



15ACBEW_4 series

15W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated

AC-DC Converter 15 Watt

- ⊕ Universal input: 85~305VAC/100~430VDC
- ⊕ AC and DC dual-use (input from the same terminal)
- ⊕ Operating ambient temp. range: -40°C ~ +85°C
- ⊕ High isolation 4000VAC
- ⊕ Short circuit protection (SCP)
- ⊕ High efficiency, high reliability
- ⊕ Low ripple and noise
- ⊕ Output over voltage, over current protection
- ⊕ EMI CISPR32/EN55032 CLASS B
- ⊕ IEC/EN/UL62368 safety approval

The 15ACBEW_4 series are highly efficient, environmental-friendly 15W power modules. They feature universal AC input and at the same time accept DC input voltage, low power consumption, high efficiency, high reliability and double or reinforced insulation with an input to output isolation test voltage of 4000VAC. The converters meet IEC/EN61000-4, CISPR32/EN55032, UL/IEC62368 and EN62368 standards, and are widely used in industrial, electricity and civil applications. For extremely harsh EMC environment, we recommend using the application circuit shown in this datasheet.



UL-62368-1 (E347551)

Certification	Model	Output power [W]	Output [V]	Output [mA]	Efficiency [%, typ]	Capacitive load [μF, max]
UL/CE/CB	15ACBEW_03S4	9.9	3.3	3000	73	30000
UL/CE/CB	15ACBEW_05S4	14	5	2800	76	16000
UL/CE/CB	15ACBEW_09S4	15	9	1600	78	5500
UL/CE/CB	15ACBEW_12S4	15	12	1250	80	4500
UL/CE/CB	15ACBEW_15S4	15	15	1000	80	4000
UL/CE/CB	15ACBEW_24S4	15	24	625	83	800
UL/CE/CB	15ACBEW_48S4	15	48	320	85	220

Input specifications

Input voltage range	85~305VAC, 100~430VDC	
Input frequency	47~63Hz	
Input current (full load)	115VAC • 0.37A (max)	230VAC • 0.22A (max)
Inrush current (<2ms, cold start)	115VAC • 16A (typ)	230VAC • 30A (typ)
Leakage current	0.25mA RMS (max)	
Recommended External Input Fuse	2A/300V slow-blow, required	
Hot plug	Unavailable	

Example:

15ACBEW_05S4
 15 = 15Watt; AC = AC-DC; B = case style; E= Cost effective;
 W = Wide input; 5Vout; S = Single Output; 4 = 4kVAC

Note:

- 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;
- All index testing methods in this datasheet are based on our company corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see „Features“ and „EMC“;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

Output specifications

Voltage accuracy	• 3.3V: ±3% (typ) • others: ±2% (typ)
Line regulation (Rated load)	±0.5% (typ)
Load regulation (0% to 100%)	±1%
Ripple & Noise*	50mV typ., 100mV max.
Stand-by power consumption (230VAC)	• 48V: 230VAC, 0.55W max. • Others: 230VAC, 0.5W max.
Short circuit protection	Hiccup mode, indefinite (automatic recovery)
Over current protection	150%-300%Io, self-recovery
Over voltage protection	• 3.3V/5V: 7.5V • 9V: 15V • 12V/15V: 20V • 24V: 30V • 48V: 60V
Minimum load	0%
Hold-up time	• 115VAC: 5ms (typ) • 230VAC: 40ms (typ)

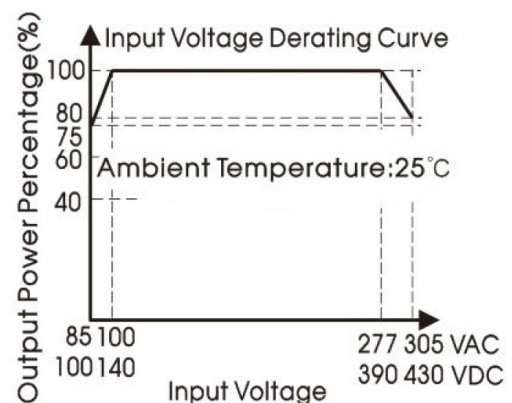
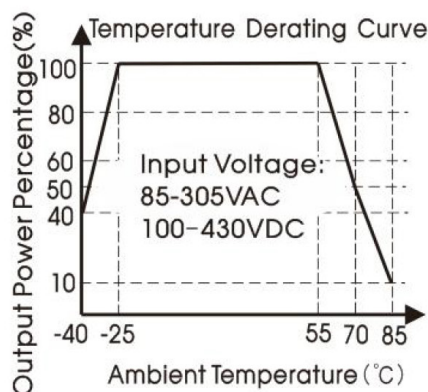
* The "parallel cable" method is used for ripple and noise test.

