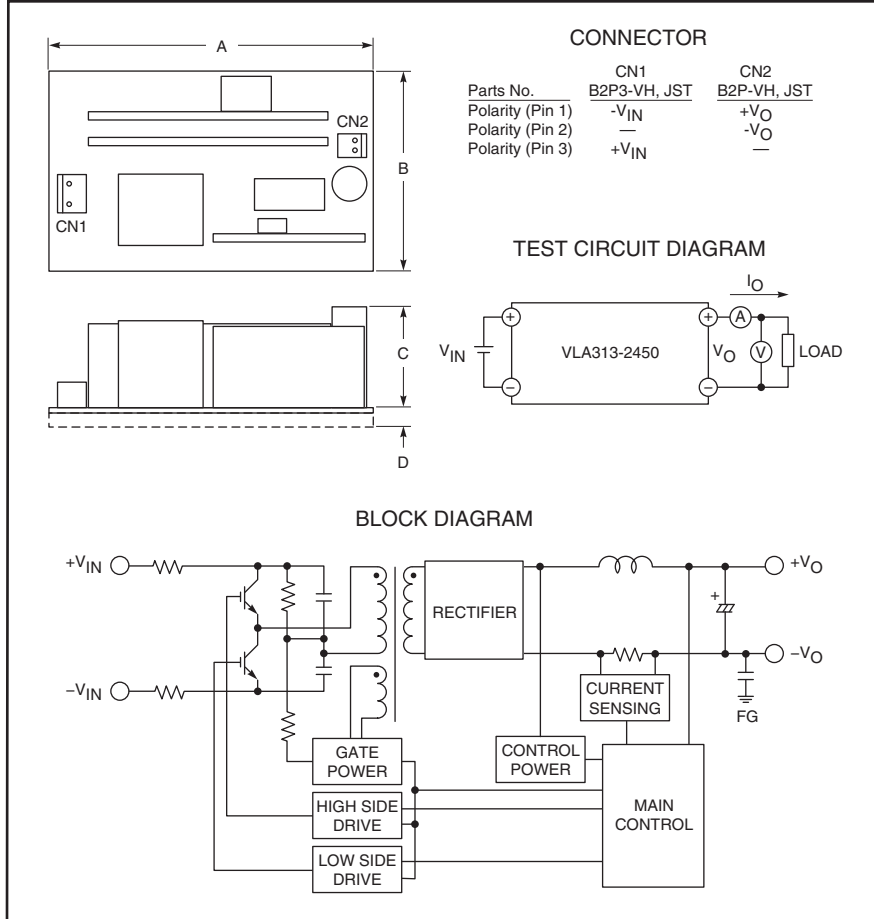
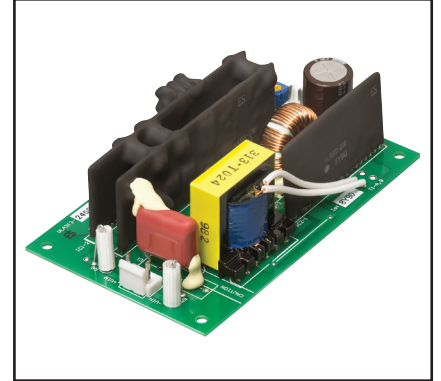


### Isolated DC-DC Converter



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	4.53	115.0
B	2.75	70.0
C	1.57	40.0
D	0.20	5.0



#### Description:

VLA313-2450 is an isolated DC-DC converter designed for industrial equipment. It is designed to convert a rectified line voltage ranging from 475 to 850V DC into 24V DC. Total output power is 50W.

#### Features:

- Input Voltage Range: 475V to 850V DC
- Output: +24V, 2.1A (Output Power: 50.4W)
- Electrical Isolation Voltage Between Input and Output: 2500 V<sub>rms</sub> for 1 Minute
- Over-current Protection (Auto Resumption)
- Over-voltage Protection

#### Application:

On-board pre-regulator for industrial control equipment.



Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272

VLA313-2450  
Isolated DC-DC Converter

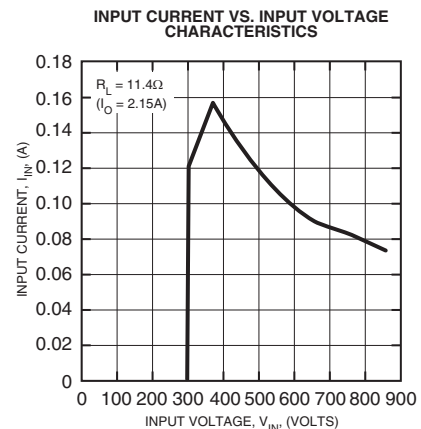
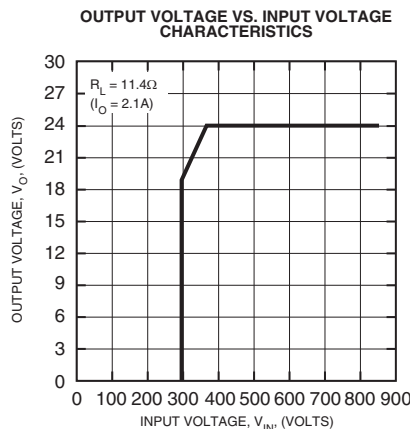
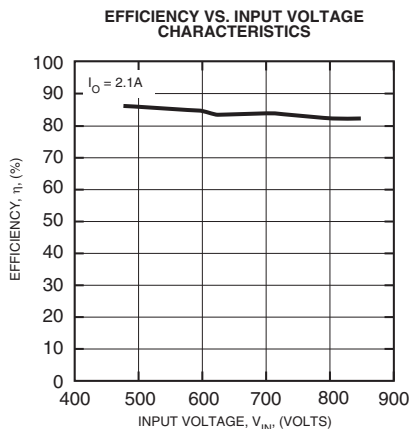
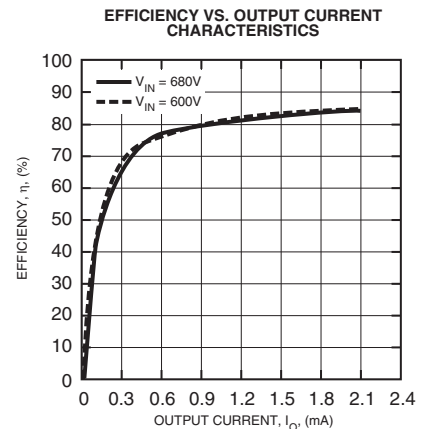
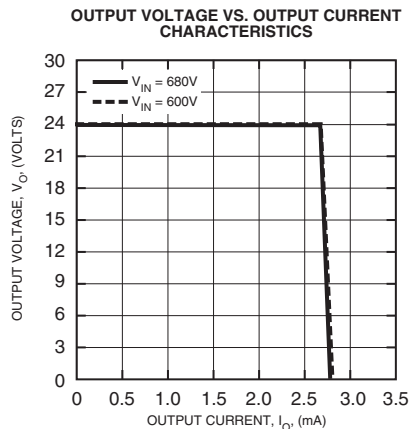
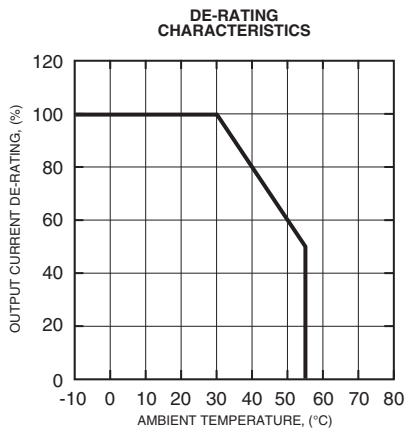
**Absolute Maximum Ratings,  $T_a = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	VLA313-2450	Units
Input Voltage	$V_{IN}$	850	Volts
Output Current	$I_O$	2.1	A
Operating Temperature (No Condensation)**1	$T_{opr}$	-10 ~ +55	$^\circ\text{C}$
Storage Temperature (No Condensation)	$T_{stg}$	-20 ~ +75	$^\circ\text{C}$
Input-Output Isolation Voltage (Sine Wave Voltage, 60Hz, 1 Minute)	$V_{ISO}$	2500	$V_{rms}$

**Electrical and Mechanical Characteristics,  $T_a = 25^\circ\text{C}$ ,  $V_{IN} = 680\text{V}$  unless otherwise noted**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Voltage	$V_{IN}$	Recommended Range	475	680	850	Volts
Output Voltage 1	$V_O$	$I_O = 0.2 \sim 2.1\text{A}$	22.8	24.0	25.2	Volts
Input Regulation	$R_{eg-I}$	$I_O = 2.1\text{A}$ , $V_{IN} = 475 \sim 850\text{V}$	—	—	100	mV
Load Regulation	$R_{eg-L}$	$I_O = 0.2 \sim 2.1\text{A}$	—	—	150	mV
Ripple Voltage	$V_{P-P}$	$I_O = 2.1\text{A}^{*2}$	—	—	240	mV
Efficiency	$\eta$	$I_O = 2.1\text{A}$	—	82	—	%

\*1 Please refer to de-rating characteristics.  
\*2 Not including spike noise.





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VLA313-2450  
Isolated DC-DC Converter

## Safety Precautions

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Great detail and careful attention are given to the production of HVICs, such as in the development, the quality of production, and in its reliability. However, the reliability of HVICs depends not only on their own factors but also in how they are used. When handling HVICs please note the following cautions.

### CAUTIONS

- Packaging:** The materials used in packaging HVICs can only withstand normal external conditions. When exposed to outside shocks, rain, and certain environmental contamination, the packaging materials will deteriorate. Please take care in handling.
- Carrying:**
1. Don't stack boxes too high. Avoid placing heavy materials on boxes.
  2. Boxes must be positioned correctly during transportation to avoid breakage.
  3. Don't throw or drop boxes.
  4. Keep boxes dry. Avoid rain or snow.
  5. Minimal vibration and shock during transportation is desirable.
- Storage:** When storing HVICs, please observe the following notices or possible deterioration of their electrical characteristics, risk of solderability, and external damage may occur.
1. Devices must be stored where fluctuation of temperature and humidity is minimal and must not be exposed to direct sunlight. Store at the normal temperature of 5 to 30°C with humidity at 40 to 60%.
  2. Avoid locations where corrosive gasses are generated or where a lot of dust accumulates.
  3. Storage cases must be static proof.
  4. Avoid putting weight on boxes.
- Extended Storage:** When extended storage is necessary, HVICs must be kept non-processed. When using HVICs which have been stored for more than one year or under severe conditions, be sure to check that the exterior is free from flaws or other damage.
- Maximum Ratings:** To prevent any electrical damage, use HVICs within the maximum ratings. The temperature, current, voltage, etc., must not exceed these conditions.
- Polarity:** To prevent HVICs from destruction and deterioration due to wrong insertion, make sure polarity of inserting leads into the board hole conforms to the external view for the terminal arrangement.