

| Input voltage | Output voltage | Output current | Output power | Efficiency | Size |
|---------------|----------------|----------------|--------------|------------|------------|
| 75-145V | 19V | 6A | 114W | 88% | 74x74x32mm |

The GEMSD1101906 is a non-isolated DC-DC converter that uses a synchronous rectification technology, and features high efficiency and power density. It has the dimensions of 74x74x32 mm and provides the rated output voltage of 19V and the maximum output current of 6A.



Features

- Design meeting RoHS / CE
- High efficiency:88%(@90V/110Vin)
- Import capacitors, high reliability
- Output transient absorption protection
- Support -40 °C environment
- 100% full load burn-in test
- 3 month warranty
- Remote ON/OFF control (optional)
- Waterproof level IP68
- Under voltage, Short circuit, Overload protection

Model naming method

GEMSD1101906

Applications

- Industrial
- Alternative Energy
- Golf Cart
- Forklift
- Electromotor
- Telecommunications Boat & Yatch
- Medical
- Led Marketplace & So On

GE : G-energy

M : Metal Body

SD : Step Down

110: 110V Input Voltage

19 : 19V Output Voltage

06 : 06A Max Current

Electrical Specifications

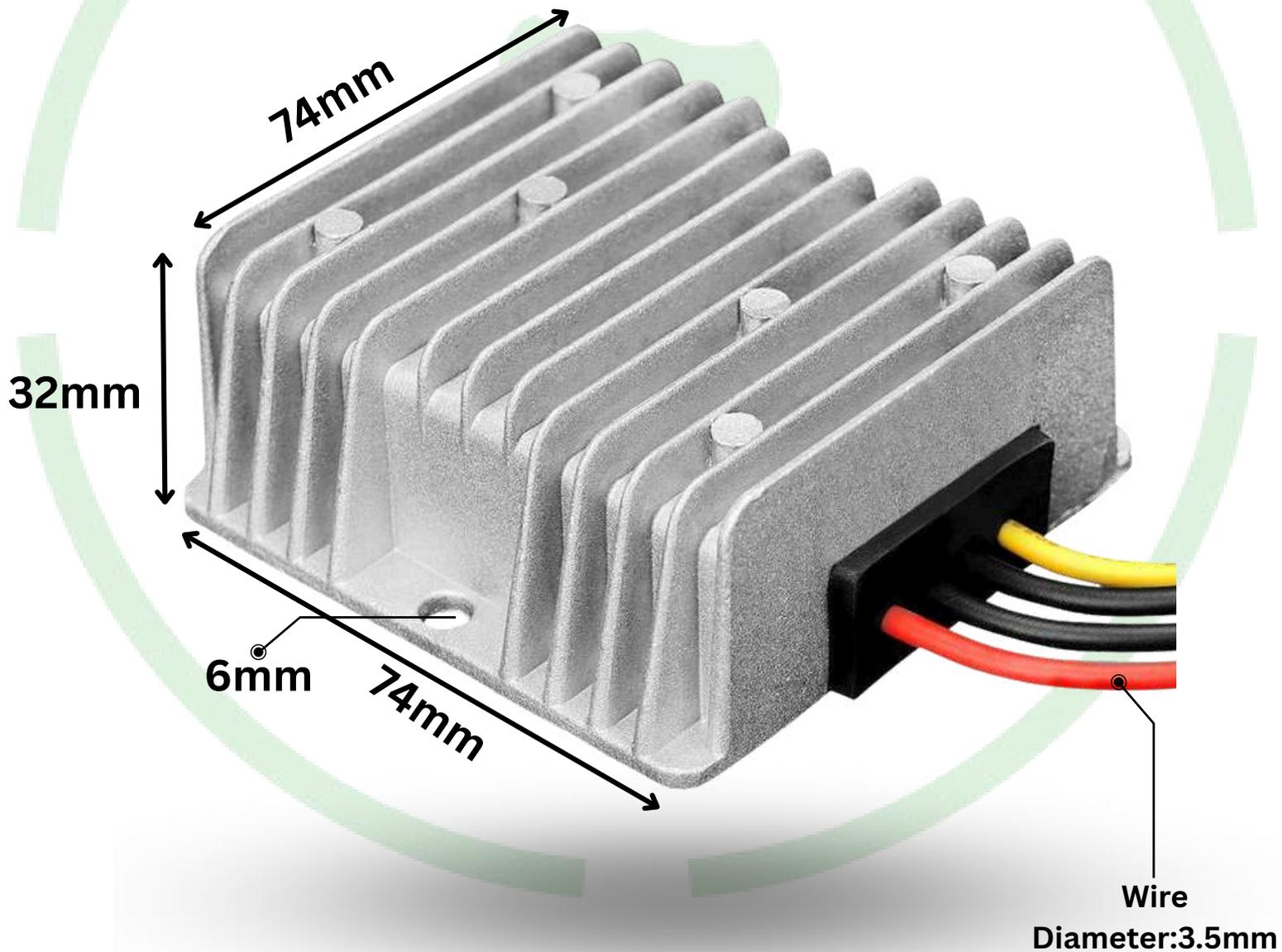
Conditions: TA=25°C(77°F), Airflow= 1 m/s (200LFM), Vin =90V/110V Vout =19V, unless otherwise specified

