

**JASPER
ELECTRONICS**



CONTACT

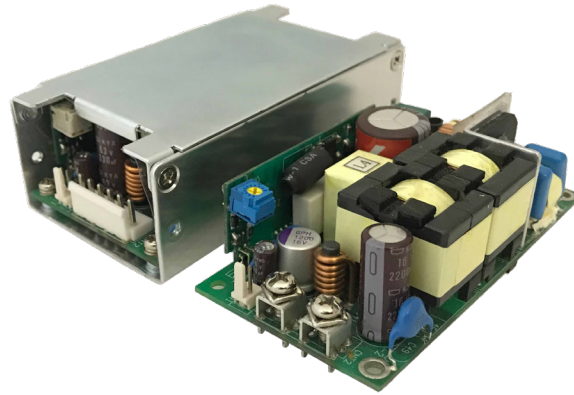
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JBPA-225 Series

Single Output 225W



JBPA SERIES FRONT VIEW

GENERAL OVERVIEW

The JBPA-225 Series is a highly reliable and efficient power supply. It's capable of delivering 120W convection-cooled and up to 225W with force air cooling with a 10CFM Fan. It offers a variety of single voltages output ranging from 12 to 56V with full range input 90-264VAC. The JBPA-225 Series also minimize no load power, reducing running cost.

SPECIAL FEATURES:

- 120W Convection-Cooled / 225W Forced-Cooled Rating
250W Max Power
- High Peak Output Power Under 200ms (300W)
- High Efficiency up to 94%
- Compact Footprint of 2"x 4" & Low Profile 1.25"
- 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)

- UL60950/ES60601 (Medical)
- CB Report IEC60950/ IEC60601 (Medical)
- TUV/EN EN60950/ EN60601
- CE

APPLICATIONS

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



ISO9001:2015

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 Input Current	$V_{in} = 90VAC/60HZ$, Full Load		2.2/1.1	A_{rms}
$I_{i\ p}$	Inrush Current	264V _{rms} , 25°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	$V_{in} = 90VAC-264VAC$		225	W
		$V_{in} = 230V@ 20\% \text{ Load, } TA = 25^\circ C$		90	
η	Efficiency without Fan	$V_{in} = 230V@ 50\% \text{ Load, } TA = 25^\circ C$		94	%
		$V_{in} = 230V@ 50\% \text{ Load, } TA = 25^\circ C$		92	
T_{hold}	Hold-up Time	16			ms

*Specifications subject to change without notice.

1.1 INPUT FUSE FAST-ACTING

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.

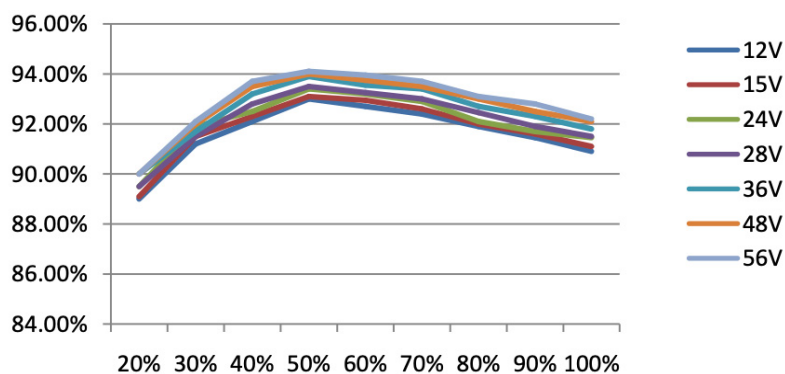
1.3 INPUT UNDER-VOLTAGE

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.

Efficiency BPA-225- Series @ 230VAC



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
$V_{i\ set}$	Output Setpoint Accuracy	$0.5 * I_{i\ nom}, T_{amb} = 25^\circ C$	-0.04		0.04	V_1
$P_{i\ nom}$	Nominal Output Power	$V_1 = 12 V_{DC}$		225	600	W
$I_{i\ pp}$	Nominal Output Current	$V_1 = 12 V_{DC}$	0		18.75	A_{DC}
$V_{i\ pp}$	Output Ripple Voltage	$V_{i\ nom}, I_{i\ nom}, 20MHz\ BW$		0.5		% V_{pp}
$Dv_{i\ Load}$	Load Regulation	$V_i = V_{i\ nom}, 0 - 100\% I_{i\ nom}$	-1		1	%V
$Dv_{i\ Line}$	Line Regulation	$V_i = V_{i\ min} \dots V_{i\ max}$	-0.2		0.2	%V
$Dv_{i\ tot}$	Total Regulation	$V_{i\ min}$ to $V_{i\ max}, 0$ to $100\% I_{i\ nom}, T_{a\ min}$ to $T_{a\ max}$	-1		1	% V_1
$Dv_{i\ dyn}$	Dynamic Load Regulation	I_{out} : 10%--60% of full load; 50--100% of full load	-2		2	%V
T_{rec}	Recovery Time	$di/dt = 1A/\mu s$, recovery within 1% of $V_{i\ nom}$		0.2	1	ms
t_{ACV1}	Start-Up Time from AC	Varies with Input Line			3	sec
C_{Load}	Capacitive Loading	$T_{amb} = 25^\circ C$			30000	μF
Mtbf	Mean Time Before Failure			300		kHrs

*Specifications subject to change without notice.

