

**JASPER
ELECTRONICS**



JBPA-350W Series

Single Output 350W



JBPA SERIES FRONT VIEW

GENERAL OVERVIEW

The JBPA-350 Series is a highly reliable and efficient power supply. It's capable of delivering 200W convection-cooled and up to 350W with force air cooling with a 10CFM Fan. It offers a variety of single voltages output ranging from 12V to 56V with full range input 90-264VAC. The JBPA-350 Series also minimizes no load power, reducing running cost.

SPECIAL FEATURES:

- 200W Convection-cooled / 350W Forced-cooled Rating/ 450W Max Power
- High Peak Output Power under 200ms(600W)
- High efficiency up to 94%
- Compact footprint of 2.5"x 4.5"& Low profile 1.25" (Open Frame)
- Less than 0.3 W No Load Input Power
- 12V Fan Output
- Active Power Factor Correction
- ITE & Medical Compliant
- Fully secure(OTP, OVP, OCP, SCP)
- Three Year Warranty
- Custom Modifications Available

SAFETY (TO BE SUBMITTED)

- UL62368-1
- CB Report IEC62368-1
- TUV/EN EN62368-1
- CE

APPLICATIONS

- Printers
- Instrumentation
- Lighting
- Industrial Applications
- Applied Computing
- Robotics
- Wireless Communications
- Renewable Energy
- Test and Measurement
- (Medical Applications)



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ISO9001:2015

American Systems
REGISTRAR

Rev B-April-15-2024

TECHNICAL SPECIFICATIONS

INPUT					
Parameter	Description/ Condition	Min	Nom	Max	Units
$V_{i\ nom}$	Nominal Input Voltage	100		240	VAC
V_i	Input Voltage Ranges	Normal Operating (V_{min} to V_{max})		264	VAC
$I_{i\ max}$	Max Input Current	$V_{in} = 90VAC/60HZ, Full Load$		4.4	A_{rms}
$I_{i\ p}$	Inrush Current	$264V_{rms}, 25^{\circ}C$		30	A_p
	Leakage Current			0.3	mA
F_i	Input Frequency	47	50/60	63	Hz
PF	Power Factor	$V_{in} = 230V/50Hz$		0.95	W/VA
$V_{i\ on}$	Turn-On Voltage	Ramping Up		89	VAC
$V_{i\ off}$	Turn-Off Voltage	Ramping Down		83	VAC
Power	Rated Power	$V_{in} = 90VAC-264VAC Full Load$		450	W
		$V_{in} = 230V@ 20\% Load, TA = 25^{\circ}C$		90	
η	Efficiency without Fan	$V_{in} = 230V@ 20\% Load, TA = 25^{\circ}C$		94	%
		$V_{in} = 230V@ 20\% Load, TA = 25^{\circ}C$		92	
T_{hold}	Hold-up Time	16			ms

*Specifications subject to change without notice.

1.1 INPUT FUSE

An internal 5A input fuse, in series with the input line, protects against severe defects.

1.2 INRUSH CURRENT

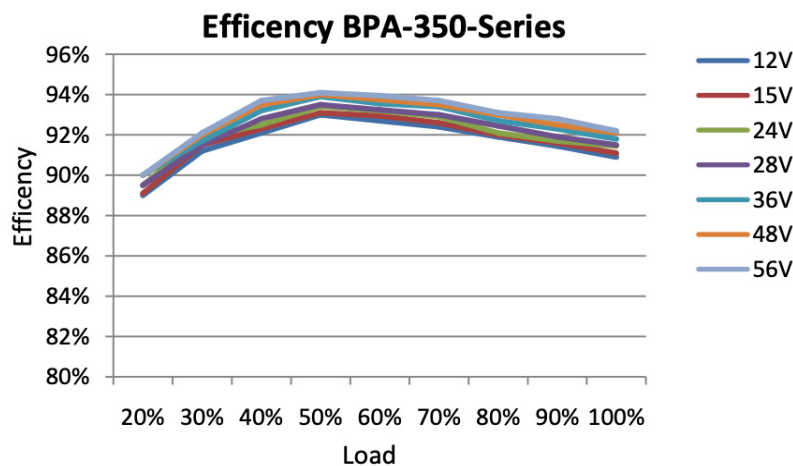
When the power supply module is connected to the main input, it exhibits a low and short peak current due to an X-capacitances initial charge. The internal bulk capacitor is charged through a controlled NTC circuit which will limit the inrush current.

