300W DC/DC Converter Wide-Range Input Data Sheet

Green Watt/Powerland's 300W wide-input range DC/DC modules are featured with extraordinary circuit designs, providing high-power density, high reliability, and high efficiency performance. The module is designed with excellent thermal management, anti-shock techniques, and long lifetime.

Features:

- Ultra-Wide Input Voltage Range: 28~160Vdc
- High Efficiency: Up to 95%
- LED power good indicator and power fail warning
- All-Around Protections: OVP, OTP, OCP, SCP, Brownout
- Natural Cooling
- On/Off Control
- Low input ripple and noise
- Compact design with on metal plate for thermal management
- Conduction and radiation EMI performance comply with EN55032 Class A, EN55022 Class A

General Specifications	
Model	EVD-94-300-24 (PLD320-WDDA)
Power	300W
Input Voltage	28~160Vdc
Output Voltage	24V
Output Current	12.5A
On/Off	Yes
Isolation	Input to Case only; No Input to Output Isolation
Efficiency (Typical)	94%
Operating Temperature (Case)	-40~85°C
IP Rating	IP65
Dimensions (LxWxH)	100x90x27mm
Cooling	Natural Cooling

Model # in parenthesis is factory number

Input Parameters				
	Min	**Typ**	**Max**	**Units**
Input Voltage Range	28	48	160	VDC
Input Current			14	A
Input Current No Load Vin = 48V, Io = 0 Vin = 96V, Io = 0		 30 20		mA
Input Current in Shut Down Mode (48Vin)		25		mA

Output Parameters				
	Min	**Typ**	**Max**	**Units**
Output Voltage Vin = 48V, Io = 0-12.5A	23.52	24.0	24.48	VDC
Output Current		12.5	13.3	A
Load Regulation Vin=48V, Iout=1.25~11.25A		0.6		%
Ripple & Noise (@Iout=12.5A, Tested with 10uF Al CAP and 0.1u MLCC CAP, and 5M~20MHz BW) Peak-peak RMS		100 40	200 80	mV
Overshoot Turn-on Voltage			5	%
Output Current Protection			15	A
Start-Up Time, from On/Off Control Start-Up Time, from Input		300	400	mS
Rise Time (Input Voltage from 0 to within 1% Vout Nominal)	1		50	mS
General Specification				
100% Load Efficiency @Vin=48V, Iout=12.5A @Vin=96V, Iout=12.5A	93.5 92.0	94.0 92.5		%
50% Load Efficiency @Vin=48V, Iout=6.25A @Vin=96V, Iout=6.25A	95.0 93.0	95.5 93.5		%
Capacitive Load			1500	µF
Isolation: Input to Case (Only)			2800	Vdc
Isolation Resistance: Input to case (Only)	100			Mohms
Humidity (Relative) no condensing			10~95	%
Storage Temperature	-55		125	°C
Operating Temperature - Baseplate (Max. Case Temperature)	-40		85	°C
Cooling/Temperature	Natural Cooing: Baseplate temperature cannot exceed specified maximum, under all conditions			
Case Size	100x90x27mm			
Case Material	Metal			
Weight	400g			
EMI	EN55022 Class A			

Notes: Specification is subject to change without notice. Model in parenthesis is factory number.

Unless noted, the characteristics are specified at 25°C, 48Vdc input, and 12.5A load output.

Application Notes:

Over Voltage Protection:
When its output is over 28V, the over voltage protection is triggered. The power supply shall enter auto-recovery mode during over voltage protection, and shall return to normal operation after the fault condition is removed.

Over Temperature Protection:
When the power supply enters overheating protection condition (case temperature over 95oC), no components should be damaged. The power supply shall enter auto-recovery mode during over temperature protection, and shall return to normal operation after the fault condition is removed.

Output Over-Current Limit
When the output is above 15A, no components should be damaged. The power supply shall enter auto-recovery mode during over current protection, and shall return to normal operation after the fault condition is removed.

Short Circuit Protection
When the output is being shorted, no components should be damaged. The power supply shall enter auto-recovery mode during short current protection, and shall return to normal operation after the fault condition is removed.

Input Voltage Over-Voltage Protection/
When its input voltage is over 165±3V, the power supply should be shut down and shall be auto recovered when input voltage is below 161±3V.

