Technical Specification

AES30W2 Series

30W, Universal Input AC/DC Converters

FEATURES

- Wide input range: 85-265VAC/120-370VDC
- 30W isolated outputs
- Efficiency up to 79%
- Single, bipolar, dual and triple outputs available
- Fixed switching frequency, predicted EMI
- Stable @ no-load operation
- Reinforced isolation: 3KVAC I/O
- Impact size, 2.76"×1.89"×0.93"
- Extensive self-protection, OTP, OCP and short circuit protection
- Outstanding thermal performance, full power @70°C ambient temperature
- Fully encapsulated, high reliability
- Compliance with IEC/EN 62368-1 safety standard

PRODUCT OVERVIEW

The AES30W2 series use advanced power processing, control and packaging technologies to provide the high performance, flexibility, reliability and cost effectiveness of a mature power converter. Wide input range of 85-265VAC/120-370VDC (220VAC nominal) is ideal for automation, power grid, industrial control, data acquisition, signal control, instrumentation, test and measurement, and distribution power system.

A wealth of self-protection features included over temperature shutdown, over current protection with "hiccup" autorestart technique, and indefinite short-circuit protection.

Advanced fully encapsulated package technology provides outstanding thermal performance, delivers full power @ 70℃ ambient temperature, no need for extra heat-sink, which is ideal for ruggedized applications involving harsh environments.

The AES30W2 series are designed to safety standards IEC/EN 62368-1.

Models Selections

Basic Models	Input Voltage [VAC]	Input Voltage Range [VAC]/[VDC]	Output Voltage [VDC]	Output Current [A]	Capacitive Load Max. [μF]	Efficiency typ. [%]
AES30W2S05	220	85-265/120-370	5	6	4700	76
AES30W2S12	220	85-265/120-370	12	2.5	2200	77
AES30W2S15	220	85-265/120-370	15	2	2200	78
AES30W2S24	220	85-265/120-370	24	1.25	1000	78
AES30W2B05	220	85-265/120-370	±5	±3	±2200	77
AES30W2B12	220	85-265/120-370	±12	±1.25	±1000	79
AES30W2B15	220	85-265/120-370	±15	±1	±470	79
AES30W2D0505	220	85-265/120-370	+5/+5	5.2/0.8	2200/1000	75
AES30W2D0512	220	85-265/120-370	+5/+12	4.0/0.8	2200/470	76
AES30W2D0515	220	85-265/120-370	+5/+15	3.6/0.8	2200/470	76
AES30W2D0524	220	85-265/120-370	+5/+24	3.6/0.8	2200/330	76

Technical Specification

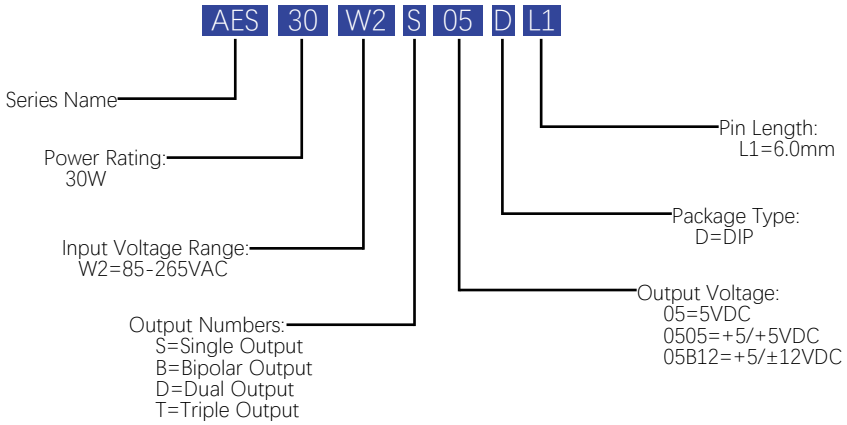
AES30W2 Series

30W, Universal Input AC/DC Converters

Models Selections

Basic Models	Input Voltage [VAC]	Input Voltage Range [VAC]/[VDC]	Output Voltage [VDC]	Output Current [A]	Capacitive Load Max. [μF]	Efficiency typ. [%]
AES30W2T05B12	220	85-265/120-370	+5/±12	4.4/±0.34	2200/±470	75
AES30W2T05B15	220	85-265/120-370	+5/±15	4.4/±0.27	2200/±330	76
AES30W2T05B24	220	85-265/120-370	+5/±24	4.4/±0.17	2200/±220	77