| Parameter | Min. | Typ | Max. | Units | Remarks |
|-------------------------------|------|-----|------|-------|-----------------|
| Absolute maximum ratings | | | | | |
| Operating ambient temperature | -40 | - | +50 | °C | |
| Shell ambient temperature | -40 | - | 80 | °C | |
| Storage temperature | -55 | - | 100 | °C | |
| Operating humidity | 5 | - | 95 | % | Non-condensing |
| Atmospheric pressure | 62 | - | 106 | Kpa | |
| Altitude | - | - | 4000 | m | |
| Cooling way | - | - | - | | Natural cooling |

Input characteristics

| | | | | | |
|-----------------------|------|--------|------|----|--------------------|
| Input voltage | 75 | 90/110 | 145 | V | - |
| Max. input voltage | - | - | 150 | V | Continuous |
| Undervoltage shutdown | 72.8 | 73.9 | 74.6 | V | Automatic recovery |
| Undervoltage recovery | 74.6 | 74.8 | 75 | V | Automatic recovery |
| Max. input current | - | - | 1.92 | A | Vin =75V Iout =6A |
| No load current | - | 05 | 10 | mA | Vin = 75V |

| | | | | | |
|--------------------------|----|---|---|-----|--|
| Positive electrode cable | 16 | - | - | AWG | If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter. |
| Negative electrode cable | 16 | - | - | AWG | |
| Enable PIN cable | - | - | - | AWG | None |
| Fuse | - | - | - | A | |



Output characteristics

| | | | | | |
|-----------------------------|------|-----|------|-------|--|
| Efficiency | - | 91 | - | % | Vin =90V/110V; Iout =6A |
| Output voltage | 4.95 | 5 | 5.05 | V | Vin =90V/110V; Iout =6A |
| Regulator accuracy | - | ±2 | - | % | |
| Voltage regulation | - | ±3 | - | % | |
| Load Regulation | - | ±2 | - | % | |
| Overvoltage protection | - | - | - | V | |
| Output current | - | - | 6 | A | |
| Overcurrent protection | 7.5 | 8 | 8.5 | A | |
| External capacitance | - | NA | - | μF | Don't need |
| Output ripple and noise | - | 220 | 300 | mVp-p | Vin =75-145V; Iout=6A, Oscilloscope bandwidth: 20 MHz |
| Output voltage rise time | - | 7 | 12 | mS | |
| Boot delay time | - | 15 | 20 | mS | |
| Out voltage overshoot | - | 1 | 5 | % | Vin =90V/110V, 50%-75% Load step |
| Over temperature protection | - | - | - | °C | Shell temperature, @ 100°C Restore working |
| Short circuit protection | - | YES | - | | |
| Positive electrode cable | 18 | - | - | AWG | If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter. |
| Negative electrode cable | 18 | - | - | AWG | |

Feature Description

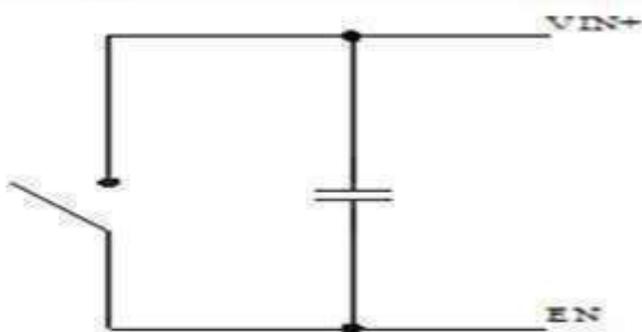
Remote On/Off (EN) (Optional)

| Logic Enable | Low level (0-75Vdc) | High level (75-145Vdc) | Left open |
|----------------|---------------------|------------------------|-----------|
| Positive logic | Off | On | Off |

Input Undervoltage Protection

The converter will shut down after the input voltage drops below the under-voltage protection threshold for shutdown. The converter will start to work again after the input voltage reaches the input under voltage protection threshold for startup. For the Hysteresis, see

Various circuits for driving the EN



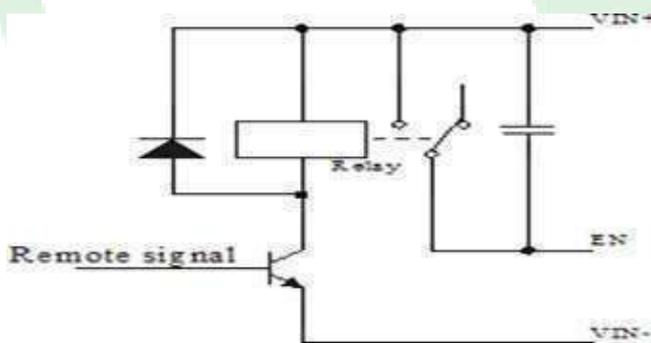
Simple control

Output Overcurrent Protection

The converter equipped with current limiting circuitry can provide protection from an output overload or short circuit condition. If the output current exceeds the output overcurrent protection set point, the converter enters hiccup mode. When the fault condition is removed, the converter will automatically restart.