1.3 INPUT UNDER-VOLTAGE

If the input voltage stays below the specified input voltage range for more than 10 seconds the main output will shut down. The power supply module will automatically return to normal operational condition when the input voltage returns to the specified range.

1.4 POWER FACTOR CORRECTION

Power factor correction (PFC) is achieved by controlling the input current waveform synchronous with the input voltage. A fully digital controller is implemented giving outstanding PFC results over wide input voltage and load ranges.



TECHNICAL SPECIFICATIONS

OUTPUT						
Parameter	Description/ Condition	Min	Nom	Max	Units	
Main Output V_1						
$V_{i\ nom}$	Nominal Output Voltage	$0.5 * I_{i\ nom}, T_{amb} = 25^\circ C$	12		56	Vdc
$V_{1\ set}$	Output Setpoint Accuracy	$0.5 * I_{i\ nom}, T_{amb} = 25^\circ C$	-0.04		0.04	V_1
$P_{1\ nom}$	Nominal Output Power	$V_1 = 12 V_{DC}$		350	450	W
P_{pk}	Peak Output Power	For Less than 200 ms			600	W
$I_{1\ nom}$	Nominal Output Current	$V_1 = 12 V_{DC}$	0		29.2	A_{DC}
V_{1pp}	Output Ripple Voltage	$V_{1\ nom}, I_{1\ nom}, 20MHz BW$		0.5		$\%V_{pp}$
$Dv_{1\ Load}$	Load Regulation	$V_i = V_{i\ nom}, 0 - 100\% I_{1\ nom}$	-1		1	$\%V$
$Dv_{1\ Line}$	Line Regulation	$V_i = V_{i\ min} \dots V_{i\ max}$	-0.2		0.2	$\%V$
$Dv_{1\ tot}$	Total Regulation	$V_{i\ min}$ to $V_{i\ max}, 0$ to $100\% I_{1\ nom}, T_{a\ min}$ to $T_{a\ max}$	-1		1	$\%V_1$
Dv_{dyn}	Dynamic Load Regulation	I_{out} : 10%-60% of full load; 50--100% of full load	-2		2	$\%V$
T_{rec}	Recovery Time	$dI_1/dt = 1A/\mu s$, recovery within 1% of $V_{1\ nom}$		0.2	1	ms
t_{ACV1}	Start-Up Time from AC	Varies with Input Line			3	sec
$tV_{1\ rise}$	Rise Time	$V_1 = 10\% \dots 90\% V_{1\ nom}$			100	ms
C_{Load}	Capacitive Loading	$T_{amb} = 25^\circ C$	30000			μF
MTBF	Mean Time Before Failure	MIL-HDBK-217F + 25°C GB		300		kHrs

*Specifications subject to change without notice.

2.1. FAN OUTPUT

12V/0.5A FAN1 connector is protected by a PTC resettable fuse.

2.2. OUTPUT VOLTAGE RIPPLE

Ripple and noise are measured with 0.1 μF of ceramic capacitance and 10 μF of tantalum capacitance on each of the outputs.

PROTECTION					
Parameter	Description/ Condition	Min	Nom	Max	Units
F_1	Input Fuse	Not User Accessible, fast acting		5	A
$V_{1\ OV}$	Over Voltage Threshold V_1	110		130	$\%V_{dc}$
t_{OVV1}	Over Voltage Latch Off Time V_1			1	ms
$I_{V1\ lim}$	Current Limit	110		140	$\%A$
$V_{1SC\ Max}$	Short Circuit Current V_1	$V_1 < 3V$		160	A
$t_{V1\ SC\ off}$	Short Circuit Laycj Off Time	Time when in Short Circuit		200	us
T_{SD}	Over Temperature Protection	Internal Temperature		115	$^\circ C$

3.1 OVERVOLTAGE PROTECTION

The power supply module will shut down if the output voltage exceeds the over voltage threshold. The power supply module must be manually repowered by recycling AC Source after a 1 min wait time.

3.2 OVERLOAD PROTECTION

The power supply module will shut down and latch if the power supply exceeds the maximum power for more than 200 ms. The power supply module must be manually repowered by recycling AC Source after a 1 min wait time.