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Common specifications			
Operating temperature range	-40°C ~ +85°C		
Storage temperature range	-40°C ~ +105°C		
Case temperature range	+95°C MAX		
Power derating	<ul style="list-style-type: none"> -40°C ~ -25°C: 4.00 %/°C (min) +55°C ~ +70°C: 3.34 %/°C (min) +70°C ~ +85°C: 2.67 %/°C (min) 85VAC-100VAC: 1.67 %/VAC (min) 277VAC-305VAC: 0.72 %/VAC (min) 		
Humidity	95% MAX		
Temperature coefficient	0.02%/°C		
Soldering temperature	Wave-soldering: 260 ± 5°C; time: 5 - 10s Manual-welding: 360 ± 10°C; time: 3 - 5s		
I/O-isolation voltage	4000VAC/1Min		
EMC / EMI / CE	CISPR32/EN55032	CLASS B	
EMC / EMI / RE	CISPR32/EN55032	CLASS B	
EMC / EMS / ESD	IEC/EN 61000-4-2	Contact ±6KV / Air ±8KV	perf. Criteria B
EMC / EMS / RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
EMC / EMS / EFT	<ul style="list-style-type: none"> IEC/EN 61000-4-4 IEC/EN 61000-4-4 	± 2kV ± 4kV (see EMC recommended circuit)	perf. Criteria B perf. Criteria B
EMC / EMS / Surge	<ul style="list-style-type: none"> IEC/EN 61000-4-5 IEC/EN 61000-4-5 	line to line ±1KV/ line to ground ±2KV line to line ±2KV/ line to ground ±4KV (see EMC recommended circuit)	perf. Criteria B perf. Criteria B
EMC / EMS / CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
EMC / EMS / Voltage dips, short and interruptions immunity	IEC/EN61000-4-11	0%-70%	perf. Criteria B
Safety standards	IEC62368/EN62368/UL62368		
Safety certification	IEC62368/EN62368/UL62368		
Safety class	CLASS II		
Case material	UL94V-0		
Install	PCB mounting, Chassis mounting, Dinrail mounting		
MTBF (MIL-HDBK-217F@25°C)	>300,000h		
Cooling	Free air convection		
Package	62.00 x 45.00 x 22.50 mm 96.10 x 54.00 x 31.00mm (Chassis mounting) 96.10 x 54.00 x 35.60mm (Din-rail mounting)		
Weight	90g 140g (Chassis mounting) 180g (Din-rail mounting)		

Typical characteristics

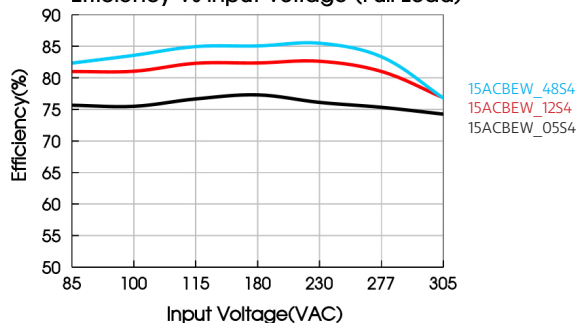


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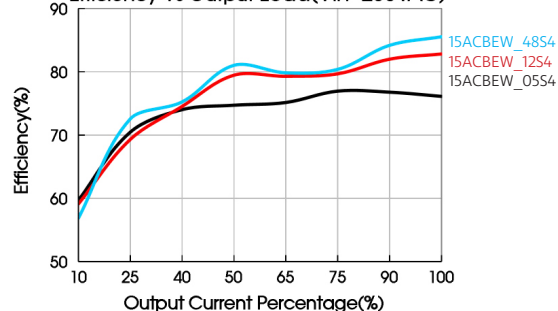
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Efficiency

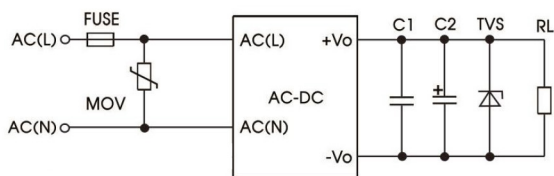
Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load (Vin=230VAC)



Typical application circuit

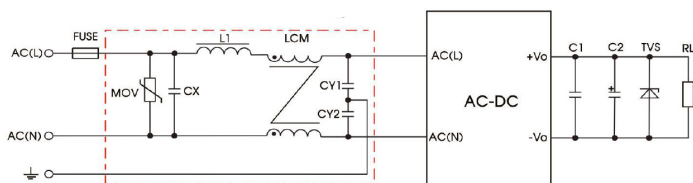


Note:

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.

