

**DESCRIPTIONS** 150W, DC/DC Converter

CE Report UK Report  
EN62109-1 BS EN62109-1

**FEATURES**

- Ultra-wide input voltage range of 250 - 1500VDC
- Industrial grade operating temperature -40°C to +70°C
- High I/O isolation voltage up to 4000VAC
- High efficiency, low ripple & noise
- High reliability, long lifespan
- Input under-voltage protection, input reverse polarity protection, output short circuit, over-current, over-voltage protection
- Operating up to 5000m altitude

**APPLICATIONS**

- Photovoltaic inverter
- Energy storage systems
- Charging pile
- Industrial control

**Selection Guide**

| Certification | Part No.      | Output Power(W) | Nominal Output Voltage and Current (Vo/Io) | Efficiency at 800VDC(%) Typ. | Capacitive Load (μF) Max. |
|---------------|---------------|-----------------|--------------------------------------------|------------------------------|---------------------------|
| EN/BS EN      | DPV150-15B-12 | 120             | 12V/10000mA                                | 88                           | 3500                      |
|               | DPV150-15B-15 |                 | 15V/8000mA                                 | 89                           | 3000                      |
|               | DPV150-15B-24 | 150             | 24V/6250mA                                 | 90                           | 2000                      |
|               | DPV150-15B-28 |                 | 28V/5360mA                                 | 91                           | 2000                      |
|               | DPV150-15B-32 |                 | 32V/4690mA                                 | 91                           | 1500                      |
|               | DPV150-15B-48 |                 | 48V/3125mA                                 | 92                           | 1000                      |

Note: The product picture is for reference only. For details, please refer to the actual product.

## Specifications

| Product characteristics | Item                           |                | Operating Conditions                                       |               | Min.                              | Typ.   | Max. | Unit |        |
|-------------------------|--------------------------------|----------------|------------------------------------------------------------|---------------|-----------------------------------|--------|------|------|--------|
| Input Specifications    | Input Voltage Range            |                |                                                            |               | 250                               | --     | 1500 | VDC  |        |
|                         | Input Current                  |                | 250VDC                                                     |               | --                                | --     | 0.63 | A    |        |
|                         |                                |                | 800VDC                                                     |               | --                                | --     | 0.4  |      |        |
|                         | Inrush Current                 |                | 800VDC                                                     |               | --                                | --     | 100  |      |        |
|                         |                                |                | 1500VDC                                                    |               | --                                | --     | 200  |      |        |
|                         | Input Under-voltage Protection |                | Lockout activation range                                   |               | 125                               | 175    | 225  | VDC  |        |
|                         |                                |                | Lockout deactivation range                                 |               | 150                               | 210    | 250  |      |        |
|                         | External Input Fuse            |                |                                                            |               | 4A/1500VDC, required              |        |      |      |        |
| Hot Plug                |                                |                |                                                            | Unavailable   |                                   |        |      |      |        |
| Output Specifications   | Output Voltage Accuracy        |                | All load range                                             |               | --                                | ±1.0   | ±2.0 | %    |        |
|                         | Line Regulation                |                | Rated load                                                 |               | --                                | ±0.25  | ±0.5 |      |        |
|                         | Load Regulation                |                | 0% - 100% load                                             |               | --                                | ±0.5   | ±1.0 |      |        |
|                         | Ripple & Noise*                |                | 20MHz bandwidth<br>(peak-to-peak value)                    |               | --                                | --     | 300  | mV   |        |
|                         | Temperature Coefficient        |                |                                                            |               | --                                | ±0.02  | --   | %/°C |        |
|                         | Short Circuit Protection       |                |                                                            |               | Hiccup, continuous, self-recovery |        |      |      |        |
|                         | Over-current Protection        |                |                                                            |               | ≥110%Io, hiccup, self-recovery    |        |      |      |        |
|                         | Over-voltage Protection        | 12V output     |                                                            |               |                                   | ≤20VDC |      |      |        |
|                         |                                | 15V output     |                                                            |               |                                   | ≤25VDC |      |      |        |
|                         |                                | 24V output     |                                                            |               |                                   | ≤32VDC |      |      |        |
|                         |                                | 28V output     |                                                            |               |                                   | ≤35VDC |      |      |        |
|                         |                                | 32V output     |                                                            |               |                                   | ≤45VDC |      |      |        |
|                         |                                | 48V output     |                                                            |               |                                   | ≤60VDC |      |      |        |
|                         | Minimum Load                   |                |                                                            |               | 0                                 | --     | --   | %    |        |
|                         | Hold-up Time                   |                | Room temperature, full load                                | 800VDC input  | --                                | 2      | --   | ms   |        |
|                         |                                |                |                                                            | 1500VDC input | --                                | 10     | --   |      |        |
|                         | Start-up Delay Time            |                | Room temperature                                           |               | --                                | --     | 3    | s    |        |
| General Specifications  | Isolation                      | Input - output | Electric Strength Test for 1min.,<br>leakage current < 5mA |               | 4000                              | --     | --   | VAC  |        |
|                         |                                | Input - PE     |                                                            |               | 2000                              | --     | --   |      |        |
|                         |                                | Output - PE    |                                                            |               | 2000                              | --     | --   |      |        |
|                         | Insulation Resistance          | Input - output | 500VDC                                                     |               | 50                                | --     | --   | MΩ   |        |
|                         | Operating Temperature          |                |                                                            |               | -40                               | --     | +70  | °C   |        |
|                         | Storage Temperature            |                |                                                            |               | -40                               | --     | +85  |      |        |
|                         | Operating Humidity             |                |                                                            |               | --                                | --     | 85   | %RH  |        |
|                         | Storage Humidity               |                |                                                            |               | --                                | --     | 95   |      |        |
|                         | Power Derating                 | -40°C to -25°C |                                                            |               |                                   | 3.33   | --   | --   | % / °C |
|                         |                                | +55°C to +70°C |                                                            |               |                                   | 2.4    | --   | --   |        |