Model Numbering



Absolute Maximum Ratings

Parameters	Conditions	Min.	Typ.	Max.	Units
Operating Case Temperature		-40		95	°C
Operating Environment Temperature		-40		70	°C
Storage Temperature Range		-40		85	°C
Soldering Temperature	Wave Soldering < 10s			260	°C

EMC Compliance

Conducted Emission	EN55032	Class B (with external filter)
Radiated Emission	EN55032	Class B (with external filter)
Conducted Susceptibility	IEC/EN61000-4-6	10Vrms, Criteria A
Radiated Susceptibility	IEC/EN61000-4-3	3V/m, Criteria A
EFT	IEC/EN61000-4-4	±2KV, Criteria A (With external filter)
Surge	IEC/EN61000-4-5	Line to line ±1KV, line to PE ±2KV
ESD	IEC/EN61000-4-2	±4KV Contact ±8KV Air Criteria A
Voltage Fluctuations	IEC/EN61000-3-3	Complies
Voltage Dips, Interruptions	IEC/EN61000-4-11	Class 2, Criteria B

General Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to output		3000		VAC
	Input to PE		1500		VAC
	Output to PE		500		VAC
Isolation Resistance (Viso=500VDC)	Input to output		10		MΩ
	Input to PE		10		MΩ
	Output to PE		10		MΩ
Leakage Current				2	mA
Isolation Safety Rating	Reinforced insulation				
Switching Frequency			100		KHz
Vibration	IEC61373:1999 Category I, Class B, Body mounted				
Shock	IEC61373:1999 Category I, Class B, Body mounted				

Input Specifications					
Parameters	Conditions	Min.	Typ.	Max.	Units
Operating Voltage Range		85	220	265	VAC
		120		370	VDC
Rise Time		20			mS

Performance Data (5 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		4.85	5.00	5.15	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation		-1		+1	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②		-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		4700	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (12 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		11.64	12.00	12.36	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation		-1		+1	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①		-1		+1	%
Dynamic Load Peak Deviation ②		-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		2200	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (15 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		14.55	15.00	15.45	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation		-1		+1	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①		-1		+1	%
Dynamic Load Peak Deviation ②		-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		2200	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (24 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		23.28	24.00	24.72	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation		-1		+1	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①		-1		+1	%
Dynamic Load Peak Deviation ②		-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		1000	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (±5 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		±4.85	±5.00	±5.15	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main output	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		±2200	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (±12 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		±11.64	±12.00	±12.36	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①		-1		+1	%
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		±1100	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (±15 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint		±14.55	±15.00	±15.45	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①		-1		+1	%
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load		0		±470	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/+5 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2	4.85	5.00	5.15	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2	0		1000	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/+12 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2	11.64	12.00	12.36	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2	0		470	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/+15 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2	14.55	15.00	15.45	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2	0		470	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/+24 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2	23.28	24.00	24.72	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2	0		330	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/±12 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2 & Vout3	±11.64	±12.00	±12.36	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2/Vout3	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2 & Vout3	0		±470	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/±15 Vout)

Output Specifications

Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2 & Vout3	±14.55	±15.00	±15.45	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2/Vout3	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2 & Vout3	0		±330	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (+5/±24 Vout)

Output Specifications

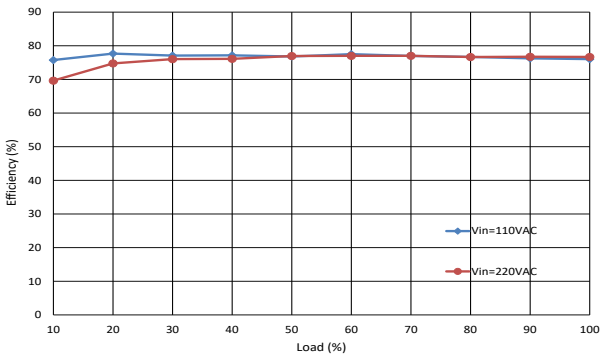
Parameters	Conditions	Min.	Typ.	Max.	Units
Output Power				30	W
Output Voltage Setpoint	Vout1	4.85	5.00	5.15	V
	Vout2 & Vout3	±23.28	±24.00	±24.72	V
Vout Accuracy		-3		+3	%
Line Regulation		-0.5		+0.5	%
Load Regulation	Main output	-1		+1	%
	Vout2/Vout3	-5		+5	%
Temperature Coefficient		-0.02		+0.02	% of Vout /°C
Total Regulation		-5		+5	%
Over Current Protection	Hiccup	120			% of Iout
Short Circuit Protection	Hiccup, auto recover				
Ripple & Noise Max. ①				100	mV pk-pk
Dynamic Load Peak Deviation ②	Main load	-5		+5	%
Dynamic Load Response				500	μS
Capacitive Load	Vout1	0		2200	μF
	Vout2 & Vout3	0		±220	μF
Minimum Load	No minimum load requirement				