Model	C1 (μF)	C2 (μF)	Fuse	MOV	TVS
15ACBEW_03S4	1	680	2A/300V slow-blow, required	S14K350	SMBJ7.0A
15ACBEW_05S4	1	680	2A/300V slow-blow, required	S14K350	SMBJ7.0A
15ACBEW_09S4	1	480	2A/300V slow-blow, required	S14K350	SMBJ12A
15ACBEW_12S4	1	220	2A/300V slow-blow, required	S14K350	SMBJ20A
15ACBEW_15S4	1	220	2A/300V slow-blow, required	S14K350	SMBJ20A
15ACBEW_24S4	1	68	2A/300V slow-blow, required	S14K350	SMBJ30A
15ACBEW_48S4	1	33	2A/300V slow-blow, required	S14K350	SMBJ64A

EMC compliance recommended circuit

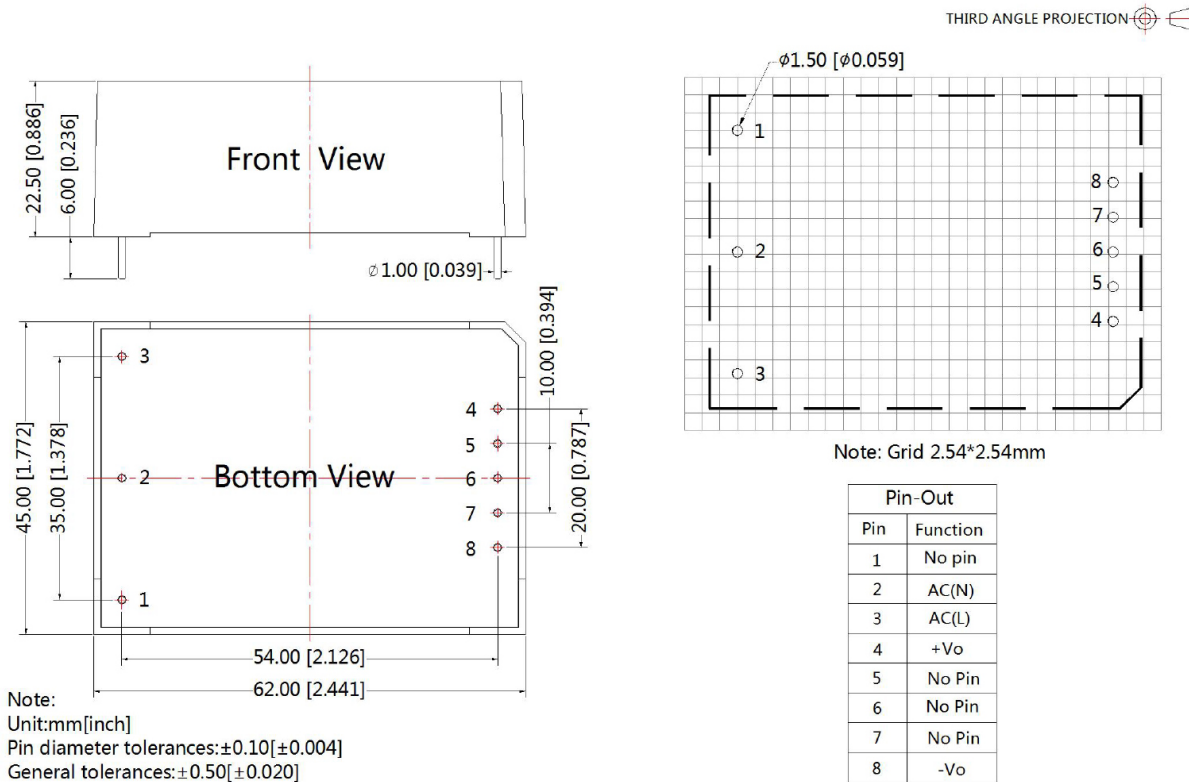


Component	Recommended value
MOV	S14K350
CY1, CY2	1000pF/400VAC
CX	0.1μF/310VAC
LCM	10mH
L1	4.7μH/2A
FC-LX1D	2KV/4KV EMC filter
FUSE	2A/300V slow-blow, required

