ABC300 Series

AC-DC Open Frame Power Supplies

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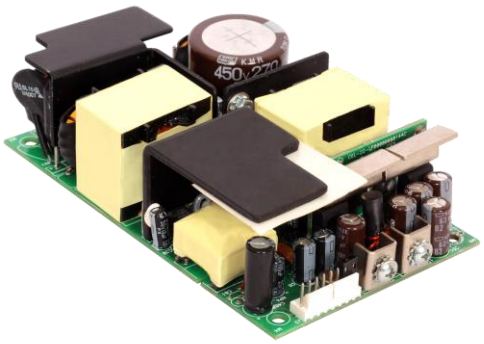
Please refer to exact equivalent product series
WLT300



The ABC300 Series of open-frame power supplies, with its wide universal 90-264 VAC input range and high power density, is available at 300 W of output power and a variety of single output voltages.

The high efficiency and high power density of the ABC family ensures minimal power loss in end-use equipment, thereby facilitating higher reliability, easier thermal management and meets regulatory approvals for environmentally-friendly end products.

These power supplies are ideal for telecom, datacom, industrial equipment and other applications.

Key Features & Benefits

- 5 x 3 x 1.5 inch form factor
- 200 W convection cooled
- No minimum load required
- 5 V Standby output
- 12 V Fan output
- Inhibit & Power Good signals
- IEC Protection Class Options:
  - Class I: Earth pin J4 (no suffix)
  - Class II: No Earth pin (-2 suffix)
- IEC / EN / UL 62368-1 Compliant
- RoHS Compliant
- CE marked

Applications

- Instrumentation
- Lighting
- Industrial Applications
- Applied Computing
- Renewable Energy
- Test and Measurement
- Robotics
- Wireless Communication

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1. MODEL SELECTION

MODEL	CONNECTOR	OUTPUT VOLTAGE	MAX LOAD		MINIMUM LOAD	RIPPLE & NOISE [1]	POWER
			CONVECTION	300 LFM			
ABC300-1T05G	Screw Terminal	5 VDC	28.0 A	40.0 A	0.0 A	2%	200 W
ABC300-1T12G	Screw Terminal	12 VDC	16.67 A	25.0 A	0.0 A	2%	300 W
ABC300-1T15G	Screw Terminal	15 VDC	13.33 A	20.0 A	0.0 A	2%	300 W
ABC300-1T24G	Screw Terminal	24 VDC	8.33 A	13.54 A	0.0 A	2%	325 W
ABC300-1T30G	Screw Terminal	30 VDC	6.67 A	10.83 A	0.0 A	2%	325 W
ABC300-1T48G	Screw Terminal	48 VDC	4.17 A	6.77 A	0.0 A	2%	325 W
Cover-300-XBC [2]	Metal cover kit accessory						

1 Ripple is peak to peak with 20 MHz bandwidth and 10 µF (Electrolytic capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.
2 When used in Cover Kit, de-rate output power to 70 % under all operating conditions.

2. INPUT SPECIFICATIONS

Specifications are for nominal input voltage, 25°C unless otherwise stated.

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input Voltage	Universal	90 – 264 VAC / 120 – 390 VDC
Input Frequency		47 to 63 Hz
Input Current	120 VAC 230 VAC	3.2 A max 1.65 A max
No Load Power		0.8 W
Inrush Current	120 VAC 230 VAC	35 A max 65 A max
Leakage Current	120 VAC 230 VAC	< 150 µA < 300 µA
Switching Frequency	PFC converter (fixed) Resonant converter (variable)	80 kHz typical 35 to 250 kHz, 90 kHz typical