Notes
① Ripple & noise is tested with certain filter parameters, please see output ripple & noise in technical notes on page 22 for more details.
② The load is set from 50%-75%-50% of Imax, di/dt=0.1A/μS, Cout=220μF.

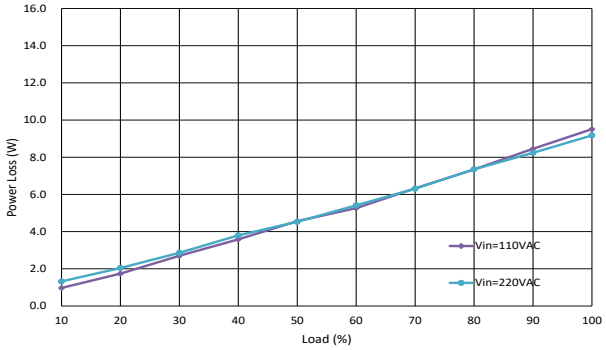
All specifications are tested at 25 ℃ ambient temperature, nominal input voltage, rated output current conditions unless otherwise specified.

Performance Data (5 Vout For Example)

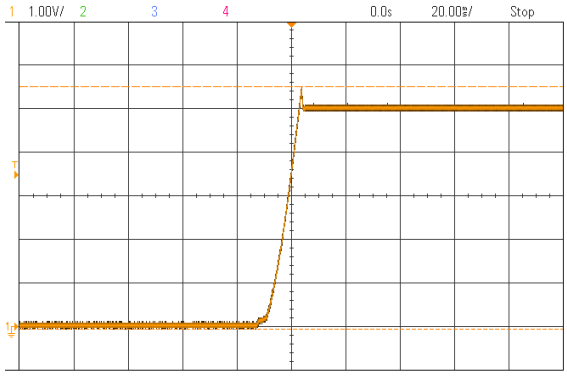
EFFICIENCY VS LOAD



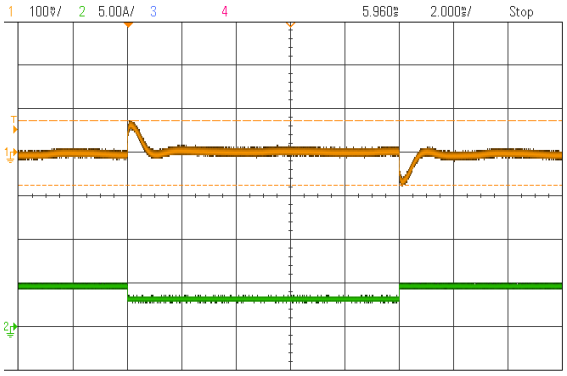
POWER DISSIPATION VS LOAD



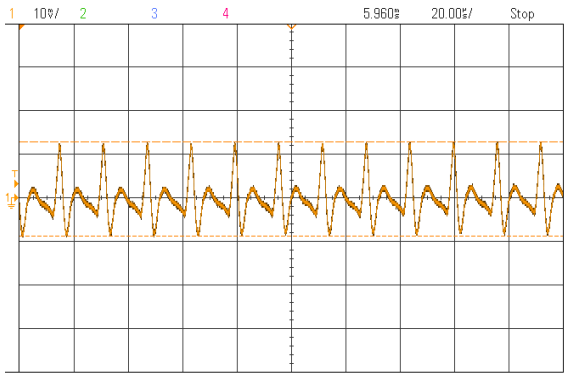
START UP
Ch1: Vout



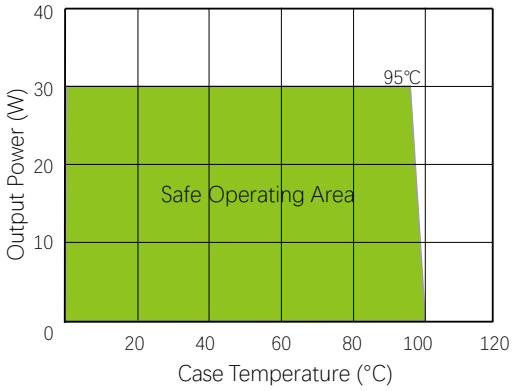
DYNAMIC RESPONSE Ch1: Vout Ch2: Iout
50%~75%~50% of I_{max}, di/dt=0.1A/μs