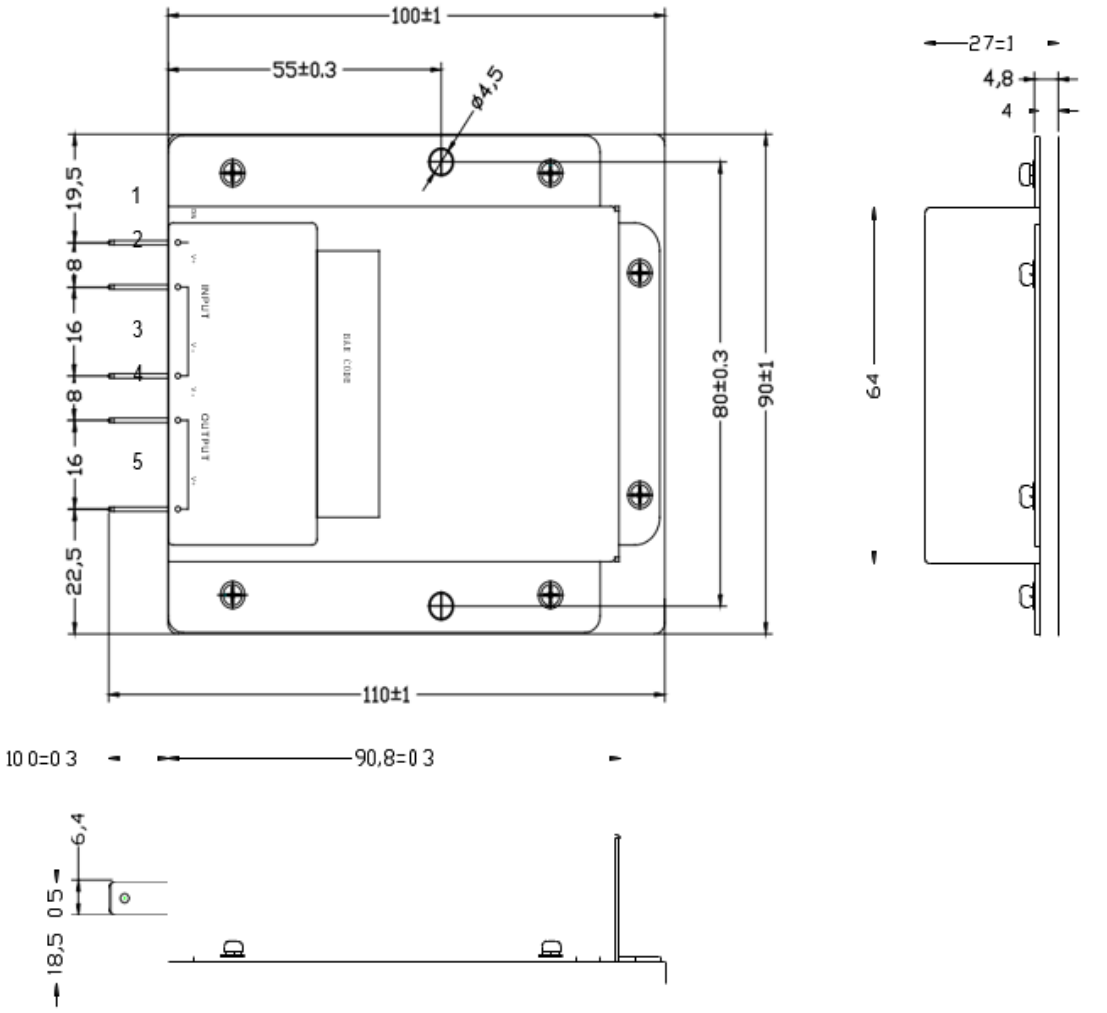
Input Voltage Brownout
When its input voltage is below 22±1V, the power supply should be shut down and shall be auto recovered when input voltage is over 25±1V.

Remote On/Off:
The converter has Enable control function. This Enable Pin is designed on the input side of the converter, the converter will turn on when pin connected to VIN+, and OFF when pin is left open.

Thermal Condition:
The converter should be mounted on a base plate with thermal grease, and the maximum base plate temperature is suggested to be controlled to within 85ºC.

LED Indicator
There is a LED indicator at the front panel of the power supply. The description for each status is as below.

Color	Indicator Status	Description
Green	Green On	Input and Output Good
	Green Off	No Output



*Input and Output Connectors**

Pin No.	Name	Description
1	ENABLE	Power supply on/off control (ON when pin connected to VIN+, and OFF when pin is left open)
2	VIN+	Input Positive
3	VIN-	Input Negative
4	VOUT-	Output Negative
5	VOUT+	Output Positive

Note: quick-disconnect terminal output connectors should be available locally or customer can solder as required. Connector width is .08.

REGULATORY INFORMATION:

Agency Requirements

A) Input to Case: 2800Vdc

B) Insulation Resistance: 100MΩ min. @ input to case

Electromagnetic Compatibility

A) EMI: Conduction and radiation comply with EN55022 Class A.

B) IMMUNITY:

- EN61000-4-2: ESD 8kV Air Discharge, 6kV Contact Discharge.
- EN61000-4-3: Radio-frequency Electromagnetic Field Susceptibility Test-RS, 80-1000MHz, 10V/m.
- EN61000-4-4: Electrical Fast Transient/Burst-EFT ±2kV.
- EN61000-4-5: Surge Immunity Test, DC Input Line: Line to Line 2kV; Line to Earth 2kV.
- EN61000-4-6: Conducted Radio Frequency Disturbance Test-CS, 0.15-80MHz, 10V/m.