Wiring Instructions

The input and output of this product is terminals. The user should ensure that the input and output wires and terminals are connected reliably, and pay attention to the wire diameter to meet the requirements of the power supply current. If the cable to be used is long, it needs Considering the voltage drop of the wire, if the voltage drop is too large, the voltage output at the load end may not meet the load demand. In this case, consider using a thicker wire diameter or reducing the length of the wire. Generally, if long wiring is required. Long line should be used on the side where the current is relatively small. For example, this product is a step-down product, so long lines should be used on the input side.



Transistor control

Safety and EMC features

| | | | | |
|------------------------|-----------------|------------|------------|---|
| Anti-electric Strength | Input to Output | | V | Leakage current $\leq 3.5\text{mA}$, 1min, no breakdown, no arcing |
| | Input to Shell | ≥ 500 | V | |
| | Output to Shell | ≥ 500 | V | |
| Insulation resistance | Input to Output | ≥ 10 | M Ω | Test voltage = 500V |
| | Input to Shell | | | |
| | Output to Shell | | | |

Other characteristics

| | | | |
|---------------------|----------------|-----|---------------------------|
| Weight | ≤ 300 | g | |
| Package | White box | | |
| MTBF | $\geq 200,000$ | H | Vin = 90V/110V; Iout = 6A |
| Switching frequency | 135 ± 10 | KHz | |

Characteristic Curves

Conditions: TA = 25°C (77°F), Vin = 90/110V Vout = 19V, unless otherwise specified

Figure 1, Efficiency

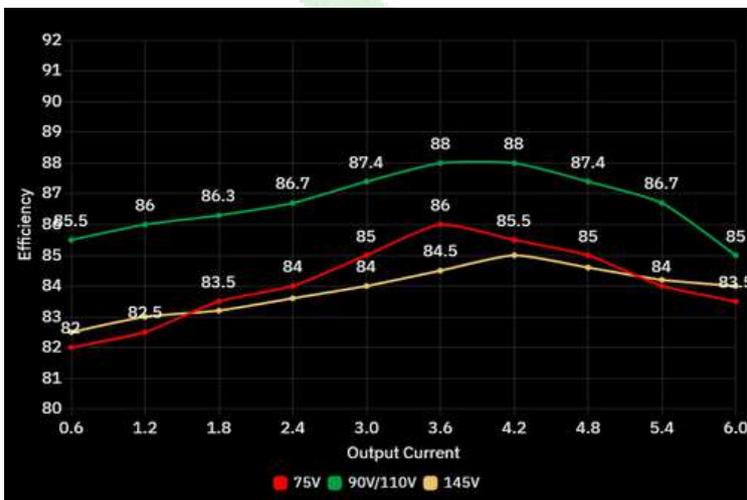
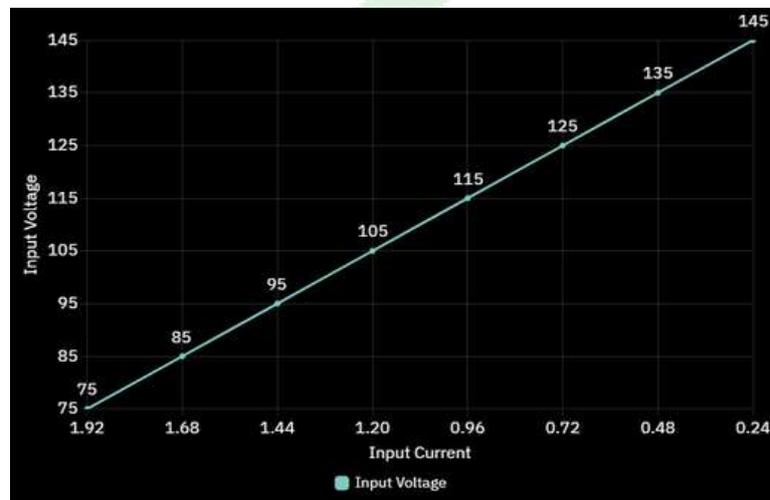


Figure 2, Input V-I, Iout=6A



Thermal Consideration

Sufficient airflow should be provided to help ensure reliable operating of the GEMSD1101906. Therefore, thermal components are mounted on the top surface of the GEMSD1101906 to dissipate heat to the surrounding environment by conduction, convection, and radiation. Proper airflow can be verified by measuring the temperature at the middle of the base plate.



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