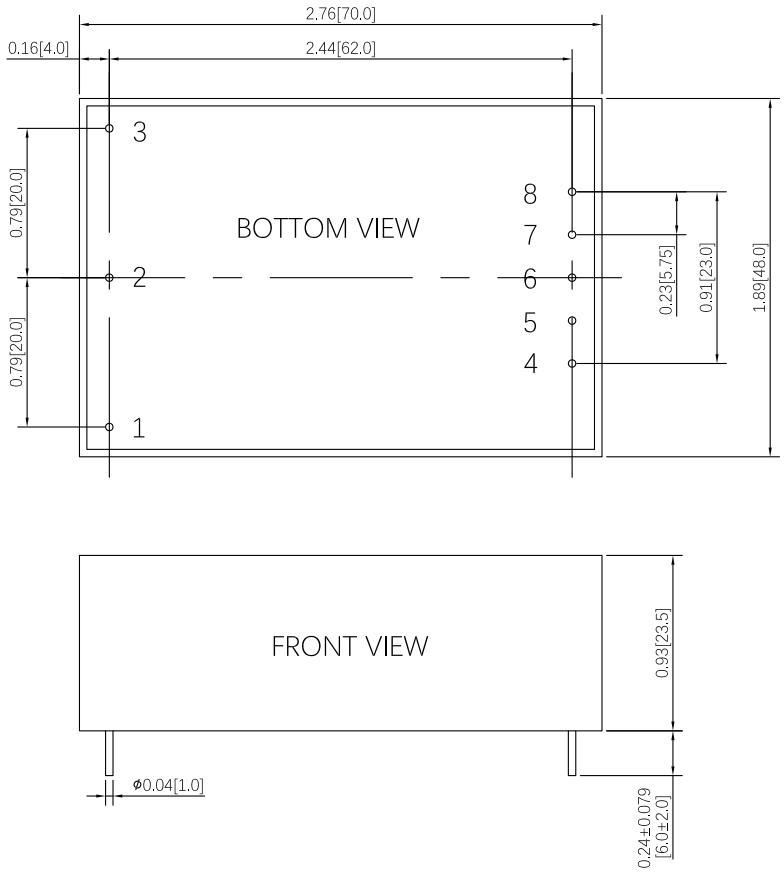
RIPPLE & NOISE 20MHz BANDWIDTH
Ch1: Vout



THERMAL DERATING



Mechanical Specifications



PIN:
PIN1~PIN8: Φ0.04inch
Material: Copper Alloy
Finish: Matte Tin Over Nickel Plate

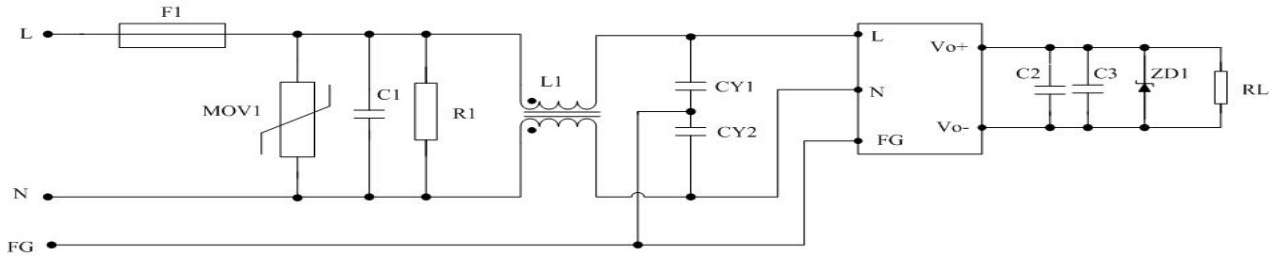
TOLERANCE:
X.XX=±0.02[0.5]
X.XXX= ±0.010[0.25]

Dimensions are in inches [mm]
Weight: ~80g.

