



5ACMEA_4 Series

5W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated

AC-DC Converter

5 Watt

- ⊕ High efficiency up to 81%
- ⊕ Universal input:
85~264VAC/100~370VDC
- ⊕ High power density
- ⊕ Short circuit protection (SCP)
- ⊕ Output current protection
- ⊕ Over voltage protection
- ⊕ UL 60601, EN60601-1, ANSI/
AAMI ES60601-1 approved
(2xMOPP)

The 5ACMEA_4 series offers a compact size power converter. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, and widely used in medical, industrial, instruments, telecommunication and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.



Approval	Model	Power [W]	Output voltage [V]	Output current [mA, max]	Capacitive Load* [μF, max]	Efficiency [@230VAC, %, typ]
UL/CE	5ACMEA_05S4	5	5	1000	4000	76
UL/CE	5ACMEA_12S4	5	12	420	820	80
UL/CE	5ACMEA_15S4	5	15	333	820	81
UL/CE	5ACMEA_24S4	5.5	24	230	330	81

* Test without external circuit

Input specifications		
Input voltage range	85-264 VAC; 100-370 VDC	
Input frequency	47~63Hz	
Input current	115VAC • 0.12A (max)	230VAC • 0.07A (max)
Inrush current	115VAC • 10A (typ)	230VAC • 20A (typ)
Leakage current	< 80mA/264VAC	
Hot plug	Unavailable	

Protection specifications	
Short circuit protection	Continuous, automatic recovery
Over-current protection	110%Io~280%Io self-recovery
Over-voltage protection	<ul style="list-style-type: none"> • 5ACMEA_05S4: 7.5V • 5ACMEA_12S4: 16V • 5ACMEA_15S4: 20V • 5ACMEA_24S4: 30V

Example:

5ACMEA_05S4

5 = 5Watt; AC = AC-DC; MEA = series; 5Vout; S = Single Output;
4 = 4kVAC isolation

Output specifications						
Item	Test conditions	Min	Typ	Max	Units	
Output voltage accuracy			±2		%	
Line regulation	Full load		±0.5		%	
Load regulation	10% to 100% load		±1		%	
Ripple & noise			50	100	mVp-p	
Switching frequency				140	KHz	
Standby power consumption				0.3	W	
Hold-up time (full load)	<ul style="list-style-type: none"> • @115VAC input • @230VAC input 		10 80		ms ms	

* Ripple & Noise are measured by "parallel cable" method.

Note:

1. **This product is not designed for use in:** critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other than the ones listed in this datasheet.
2. Safety approvals cover frequency 47-63 Hz.
3. That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
4. It's recommended to add Varistor 14S471K at L / N input side in parallel.
5. All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

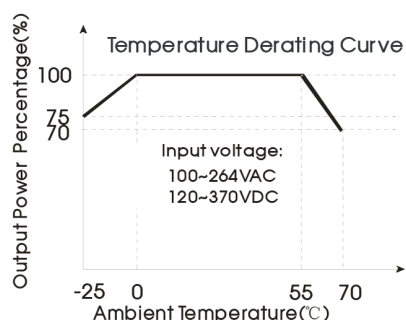
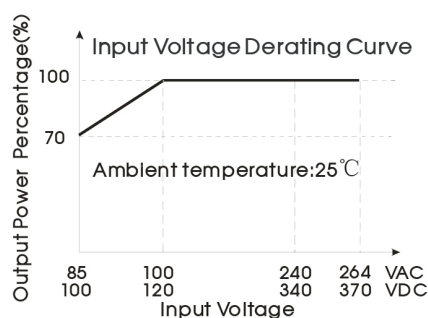
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Common specifications			
Operating temperature range	-25°C ~ +70°C		
Power derating temperature range	55°C ~ 70°C: 2%/°C -25°C ~ 0°C: 1%/°C		
Storage temperature range	-40°C ~ +85°C		
Humidity (non-condensing)	95% MAX		
Cooling	Free air convection		
Temperature coefficient	±0.02%/°C		
I/O-isolation voltage	4000VAC		
Welding Temperature	Wave-soldering: 260±5°C, time:5-10s Manual-welding: 360±10°C, time:3-5s		
EMC / EMI / Conducted and radiated EMI	CISPR11/EN55011 CLASS B		
EMC / EMS / ESD	IEC/EN 61000-4-2	Contact ±6KV / Air ±8KV	perf. Criteria B
EMC / EMS / Radiated Immunity	IEC/EN 61000-4-3	10V/m	perf. Criteria A
EMC / EMS / Fast Transient	IEC/EN 61000-4-4	±2kV / ±4kV (see EMC rec. circuit)	perf. Criteria B
EMC / EMS / Surge	IEC/EN 61000-4-5	±1KV / ±2kV / ±4kV (see EMC rec. circuit)	perf. Criteria B
EMC / EMS / Conducted immunity	IEC/EN 61000-4-6	10Vr.m.s	perf. Criteria A
EMC / EMS / PFM	IEC/EN 61000-4-8	10A/m	perf. Criteria A
EMC / EMS / Voltage dips, short interruptions and voltage variations immunity	IEC/EN 61000-4-11	0%-70%	perf. Criteria B
Safety standards	EN60601/UL60601		
Safety certification	EN60601/UL60601		
Safety Class	Class II		
Insulation level	2xMOPP, First side-Second side		
Case material	UL94V-0		
MTBF (MIL-HDBK-217F@25°C)	>300,000h @25°C		
Package	53.80*28.80*19.00 mm		
Weight	43g		