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3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Voltage [3]		12 to 48 V
Stand-by Output [4]		5 VDC
Output Power [5, 6]	Derate linearly to 80% from 90 VAC to 80 VAC input.	200 to 325 W
Efficiency	120 VAC 230 VAC	88% typical 92% typical
Hold Up Time	120 / 230 VAC	10 ms
Power Factor	120 VAC 230 VAC	0.98 0.95
Line Regulation		± 0.5 %
Load Regulation		± 2 %
Transient Response	50% to 100% load change, 50 Hz, 50% duty cycle, 0.1 A/µs,	< 10 %, recovery time < 5 ms
Rise Time		< 100 ms
Set Point Tolerance		± 1 %
Voltage Output Adjustment		± 3 %
Over Voltage Protection	Automatic recovery	110 to 150 %
Over Current Protection		110 to 150 %
Short Circuit Protection	Short term, automatic recovery	
Over Temperature Protection	Automatic Recovery	110° C primary heat sink
Cooling [7]	Convection: 5 V model	140 W max
	Convection: 12, 15, 24, 30 & 48 V models	200 W max
	With 300 LFM: 5 V model	200 W max
	With 300 LFM: 12 &15 V models	300 W max
	With 300 LFM: 24, 30 & 48 V models	325 W max

[3] Peak current rating on main output is 120% of max., lasting < 30 s with a maximum 10% duty cycle.
[4] Standby output voltage tolerance including set point accuracy, line and load regulation is +/-10%. Ripple and noise is less than 5%.
[5] Combined output power of main output, fan supply and standby supply shall not exceed max. power rating.
[6] Derate output power linearly to 80% from 90 VAC to 80 VAC input.
[7] Refer de-rating curves to determine output power over the entire operating temperature range

4. EMC SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Conducted Emissions	EN 55032-B, CISPR22-B, FCC PART15-B	Pass
Radiated Emissions	EN 55032 A; With external core (King core K5B RC 25x12x15-M in input cable)	Pass Level B
Input Current Harmonics	EN 61000-3-2	Class D
Voltage Fluctuation and Flicker	EN 61000-3-3	Pass
ESD Immunity	EN 61000-4-2	Level 3, Criterion A
Radiated Field Immunity	EN 61000-4-3	Level 3, Criterion A
Electrical Fast Transient Immunity	EN 61000-4-4	Level 3, Criterion A
Surge Immunity	EN 61000-4-5	Level 3, Criterion A
Conducted Immunity	EN 61000-4-6	Level 3, Criterion A
Magnetic Field Immunity	EN 61000-4-8	Level 3, Criterion A
Voltage Dips, Interruptions	EN 61000-4-11	Criterion A & B

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5. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Isolation Voltage	Input to Output:	4000 VAC / VDC
Safety Standards	IEC 62368-1:2014, EN 62368-1:2014; A11, UL 62368-1 and CAN/CSA C22.2 No. 62368-1-14	
Agency Approvals	Nemko, UL	
CE mark	Complies with LVD Directive	

6. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature	Refer to de-rating curves -20 to 0°C start-up is guaranteed	-20 to 70°C
Storage Temperature		-40 to 85° C
Relative Humidity	Non-Condensing	95% Rh
Altitude	Operating: Non-Operating:	10,000 ft. 40,000 ft.
Reliability	MTBF according to Telcordia –SR332-issue 3	1.77 million hours

7. SIGNALS

PARAMETER	DESCRIPTION / CONDITION
Power Good [8]	TTL signal goes high after main output is within regulation band, delay is 0.1 to 0.3 s
Remote On/ Off	To turn on PSU short remote pin to ground
Remote Sense	Compensates for 200 mV drop

[8] Power good signal cannot be used as a current source. Internal pull up resistor from PG signal to 5V is 10K. It is recommended to use external transistor if intended to source current.