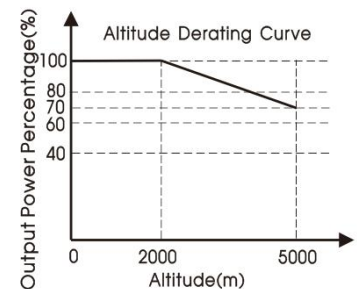
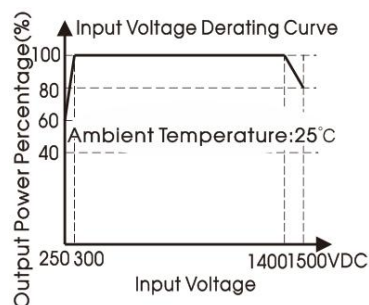
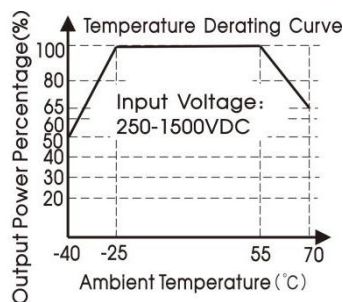
|                                                                         |                     |                            |            |    |    |        |
|-------------------------------------------------------------------------|---------------------|----------------------------|------------|----|----|--------|
| General Specifications                                                  | Power Derating      | 250VDC - 300VDC            | 0.8        | -- | -- | % /VDC |
|                                                                         |                     | 1400VDC - 1500VDC          | 0.2        | -- | -- |        |
|                                                                         | Power Derating      | 2000m - 5000m              | 10         | -- | -- | % /Km  |
|                                                                         | Switching Frequency |                            | --         | 65 | -- | kHz    |
|                                                                         | MTBF                | MIL-HDBK-217F@25°C         | ≥300,000 h |    |    |        |
| Mechanical Specifications                                               | Case Material       | Metal                      |            |    |    |        |
|                                                                         | Dimensions          | 168.00 x 111.20 x 42.50 mm |            |    |    |        |
|                                                                         | Weight              | 860g (Typ.)                |            |    |    |        |
|                                                                         | Cooling Method      | Free air convection        |            |    |    |        |
| Note: * The “ Tip and barrel method” is used for ripple and noise test. |                     |                            |            |    |    |        |

Note: \* The "Tip and barrel method" is used for ripple and noise test.