Typical characteristics

Derating graphs



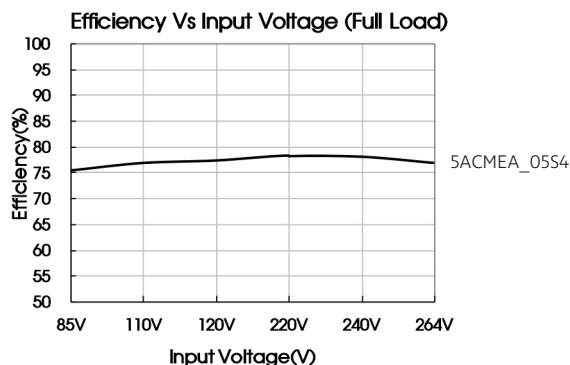
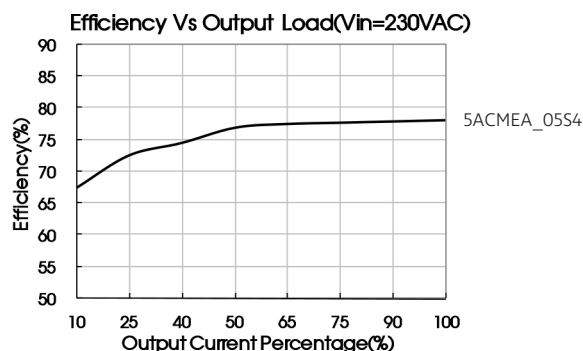
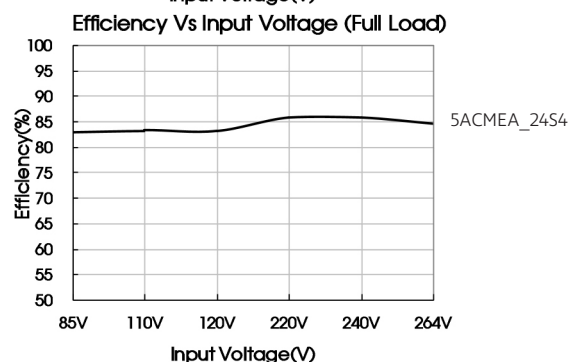
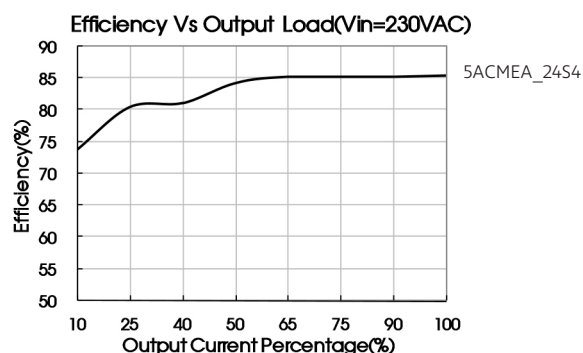
Note:

- ① Input voltage should be derated based on temperature derating when it is 85~100VAC/100~120VDC;
- ② This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.

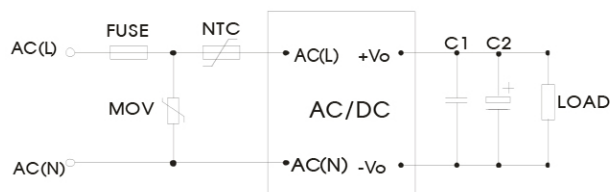
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Efficiency



Typical application circuit



Model	C1 (μF)	C2 (μF)
5ACMEA_05S4	1	220
5ACMEA_12S4	1	100
5ACMEA_15S4	1	100
5ACMEA_24S4	1	47

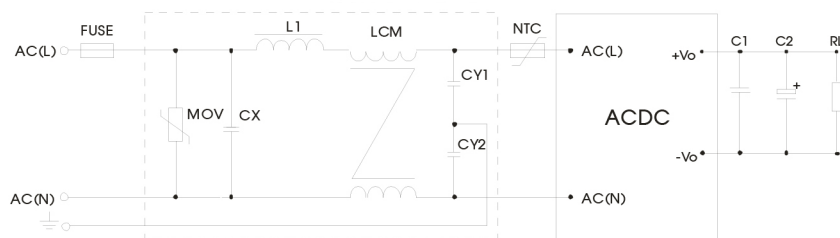
Note:

Output filtering capacitor C2 is an electrolytic capacitor, it is recommended to apply an electrolytic capacitor with high frequency and low resistance. For capacitance and current of capacitor please refer to manufacture's datasheet. Capacitance withstand voltage derating should be 80% or above. C1 is ceramic capacitor, which is used to filter high-frequency noise. External input NTC is recommended to use 5D-9. External input MOV is recommended to use S14K300. External input FUSE is recommended to use 2A/250V, slow fusing.

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EMC recommended circuit



Components	Recommended value
MOV	S14K300
CX	0.1μF/275VAC
L1	4.7uH/2A
CY1, CY2	1nF/400VAC
NTC	5D-9
LCM	2.2mH
FUSE	2A/250V slow fusing, necessary
FC-LX1D	EMC filter

Mechanical dimensions