8. CONNECTOR & PIN DESCRIPTION

CONNECTOR	PIN	DESCRIPTION / CONDITION		MANUFACTURER / PN
AC Input Connector	J1	Pin 1 Pin 2	AC LINE AC NEUTRAL	Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106
DC Output Connector	J2	Pin 1 Pin 2	RTN V1	6-32 inches Screw Pan HD Mating: Designed to accept Ring Tongue Terminal AMP : 8-31886-1, wherein one 16 AWG (max) wire can be crimped. Note: One Ring Tongue Terminal with 16 AWG is recommended for current up to 11 A only. Use multiple tongue terminals with wire for more current.
Signal Connector	J3 [9]	Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8	REMOTE ON/OFF RTN VFAN (+12 V/0.5 A) -VE REMOTE SENSE VSTBY (+5 V/2 A, +/-5%) +VE REMOTE SENSE RTN POWER GOOD	Molex: 22-23-2081 Mating: 22-01-2087; Pins: 08-50-0113
Earth (Spade Connector)	J4		(Class I product only)	Molex: 19705-4301 Mating: 190030001

[9] PSU is supplied with J3 housing, pin-1 and pin-2 shorted to enable main output without remote on/off feature.

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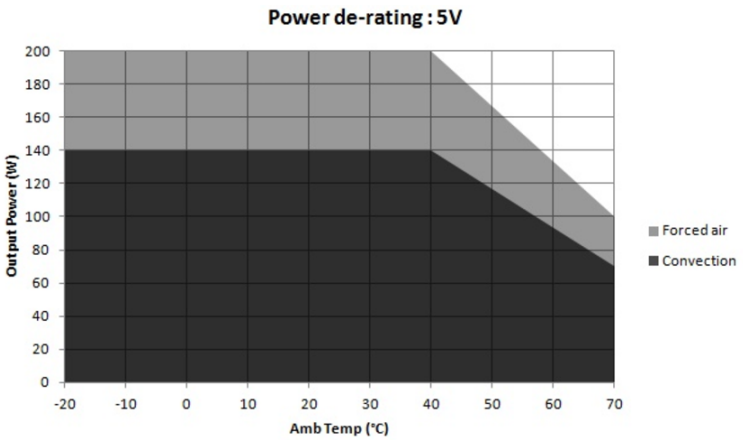
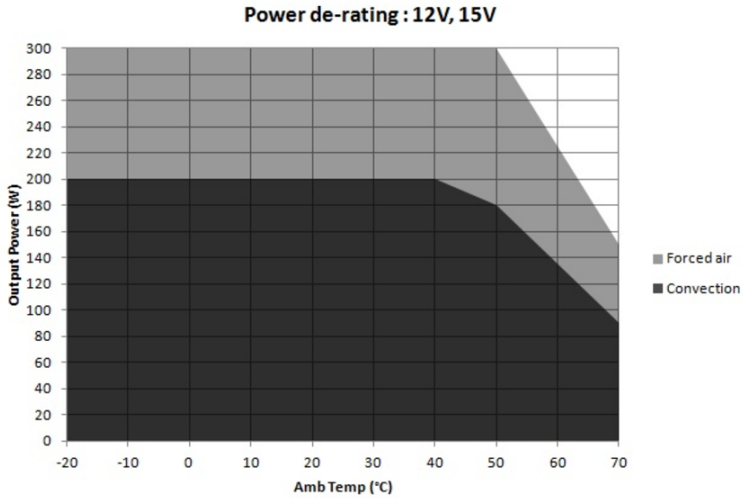
9. DERATING CURVES

The de-rating curves are valid for input voltages of 115 to 264 VAC. Below 115 VAC to 90 VAC the convection rating is 180 W max.



