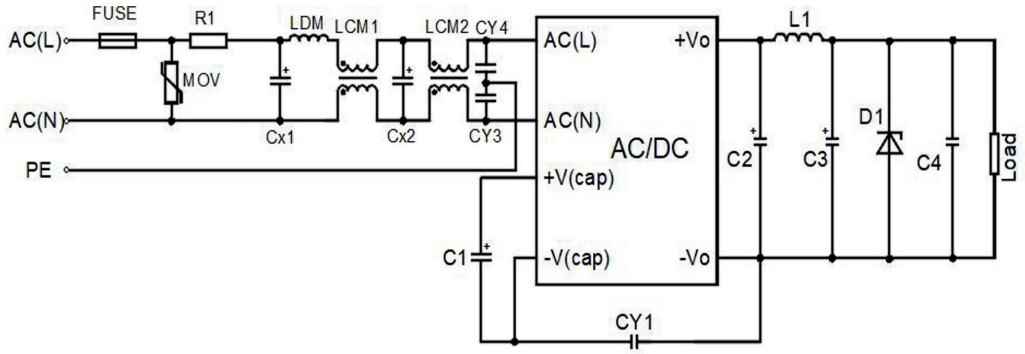


Reference Table for Selection of Peripheral Devices

Output voltage	C1 (required)	C2 (required)	L1 (required)	C3 (required)	C4	CY (required)	D1
5VDC	10uF/450V	560uF/16V (Solid state capacitor)	2.2uH 3A 40mΩMAX	100uF/16V	0.1uF/50V	1nF/400VAC	D1 is a TVS transistor that can protect the downstream circuit in case of module abnormalities. It is recommended to choose a model that is 1.2 times the output voltage
12VDC	10uF/450V	330uF/25V (Solid state capacitor)	2.2uH 3A 40mΩMAX	100uF/25V	0.1uF/50V	1nF/400VAC	
15/24VDC	10uF/450V	330uF/35V	3.3uH 2A 40mΩMAX	47uF/35V	0.1uF/50V	1nF/400VAC	

Note:
1. FUSE, EMC protection, and EMI protection are selected based on actual application needs;
2. C1 is a filtering electrolytic capacitor, which is a required component. It is recommended to use ripple current> 400mA @100kHz Electrolytic capacitors.
3. C2, C4, and L1 form a Pi type filtering circuit, and it is recommended to use high-frequency low resistance electrolytic capacitors or solid-state capacitors. When selecting L1, ripple requirements can be considered, while paying attention to current and internal resistance values.
4. L1 selection can take into account the ripple requirements, while paying attention to current and internal resistance values.

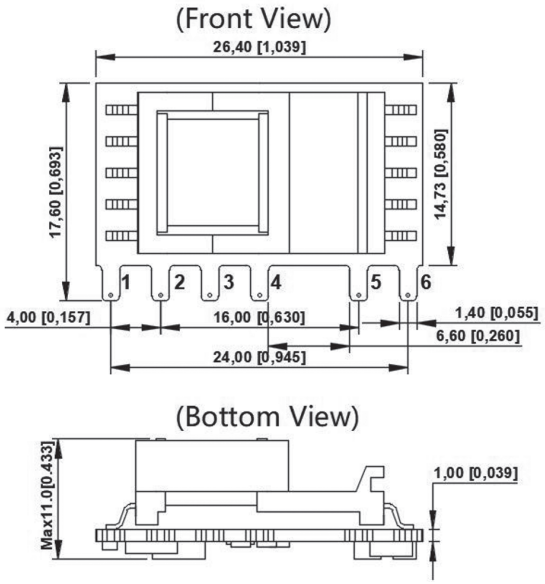
EMC solutions - Recommended circuits

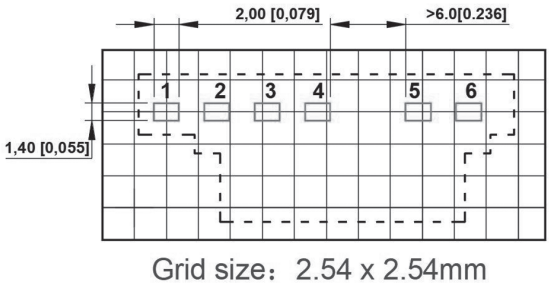


EMC Recommended Circuit Device Selection Reference Table

Model	Parameter
FUSE	2A/300V, slow-blow, required
R1	12Ω/3W, winding resistance required
MOV	14D561
LDM	2.2mH/Max: 4Ω/Min: 0.24A
LCM1	200uH 0.8A
LCM2	12.6mH/MIN 0.5A
CX1, CX2	0. 1uF/310VAC
CY1, CY3, CY4	1nF/400VAC
Other	Reference Table for Peripheral Device Selection

Dimensions and recommended layout



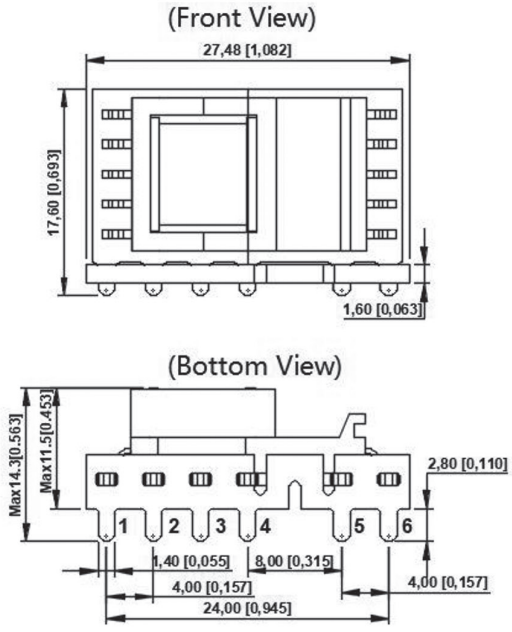


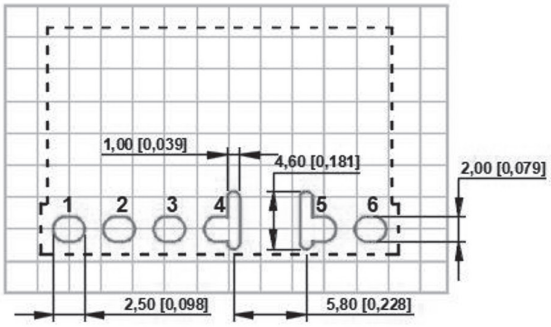
Pin Function Table

Pin	Function
1	AC (L)
2	AC (N)
3	+V (CAP)
4	-V (CAP)
5	-Vo
6	+Vo

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

Dimensions and recommended layout (bent pins)





Pin Function Table

Pin	Function
1	AC (L)
2	AC (N)
3	+V (CAP)
4	-V (CAP)
5	-Vo
6	+Vo

Note:
Unit: mm [inch]
Pin section tolerances:±0.10 [±0.004]
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