### Electromagnetic Compatibility (EMC)

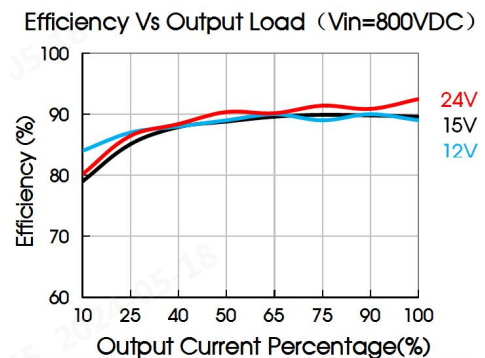
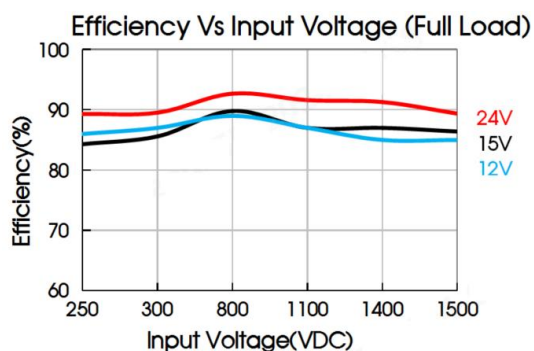
|                                     |           |       |                 |                                        |                  |
|-------------------------------------|-----------|-------|-----------------|----------------------------------------|------------------|
| Electromagnetic Compatibility (EMC) | Emissions | CE    | CISPR32/EN55032 | CLASS A                                |                  |
|                                     |           | RE    | CISPR32/EN55032 | CLASS A                                |                  |
|                                     | Immunity  | ESD   | IEC/EN61000-4-2 | Contact ±6KV/Air ±8KV                  | Perf. Criteria B |
|                                     |           | RS    | IEC/EN61000-4-3 | 10V/m                                  | Perf. Criteria A |
|                                     |           | EFT   | IEC/EN61000-4-4 | ±2KV                                   | Perf. Criteria B |
|                                     |           | Surge | IEC/EN61000-4-5 | Line to line ±1KV/ line to ground ±2KV | Perf. Criteria B |
|                                     |           | CS    | IEC/EN61000-4-6 | 10Vr.m.s                               | Perf. Criteria A |
|                                     |           |       |                 |                                        |                  |

### Characteristic Curve



Note:

- ① With an input between 250 - 300VDC/1400 - 1500VDC, the output power of parts must be derated as per temperature derating curves;
- ② This product is suitable for applications using natural free air convection.