2.1. 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	
$V_{i\ OV}$	Over Voltage Threshold V_1	110		130		%Vdc	
t_{OVV1}	Over Voltage Latch Off Time V_1			1		ms	
$I_{V1\ lim}$	Current Limit	110		140		%A	
$V_{i\ SC\ Max}$	Short Circuit Current V_1	$V_1 < 3V$			160	A	
$t_{V1\ SC\ off}$	Short Circuit Latch Off Time	Time to Latch Off when in Short Circuit			200	ms	
T_{SD}	Over Temperature Protection	Internal Temperature			115	120	$^\circ C$

*Specifications subject to change without notice.

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.

SAFETY/ APPROVAL				
Parameter	Description/ Condition	Min	Max	Units
Agency Approvals	Must be submitted for approval for the latest edition of Approved by the following standards: UL/cUL 60950-1, ES60601-1 IEC/EN 60950-1, IEC/EN 60601	Approved By Independent Body		
Isolation Strength	Input(L/N) to case (PE) Input (L/N) to output Output to case (PE)	1500 4000 1500	1 MOPP 2 MOPP 1 MOPP	Vrms Vrms VDC

ELECTROMAGNETIC COMPATIBILITY		
Parameter	Description/ Condition	Criterion
Medical Device EMC	IEC60601-1-2	A
Low Voltage PSU EMC	EN61204-3	A
ESD Contact Discharge	IEC/EN61000-4-2, Level 4 ±8kV	A
ESD Air Discharge	IEC/EN61000-4-2, Level 3 ±15V	A
Radiated Electromagnetic Field	IEC/EN61000-4-3,Level 3 (3V/m)	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,1 min CM, Level 3 AC port	A A A
RF Conducted Immunity	IEC/EN 61000-4-6,Level 3	A
Magnetic Field Immunity	IEC/EN 61000-4-8,Level 4	A
Voltage Dips and Interruptions	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 A B A A 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
Acoustical Noise	IEC61000-3-3,Vin=230VAC/50Hz,100% Load,<20Arms	-

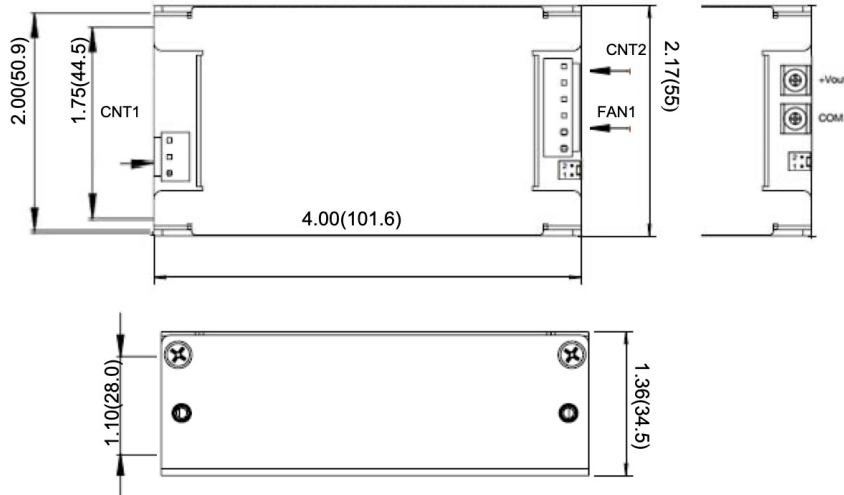
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ENVIRONMENTAL					
Parameter	Description/ Condition	Min	Nom	Max	Units
T _A	Ambient Temperature	V _{i min} to V _{i max,I1 nom,ISB nom}		70*	°C
T _S	Storage Temperature	Non-Operational		85	°C
	Altitude	Operational, Above Sea Level	5000 16400		Meter 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

MECHANICAL			
Parameter	Description/ Condition	Nom	Units
Dimensions	Width	50.9(2.00)	
	Height	31.25(1.25)	mm(in)
	Depth	101.6(4.00)	
Weight	Without Chassis	195(0.43)	g(lbs)



MODELS AND RATINGS

OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT				FAN OUTPUT	EFFICIENCY	MODEL NUMBER
		CONVECTION-COOLED	FORCED-COOLED	MAX LOAD	PEAK LOAD			
225W	12V	12.50A	18.75A	20.8A	25.0A	12V/0.5A	93%	JBPA-225-120
225W	15V	10.00A	15.00A	16.7A	20.0A	12V/0.5A	93%	JBPA-225-150
225W	24V	6.25A	9.38A	10.4A	12.5A	12V/0.5A	93.5%	JBPA-225-240
225W	36V	4.16A	6.25A	6.95A	8.33A	12V/0.5A	93.5%	JBPA-225-360
225W	48V	3.10A	4.69A	5.20A	6.25A	12V/0.5A	94%	JBPA-225-480
225W	56V	2.14A	4.00A	4.46A	5.26A	12V/0.5A	94%	JBPA-225-560

CONNECTORS

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

Output (CN2) -----Molex: 26-60-4060(6-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: 26-60-4060)	
Pin 1	+Vout
Pin 2	+Vout
Pin 3	+Vout
Pin 4	Com
Pin 5	Com
Pin 6	Com

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

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

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