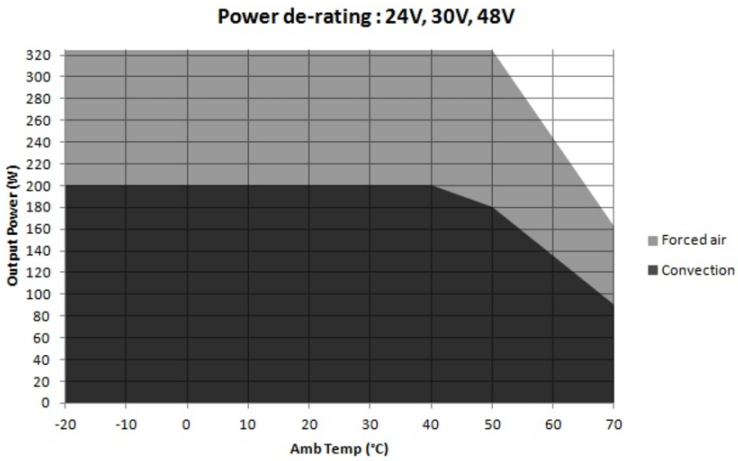
Forced air cooled load: 200 W up to 40°C
De-rate above 40 °C @ 1.67% per °C

Convection load: 140 W up to 40 °C
De-rate above 40 °C @ 1.67% per °C



Forced air cooled load: 300 W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Convection load: 200 W up to 40 °C
De-rate between 40-50 °C @ 1% per °C
De-rate above 50 °C @ 2.5% per °C



Forced air cooled load: 325 W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Convection load: 200 W up to 40 °C
De-rate between 40-50 °C @ 1% per °C
De-rate above 50 °C @ 2.5% per °C

Figure 1. Derating Curves

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10. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION
Weight	450 g (0.99 lbs)
Dimensions	127.0 x 76.2 x 38.1 mm (5.0 x 3.0 x 1.5 inch)