3.3 SHORT-CIRCUIT PROTECTION

The power supply module will shut down and latch if the power supply exceeds the maximum power for more than 200 ms.

The power supply module must be manually repowered by recycling AC Source after a 1 min wait time.

3.4 OVER TEMPERATURE PROTECTION

The power supply module will shut down if temperature exceeds the over temperature threshold (internal temperature).

The power supply module must be manually repowered by recycling AC Source after a 1 min wait time.

ELECTROMAGNETIC COMPATIBILITY		
Parameter	Description/ Condition	Criterion
ESD Contact Discharge	IEC/EN61000-4-2, Level 4 ±15kV	A
Radiated Electromagnetic Field	IEC/EN61000-4-3,Level 1 (1V/m) 2.0 - 2.7GHz IEC/EN61000-4-3,Level 2 (3V/m) 80-1000MHz,1.4-2.0GHz	A A
Electrical Fast Transients/ Burst	IEC/EN61000-4-4,level 2 AC port ±1kV,1 minute	A
Surge	IEC/EN61000-4-5, Level 2 AC port ±1kV,20sec CM Level 3 AC port ±2kV,20sec CM	A A
RF Conducted Immunity	IEC/EN 61000-4-6,Level 2, 3 V,CW,0.15 ... 80MHz Amplitude Modulation 1kHz/80%	A
Magnetic Field Immunity	IEC/EN 61000-4-8,Level 2 3A/m	A
Voltage Dips and Interruptions	IEC/EN61000-4-11 1.0% residual voltage, 0.5 cycle 2.0% residual voltage, 1 cycle 3.40% residual voltage, 5 cycles 4.70% residual voltage, 0.5 cycle 5.70% residual voltage, 25 cycles/50Hz 6.0% residual voltage, 250 cycles/50Hz	A B B A B B

*Specifications subject to change without notice.

EMISSION		
Parameter	Description/ Condition	Criterion
Conducted Emissions	EN 55022 / EN 55016-2-1 conducted	Class B
Radiated Emission	EN 55022 / EN 55016-2-1 radiated	Class A
Harmonics Emission	IEC61000-3-2,Vin =230VAC/50Hz,100% Load	Class A
AC Flicker	IEC61000-3-3,Vin=230VAC/50Hz,100% Load,<20Arms	Pass

*Specifications subject to change without notice.

ENVIRONMENTAL						
Parameter	Description/ Condition	Min	Nom	Max	Units	
T _A	Ambient Temperature	V _{i min} to V _{i max,I1 nom,JSB nom}	-40		70	°C
T _S	Storage Temperature	Non-Operational	-40		85	°C
	Altitude	Operational, Above Sea Level		5000 16400		Meter Feet
RH	Humidity	Non-Condensing	5		95	%
	Shock and Vibration Acceleration	IPC-9592B, Class II		3		Grms

*Specifications subject to change without notice.

*Derating linearly from 51 -70°C @50% load

7 CONNECTORS

Input (CN1) ----- Molex: 26-60-4030(3-Pin Connector)

Output (CN2) ----- Molex: 26-60-4100(10-Pin Connector) or Screw Terminal

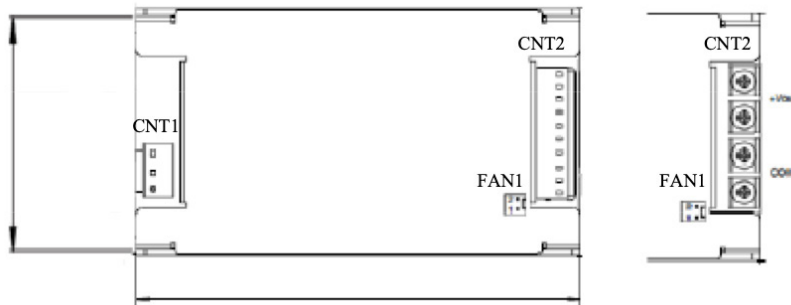
Fan Connector (Fan1) ----- AMP: 640456-2

INPUT CONNECTOR – CNT1 (MOLEX: 26-60-4030)	
Pin 1	Line
Pin 2	Not Fitted
Pin 3	Neutral

OUTPUT CONNECTOR – CNT2 (MOLEX: 26-60-4100)	
Pin 1-5	+Vout
Pin 6-10	Com

OUTPUT CONNECTOR – CNT2 (SCREW TERMINAL)	
Terminal 1-2	+Vout
Terminal 3-4	Com

FAN CONNECTOR – FAN1 (AMP: 640456-2)	
Pin 1	Fan(-)
Pin 2	Fan(+)