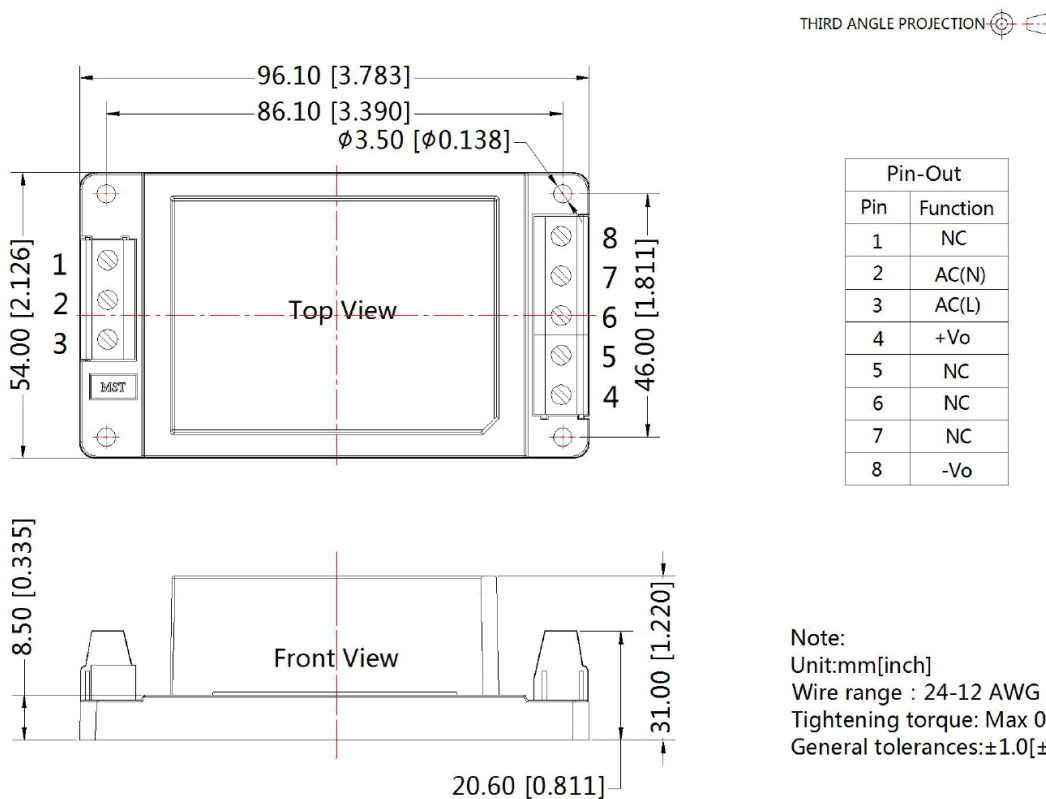
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Mechanical dimensions



Chassis mounting

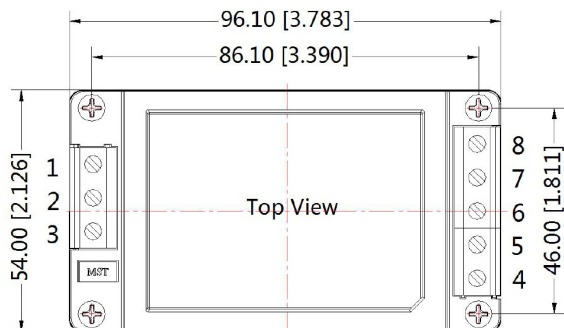


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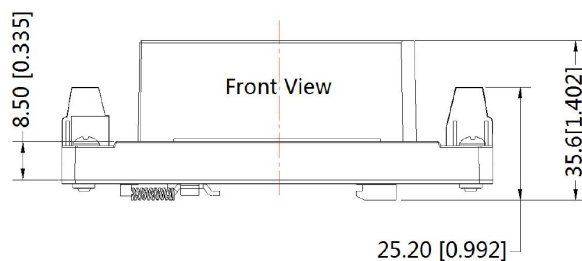
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Din-rail mounting

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Function
1	NC
2	AC(N)
3	AC(L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



Note:
 Unit: mm[inch]
 Wire range: 24-12 AWG
 Tightening torque: Max 0.4 N·m
 Mounting rail: TS35, rail needs to connect safety ground
 General tolerances: ± 1.0 [± 0.040]