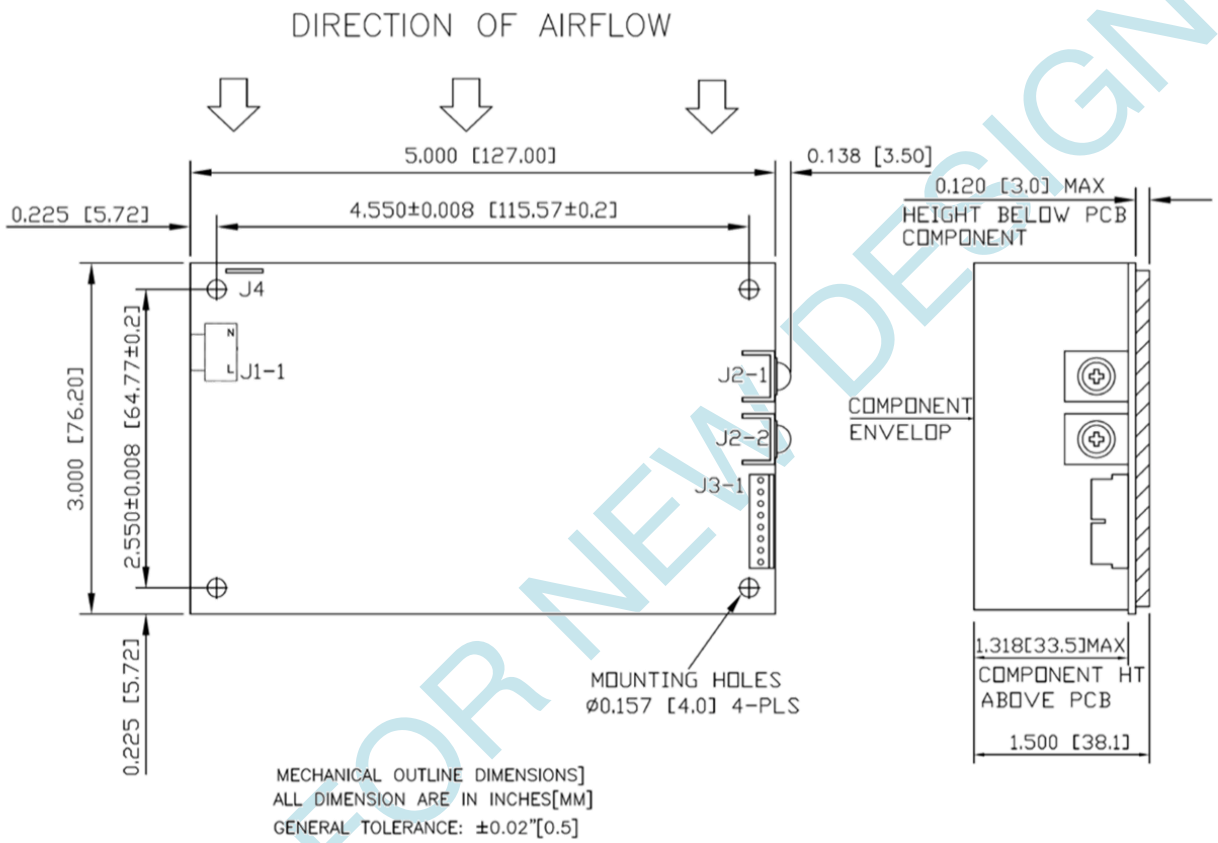

Figure 2. Mechanical Drawing

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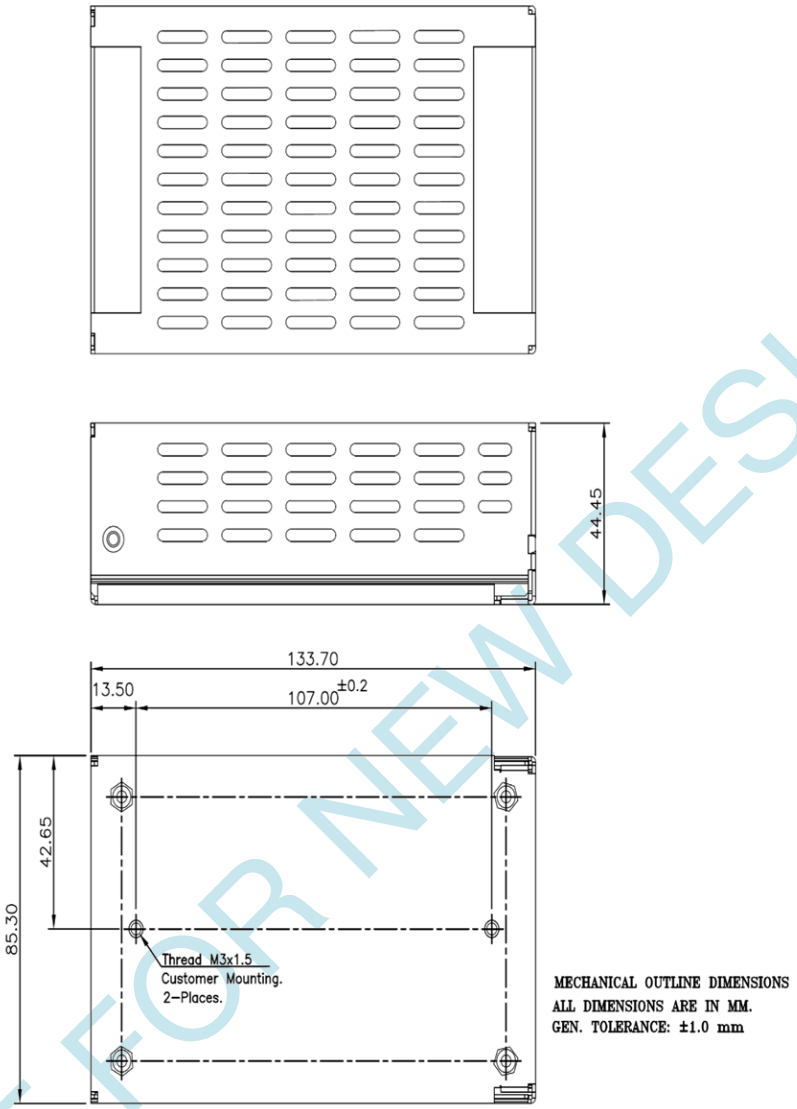

Figure 3. Mechanical Drawing with Cover Kit

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NOTES: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following:

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.
TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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