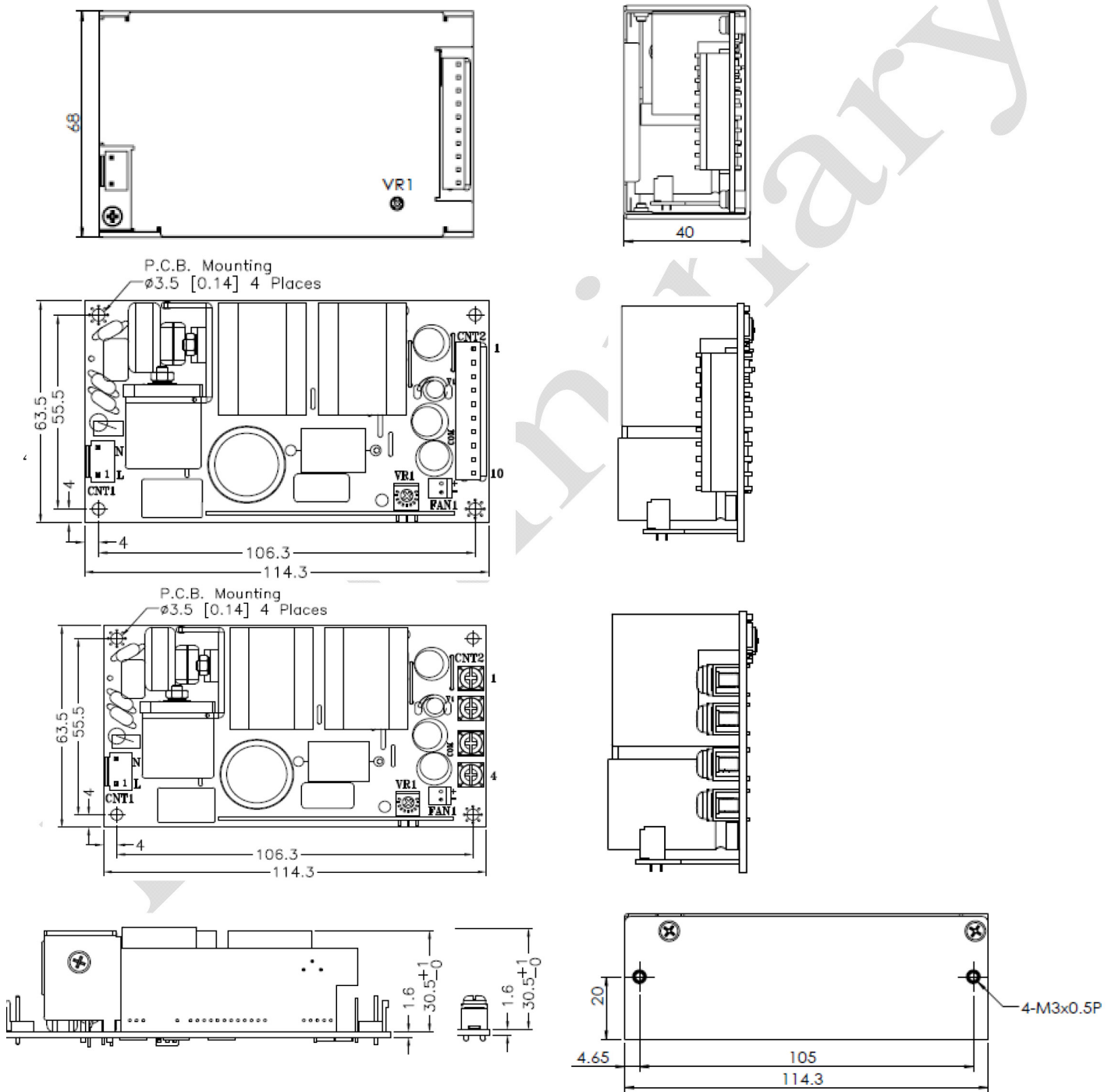
MODELS AND RATINGS

OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT				EFFICIENCY	MODEL NUMBER
		CONVECTION COOLED	FORCED-COOLED	MAX LOAD*	PEAK LOAD		
350W	12V	16.67A	29.16A	37.0A	50.0A	93%	JBPA-350-120
350W	15V	13.33A	23.33A	30.0A	40.0A	93%	JBPA-350-150
350W	24V	8.33A	14.58A	18.75A	25.0A	93.5%	JBPA-350-240
350W	28V	7.14A	12.50A	16.07A	21.4A	93.5%	JBPA-350-280
350W	36V	5.55A	9.72A	12.5A	16.7A	94%	JBPA-350-360
350W	48V	4.17A	7.29A	9.38A	12.5A	94%	JBPA-350-480
350W	56V	3.57A	6.25A	8.03A	10.7A	94%	JBPA-350-560

* Max Power represents the max power before the current limit turn –off. The power supply is protected by OTP; however we suggest limiting the max load to less than 10 s.

MECHANICAL				
Parameter	Description/ Condition	Open Frame	With Chassis	Units
	Width	63.5(2.5)	68(2.67)	
Dimension	Height	30.5(1.20)	40(1.60)	mm(in)
	Depth	114.3(4.5)	114.3(4.50)	
Weight		340(0.75)	454(1.0)	g(lbs)

TECHNICAL DRAWING



INNOVATIVE SPECIALTY DC POWER SYSTEMS

Standard and Custom Power Supplies from 5W to 10KW

TRAFFIC CONTROL POWER SUPPLIES



- 70-400+ Watts / 120 and 220 VAC Models Available
- CALTRANS TEES, NYSDOT, CDOT, GDOT Compliant for 332, 334, 336, 342, 344, and 346 Series cabinets
- RoHS and NEMA Compliant
- Custom labeling and barcoding available
- Ruggedization against shock / vibration / humidity available

CUSTOM POWER DISTRIBUTION ASSEMBLIES (PDAs)



- Compliant with TEES 2020
- 1U smaller than the PDA2-LX and PDA3-LX
- User accessible slots as specified
- Custom labeling and barcoding available
- Ruggedization against shock / vibration / humidity available

COMPACT PCI



- AC or DC input, 175W - 500W DC output, active PFC
- 3U x 8HP, 6U x 8HP sizes
- PICMG 2.11 compliant, UL/CSA, NEMKO/TUV/CE certified, ROHS compliant
- Ruggedization against shock/ vibration/ humidity optional

