



30ACO_3 series

30W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated

AC-DC Converter 30 Watt

- ⊕ Universal 85-264VAC or 100-370VDC input voltage
- ⊕ 3x2 inch high power density
- ⊕ Operating ambient temp. range: -25°C to +70°C
- ⊕ High efficiency, high reliability
- ⊕ Regulated output, low output ripple & noise
- ⊕ Output short circuit, over-current, over-voltage protection
- ⊕ EMI performance meets CISPR32/EN55032 CLASS B
- ⊕ UL/EN/IEC62368 safety approved

The 30ACO_3 series is one of compact size power converter. It features universal AC input and at the same time accepts DC input voltage, low power consumption, high efficiency, high reliability, reinforced isolation. It offers good EMC performance compliant to IEC/EN61000-4 and CISPR32/EN55032 and meets UL/EN/IEC62368, EN/UL60335 standards. The converters are widely used in industrial, office and civil applications. For extremely harsh EMC environment, we recommend using the application circuit show in Design Reference of this datasheet.



UL-62368-1 (E347551)

Common specifications					
Item	Test condition	Min	Typ	Max	Units
Short circuit protection:	Hiccup, continuous, self-recovery				
Isolation Test (Input-output)	Electric Strength Test for 1min., leakage current <5mA	3000			VAC
Operating Temperature		-25		+70	°C
Storage Temperature		-25		+85	°C
Storage Humidity				90	%RH
Altitude				2000	m
Soldering Temperature	Wave-soldering Manual-welding	260 ± 5°C; time: 5 -10s 360 ±10 °C; time: 3 - 5s			
Power Derating	-25°C to -10°C	1.00			%/°C
	+50°C to +70°C	3.00			%/°C
	85VAC - 140VAC	0.55			%/VAC
Safety Standard	UL62368/EN62368/IEC62368/UL60335/EN60335				
Safety Certification	UL/EN/IEC62368				
Safety Class	CLASS II				
MTBF	MIL-HDBK-217F@25°C > 300,000 h				
Dimension	76.20 x 50.80 x 27.00 mm				
Weight	62g (TYP.)				
Cooling method	Free air convection				

Output specifications					
Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	3.3V output		±3		%
	Other output		±2		%
Line regulation	full load		±0.5		%
Load regulation	0% to 100% load		±1		%
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		50	100	mV
Stand-by Power Consumption				0.5	W
Temperature Coefficient			±0.02		%/°C
Switching frequency			60		KHz
Over-current Protection			≥110%Io, self-recovery		
Over-voltage Protection			≥110%Io, self-recovery		
Over-current Protection	3.3VDC/5VDC Output	≤7.5VDC (Output voltage clamp or hiccup)			
	9VDC Output	≤15VDC (Output voltage clamp or hiccup)			
	12VDC/15VDC Output	≤20VDC (Output voltage clamp or hiccup)			
	24VDC Output	≤30VDC (Output voltage clamp or hiccup)			
	48VDC Output	≤60VDC (Output voltage clamp or hiccup)			
Minimum Load		0			%
Hold-up Time	115VAC input		10		ms
	230VAC input		30		ms

Note: *The "parallel cable" method is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75% with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. We can provide product customization service, please contact our technicians directly for specific information;
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.

Example: 30ACO_24S3

30 = 30Watt; AC = AC-DC; O = Open frame; 24 = 24 Vout;
S = Single Output; 3 = 3000VAC isolation

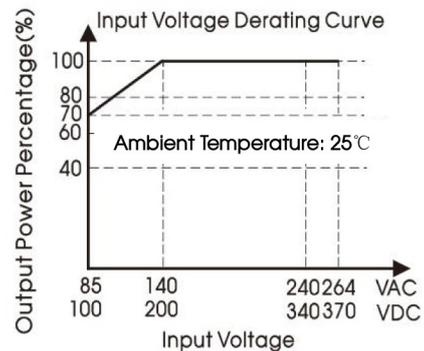
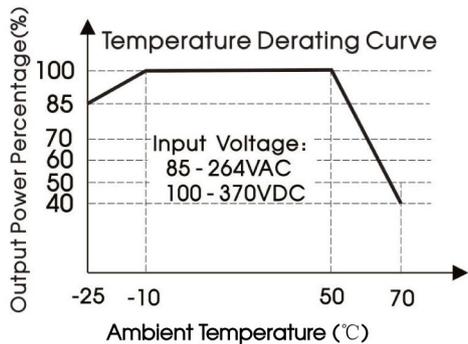
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EMC specifications		
Emissions	CE	CISPR32/EN55032 CLASS B
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Immunity	ESD	IEC/EN61000-4-2 Contact ± 6 KV perf. Criteria B
Immunity	RS	IEC/EN61000-4-3 10V/m perf. Criteria A
Immunity	EFT	IEC/EN61000-4-4 ± 2 KV perf. Criteria B
Immunity	Surge	IEC/EN61000-4-5 line to line ± 1 KV perf. Criteria B
Immunity	CS	IEC/EN61000-4-6 10Vr.m.s perf. Criteria A
Immunity	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11 0%, 70% perf. Criteria B