PIN CONNECTIONS				
Pin	Function			
	Single Output	Bipolar Output	Dual Output	Triple Output
1	PE	PE	PE	PE
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vout	-Vout	-Vout1	-Vout1
5	/	/	+Vout1	+Vout1
6	/	COM	/	-Vout2
7	/	/	-Vout2	COM
8	+Vout	+Vout	+Vout2	+Vout2

Emissions Performance

Density Power measures its products for conducted emissions and radiated emission against the EN55032 standards. The AC/DC converter passed EN55032 conducted emission and radiated emission Class B with add the recommended EMI filter shows as below:



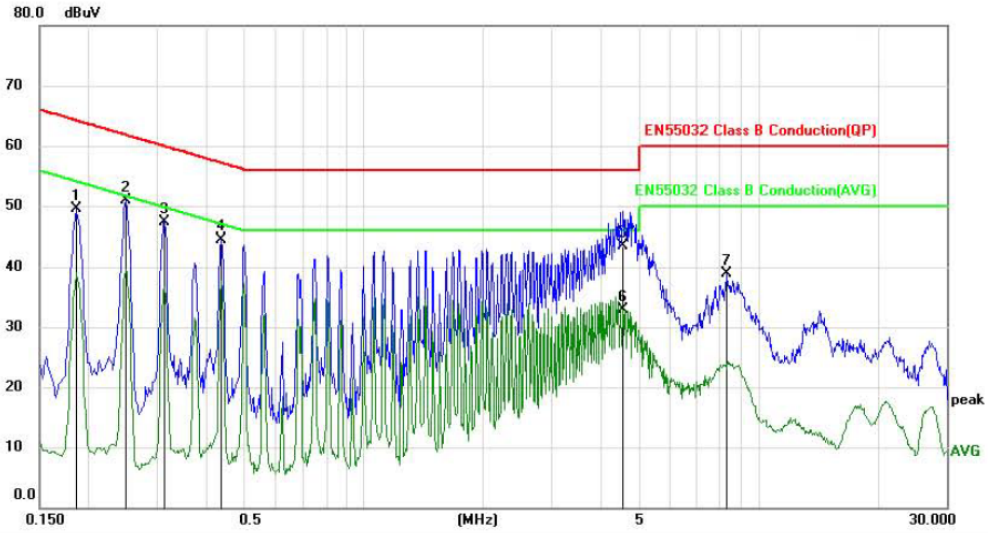
Conducted Emissions and Radiated Emission Test Circuit

Recommended Filter Parameters (5 Vout Type)

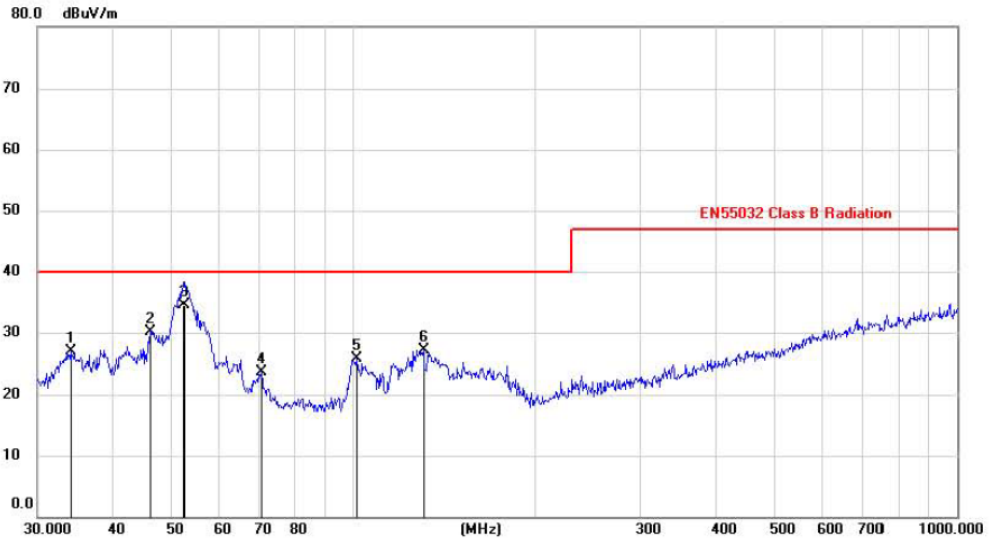
REFERENCE	DESCRIPTION	REFERENCE	DESCRIPTION
F1	FUSE, 2A/250V, Slow-blown	CY2	4700PF/400VAC, Y2
MOV1	471KD14	CY3	4700PF/400VAC, Y2
C1	0.47μF/275VAC, X2	C2	1μF/50V
R1	1MΩ/2W	C3	470μF/10V
L1	16mH	ZD1	SMBJ7.0A
NOTE	In case that custormer requires special EMC performance for particular applications, please optimize the EMI filter or contact our FAE for support.		