Primary Applications: Industrial Computing, Military, Satellite Comm, Test, Transportation, Telecom, Aerospace

SPECIALTY HOT-SWAPPABLE POWER SUPPLIES



- 200-1500W, Universal Input, 5-54VDC Output
- Hot Swap. N+1, 90+% Efficiency
- 1U Form Factors
- 30+ Variations for Various Applications Including Nuclear
- Ruggedization against shock/ vibration/ humidity optional

Primary Applications: Medical Equipment, Military, Test, Automotive, Computing, Audio, Sensitive Electronics

RACK POWER SYSTEMS



- 200W-1500W, 2-8 slots, single or mixed output voltages, up to 10KW total
- Single, dual, or individual unit AC or DC input
- Internally or externally redundant DC outputs
- Standard 19" and 23" size or user-specified configurations also available
- Ruggedization against shock/ vibration/ humidity optional

Primary Applications: Medical Equipment, Military, Test, Automotive, Computing, Audio, Sensitive Electronics

CUSTOMS & MODIFIED STANDARDS



- 75W-2KW
- Single to 7 outputs
- Designed and built to custom or semi-custom specifications
- Ruggedization against shock/ vibration/ humidity optional
- Custom electrical specs, chassis, paint, labeling, connectors, interface all available

Primary Applications: Medical Equipment, Military, Test, Automotive, Computing, Audio, Sensitive Electronics

LOW NOISE CONVECTION / CONDUCTION COOLED POWER SUPPLIES



- 200W-500W, 90—264VAC full range input with 12-54 VDC Output
- Wide operating temperature range / high efficiency
- Small form factors
- Ruggedization against shock/ vibration/ humidity optional

Primary Applications: Medical Equipment, Military, IT, Sensitive Electronics

MEDICAL ADAPTERS



- 6W-250W, Efficiency levels V & VI
- Desktop, Wall-mount, and Interchangeable AC plug types
- Large selection of output connectors – additional cable lengths available
- UL60601 (medical) approved adapters available
- Ruggedization against shock/ vibration/ humidity optional