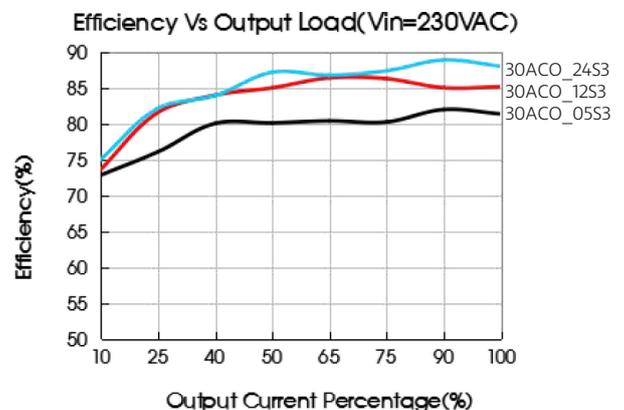
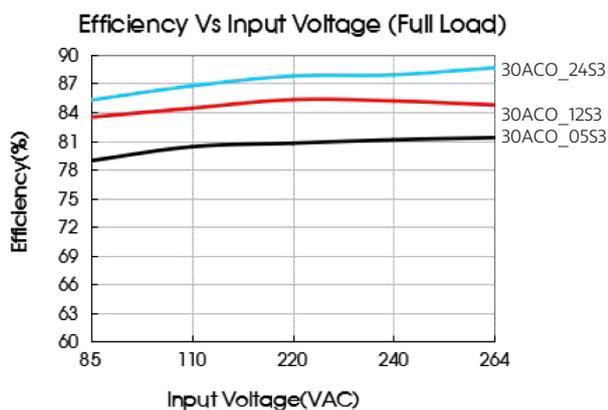
Certification	Model	Power [W]	Output Voltage [Vo, VDC]	Output Current [mA]	Efficiency [%, typ] 220VAC	Capacitive Load (μ F) Max.
UL/CE	30ACO_03S3	13.5W	3.3	4100	73	24000
UL/CE	30ACO_05S3	20.5W	5	4100	78	12000
UL/CE	30ACO_09S3	30W	9	3333	82	5600
UL/CE	30ACO_12S3	30W	12	2500	84	5400
UL/CE	30ACO_15S3	30W	15	2000	86	2400
UL/CE	30ACO_24S3	30W	24	1250	87	1440
UL/CE	30ACO_48S3	30W	48	625	88	600

Typical characteristics



Note:

1. With an AC input between 85-140VAC and a DC input between 100-200VDC, 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.



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Typical application

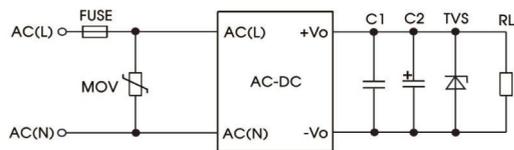


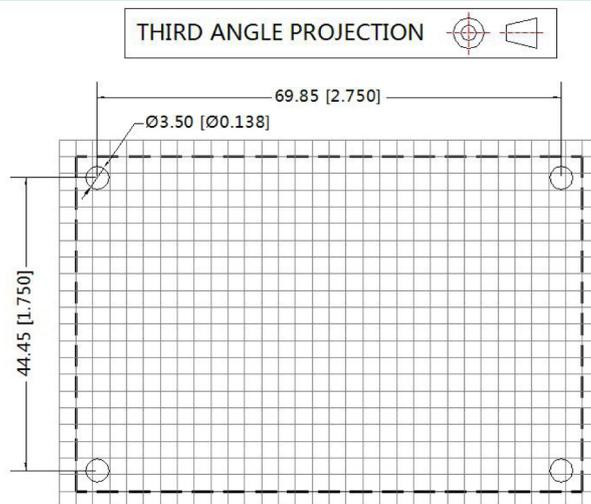
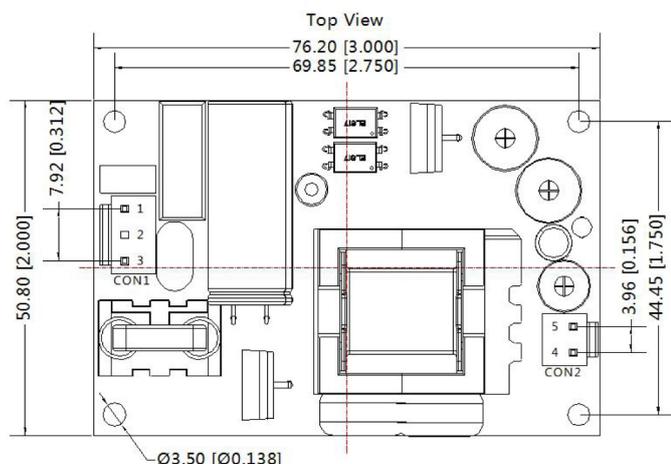
Fig. 1: Typical circuit diagram

Model	FUSE	MOV	C1 (μF)	C2 (μF)	TVS
30ACO_03S3	2A/250V slow-blow	S14K300	0.1	22	SMBJ7.0A
30ACO_05S3					SMBJ7.0A
30ACO_09S3					SMBJ12A
30ACO_12S3					SMBJ20A
30ACO_15S3					SMBJ20A
30ACO_24S3					SMBJ30A
30ACO_48S3					SMBJ64A

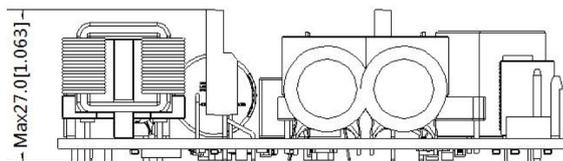
Output Filter Components:

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.

Mechanical dimensions



Note: Grid 2.54*2.54mm



Note:

Unit: mm[inch]

General tolerances: ±0.50[±0.020]

In CON1 model: VH-3A, Recommend terminal: VH-3Y

Out CON2 model: VH-2A, Recommend terminal: VH-2Y

Mounting hole screwing torque: Max 0.4 N·m

Pin-Out			
Pin	Function	Connector	Terminal
1	AC(L)	VH-3A or B2P3-VH or the same Spec.	VH-3Y or VHR-3N or the same Spec.
2	NoPin		
3	AC(N)		
4	-Vo	VH-2A or B2P-VH or the same Spec.	VH-2Y or VHR-2N or the same Spec.
5	+Vo		