Emissions Performance

Conducted Emission Test Results:



Radiated Emission Test Results:



Technical Notes

INPUT FUSING

Certain applications may require fuse at the inputs of power conversion components. The AES30W2 modules are not internally fused. We strongly recommend a slow-blown fuse to be used.
For safety agency approvals, the installer must install the converter in compliance with the end user safety standard.

TYPICAL APPLICATION CONNECTION

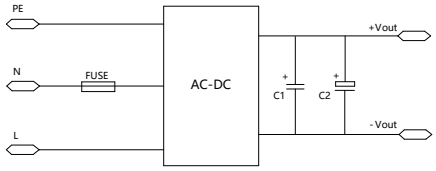


Figure 1·Typical Application Connection (Single Output)

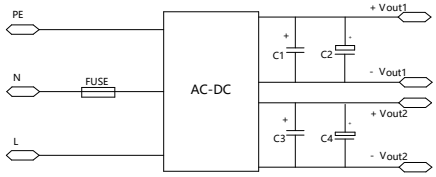


Figure 2·Typical Application Connection (Vout1 and Vout2 Isolated)

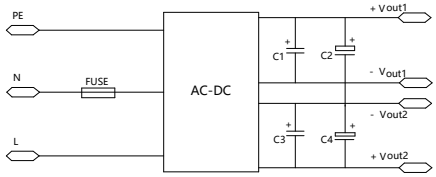


Figure 3·Typical Application Connection (Common Ground)

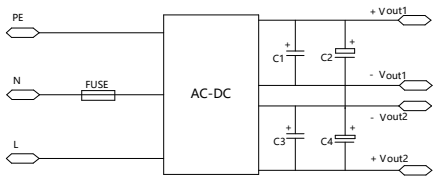


Figure 4·Typical Application Connection (Triple Output)

Figures 1-4 show the typical use of the module connection.

OUTPUT RIPPLE & NOISE

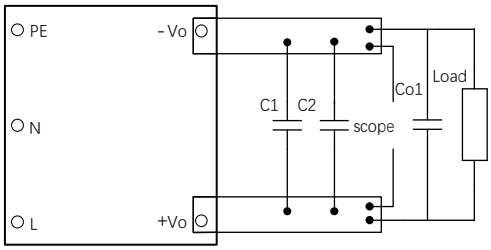


Figure 5· Output Ripple

These AES30W2 modules' output ripple and noise is measured at the rated input voltage and output current, along with 10uF MLCC capacitor and 0.1uF MLCC used in parallel with appropriate voltage ratings and placed as C1 & C2 shown in the figure 5. The scope's bandwidth is set to 20MHz. External output capacitors are required to further reduce the ripple & noise. The output capacitors should be low ESR and appropriate frequency response with appropriate voltage ratings, and must be located as close to the converters as possible, also PCB layout must be taken into consideration.

CURRENT LIMITING

The output voltage remains constant as the output current increases. However, once the output current is over the specified Output DC Current Limit, the converter turns off.
The converter then enters a “hiccup mode” where it repeatedly turns on and off until the short circuit condition is removed. This prevents excessive heating of the converter or the load board.

SHORT CIRCUIT CONDITION

When the converter is in current-limit mode, the output voltage will drop as the output current demand increases and then the converter will be shut down.If the short-circuit condition persists,

Technical Notes

another shutdown cycle will be initiated. This on/ off cycling is referred to as "hiccup" mode. The hiccup cycling reduces the average output current, thereby preventing internal temperatures from rising to excessive levels. The module is capable of enduring an indefinite short circuit output condition.

This product is subject to the following operating requirements and the Life and Safety Critical Application Sales Policy:
Refer to: http://www.densitypower.com

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