# AC/DC converter

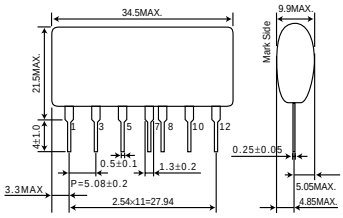
## AC100V input, –5V/500mA output

# BP5062-5

## ● Absolute Maximum Ratings

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Input voltage | Vi | –190 | V |
| Output current | Io | 500 | mApk |
| ESD endurance | Vsurge | 2 | kV |
| Operating temperature range | Topr | –20 ~ +80 | °C |
| Storage temperature range | Tstg | –25 ~ +105 | °C |

## ● Dimension(Unit : mm)

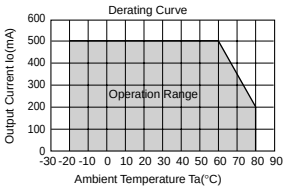



## ● Electrical Characteristics

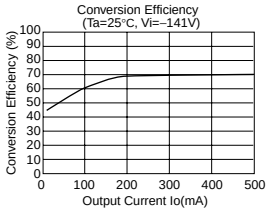
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Input voltage range | Vi | –113 | –141 | –170 | V | DC (80~120VAC) |
| Output voltage | Vo | –4.7 | –5.0 | –5.3 | V | Vi=–141V, Io=500mA |
| Output current | Io | 0 | – | 500 | mA | Vi=–141V ∗1 |
| Line regulation | Vr | – | 0.05 | 0.2 | V | Vi=–113V~ –170V, Io=500mA |
| Load regulation | Vl | – | 0.07 | 0.3 | V | Vi=–141V, Io=0~500mA |
| Output ripple voltage | Vp | – | 0.15 | 0.3 | Vp-p | Vi=–141V, Io=500mA ∗2 |
| Power conversion effciency | η | 60 | 71 | – | % | Vi=–141V, Io=500mA |

∗1 Maximum output current varies depending on ambient temperature ; please refer to derating curve.
∗2 Spike noise is not included in output ripple voltage.

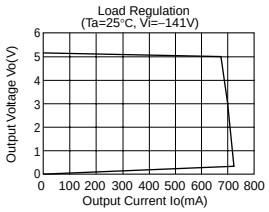
## ● Derating Curve



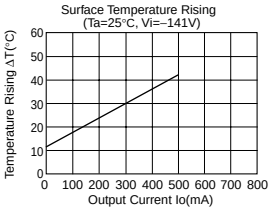

## ● Conversion Efficiency




## ● Load Regulation

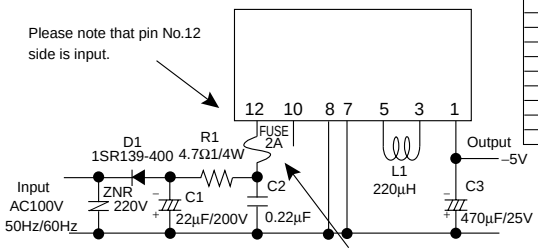



## ● Surface Temperature Rising




## ● Application circuit

BP5062-5




| Pin No. | Function |
|---|---|
| 1 | Output terminal Vo(–5V) |
| 2 | Not used |
| 3 | Coil connect |
| 4 | Not used |
| 5 | Coil connect |
| 6 | Not used |
| 7 | COMMON |
| 8 | COMMON |
| 9 | Not used |
| 10 | N.C. |
| 11 | Not used |
| 12 | Input terminal Vi(–141VDC) |

Be sure to use fuse for safety.

For acutual usage, Please kindly evaluate and confirm our part mounted in your product, Especially, Please make sure to confirm whether the load current exceed Max. rated current by using the current probe.

External components setting

| | |
|---|---|
| FUSE: Fuse | Please make sure to use quick acting fuse 2A |
| C1: Capacitor for input voltage smoothing | Capacitance : 22µF~100µF Rated voltage : 200V or higher<br>Ripple current is 0.22Arms above.<br>Especially when the capacity is enlarged, rush current at powering up is increased. Please be careful in the evaluation. |
| C2: For noise terminal voltage reduction | Capacitance : 0.1µF~0.22µF Rated voltage : 200V or higher<br>Film capacitor or ceramic capacitor. Reduce the noise terminal voltage. The constant value should be evaluated in the set. |
| C3: Capacitor for Output voltage smooting | Capacitance : 220µF~820µF Rated voltage : 16V or higher,<br>ESR is 0.25Ω max. Ripple current is 0.4Arms above.<br>Output noise voltage is infulenced.Please evaluate it in the actual set. |
| D1: Rectifier diode | In the absolute maximum ratings, the reverse peak voltage should be 400V or higher, the average rectifying current should be 1A or higher, and the peak surge current should be 40A or higher.<br>(Full-wave rectifier can be used in out part.) |
| L1: Choke coil | The inductance should be 220µH,the rated direct current should be 1.3A above. Otherwise heating or abnormal oscilation occurs.<br>When the input smoothing capacitor is enlarged,the rating of the rectifier diode should be higher. |
| R1: For noise terminal voltage reduction | 4.7Ω~10Ω 1/4W<br>Reduce the noise terminal voltage.The constant value should be evaluated in set. |
| ZNR: Varistor | Varistor must be used. It protects this part from lightning surge and static electricity. |

# Precautions on Use of ROHM Power Module

## Safety Precautions

1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, telecommunication equipment, home appliances, amusement equipment etc.).
   If the products are to be used in devices requiring extremely high reliability (medical equipment, transport equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or operational error may endanger human life and sufficient fail-safe measures, please consult with the Company's sales staff in advance. If product malfunctions may result in serious damage, including that to human life, sufficient fail-safe measures must be taken, including the following:
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   [b] Installation of redundant circuits in the case of single-circuit failure
2) The products are designed for use in a standard environment and not in any special environments. Application of the products in a special environment can deteriorate product performance. Accordingly, verification and confirmation of product performance, prior to use, is recommended if used under the following conditions:
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   [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
   [c] Use in places where the products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
   [d] Use in places where the products are exposed to static electricity or electromagnetic waves
   [e] Use in proximity to heat-producing components, plastic cords, or othe flammable items
   [f] Use involving sealing or coating the products with resin or other coating materials
   [g] Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering
   [h] Use of the products in places subject to dew condensation
3) The products are not radiation resistant.
4) The Company is not responsible for any problems resulting from use of the products under conditions not recommended herein.
5) The Company should be notified of any product safety issues. Moreover, product safety issues should be periodically monitored by the customer.

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