## Design Reference

### 1. Typical application circuit

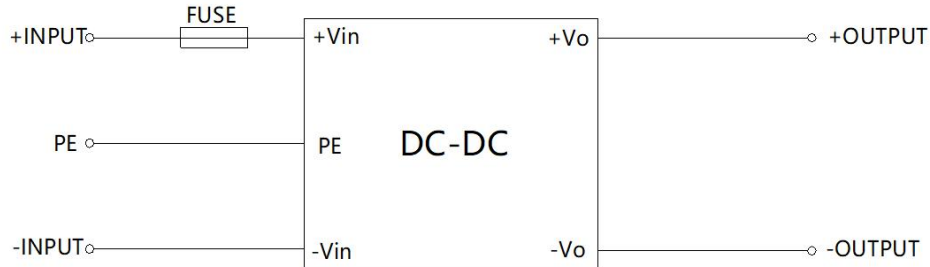


Fig. 1

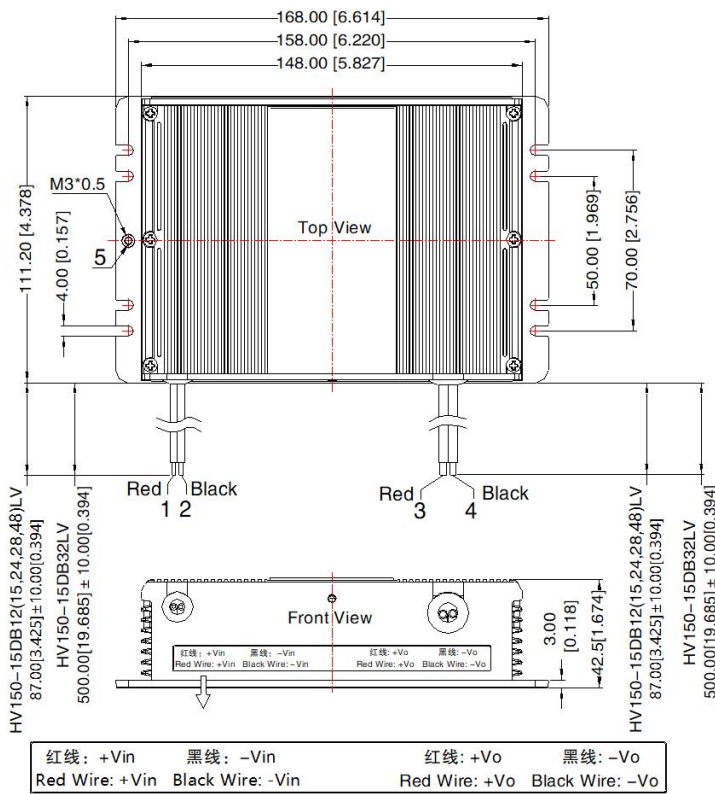
| Model | Recommended value             |
|-------|-------------------------------|
| FUSE  | 4A/1500VDC (UL/VDE), required |

### 2. IMPORTANT SAFETY INSTRUCTIONS

Additional protective devices, such as lightning protector need to be added if there is a transient pulse voltage greater than 6KV at the input of products in system applications.

## Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



| Pin-Out |      |
|---------|------|
| Pin     | Mark |
| 1       | +Vin |
| 2       | -Vin |
| 3       | +Vo  |
| 4       | -Vo  |
| 5       | PE   |

| Input wire spec. |               |
|------------------|---------------|
| Product Model    | Spec.(18AWG)  |
| 12V              | UL3239        |
| 15V              | UL3239 UL1015 |
| 24V              | UL3239 UL1015 |
| 28V              | UL3239        |
| 32V              | UL3239 UL1015 |
| 48V              | UL3239 UL1015 |

#### Note:

The input wire spec. is UL1015 heated shrinkable tube, which meets the requirements of 1500V voltage class

Output wire spec.: UL1015 14AWG

Unit: mm[inch]

General tolerances:  $\pm 1.00$  [ $\pm 0.039$ ]

## "IMPORTANT SAFETY INSTRUCTIONS"

### SAVE THESE INSTRUCTIONS -

1. Listed JFGA fuse rated 4A, 1500Vdc overcurrent protection device shall be provided in the input circuits .

2. In the end product, a R/C or Listed, clamping voltage rated 6000V, Surge Protection Device must be provided at the input circuit.



#### WARNING:

1. WARNING: SHOCK HAZARD. HORIZONTAL PACKAGE ONLY FOR MOUNTING IN A RACK OR ENCLOSURE FULLY ENCLOSING ALL LIVE PARTS.
2. DANGER – HIGH VOLTAGE.

#### AVERTISSEMENT:

1. AVERTISSEMENT: PAQUET HORIZONTAL RISQUE D'ÉLECTROCUTION. UNIQUEMENT POUR LE MONTAGE DANS UN RACK OU UN ENCEINTE ENFERMANT ENTièrement TOUTES LES PIÈCES SOUS TENSION.
2. DANGER : HAUTE TENSION.

#### Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of  $T_a=25^{\circ}\text{C}$ , humidity<75% with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. We can provide product customization service, please contact our technicians directly for specific information;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
6. When the photovoltaic array is exposed to light, it supplies a d.c. voltage to the PCE.