

220VAC Input/-5VDC (120mA) Output

Non-Isolated AC/DC Converter

BP5075-5

Absolute Maximum Ratings

Parameter	Symbol	Symbol Limits	
Input voltage	Vi	-170	V
Operating temperature range	Topr	-20 to +80	°C
Storage temperature range	Tstg	-25 to +105	°C
Maximum surface temperature	Tsmax	105	°C
Maximum output current	lopeak	120	mApk

Electrical Characteristics

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input voltage	Vi	-113	-141	-170	V	DC(80 to 120VAC)
Output voltage	Vo	-4.7	-5.0	-5.3	V	Vi=-141V, Io=60mA
Output current	lo	_	_	120	mA	*1
Line regulation	Vr	_	0.02	0.20	V	Vi=-113 to -170V, Io=60mA
Load regulation	VI	_	0.03	0.20	V	Vi=-141V, Io=0 to 60mA
Output ripple voltage	Vp	_	0.04	0.20	V p-p	Vi=-141V, Io=60mA *2
Power conversion efficiency	η	55	59	_	%	Vi=-141V, Io=120mA

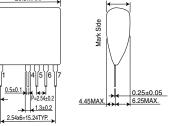
- *1 Maximum output current varies depending on ambient temperature; please refer to derating curve.
- *2 The output ripple voltage may vary depending on the capacitance, environment, and location of peripheral components. Particular attention must be paid to aluminum electrolytic capacitor, because ESR changes greatly at the time of the low temperature and output ripple voltages increase.

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Derating Curve

19.5MAX

3.25MAX

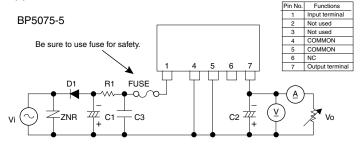


10 7MAX

Ambient Temperature Ta(°C)

Dimensions (Unit : mm)

Application Circuit



Please verify operation and characteristics in the customer's circuit before actual usage. Ensure that the load current does not exceed the maximum rating.

External Component Specifications

C2: Output smoothing Capacitance: 47 to 470µF
capacitor Rated voltage: 16V or higher, low impedance

Rated voltage : 16V or higher, low impedance Impedance is 0.42Ω max at high frequencies

Ripple current is 0.2Arms or above. Capacitor impedance affects the output ripple voltage.

Capacitance : 0.1 to 0.22 μF Rated voltage : 250V or higher Use a film or ceramic capacitor. Evaluate under actual operating

conditions.

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 forward surge current should be 40A or higher.

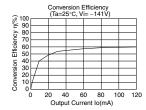
R1: Noise reduction 10 to

resistor Determine the ideal value through actual testing.

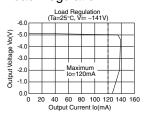
ZNR: Varistor A varistor is required to protect against lightning surges and static

electricity.

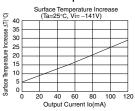
●Conversion Efficiency



Load Regulation



Surface Temperature Increase



C3: Noise reduction

capacitor

D1: Rectifier diode

Power Module Usage Precautions

Safety Precautions

- 1) The products are designed and manufactured for use in ordinary electronic equipment (i.e. AV/OA/ telecommunication/amusement equipment, home appliances). Please consult with the Company's (ROHM) sales staff if intended for use in devices requiring high reliability (e.g. medical/transport/ aircraft/spacecraft equipment, nuclear power/fuel controllers, automotive/safety devices) and whose malfunction may result in injury or death. In this case, failsafe measures must be taken, including the following:
 - [a] Installation of protection circuits in order to improve system safety
 - [b] Incorporation of redundant circuits in the case of single-circuit failure
- 2) The products are designed for use under normal conditions. Application in special environments can cause a deterioration in product performance. Therefore, verification and confirmation of product performance, prior to use, is recommended. The following environments are considered to be 'special':
 - [a] Outdoors, exposed to direct sunlight or dust
 - [b] In contact with liquids, such as water, oils, chemicals, or organic solvents
 - [c] In areas where exposure to the sea air or corrosive gases (i.e. Cl_2 , H_2S , NH_3 , SO_2 , NO_2) can occur
 - [d] In places where the products may be in contact with static electricity or electromagnetic waves
 - [e] In proximity to heat-producing items, plastic cords, or flammable materials
 - [f] In contact with sealing or coating products, such as resin
 - [g] In contact with unclean solder or exposed to water or water-soluble cleaning agents used after soldering
 - [h] In areas where dew condensation occurs
- 3) The products are not designed to be 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.

Application Notes

- A sufficient margin must be allowed if changes are made to the peripheral circuit due to variations in the inherent tolerances of the external components as well as transient and static characteristics. In addition, please be aware that the Company has not conducted investigations on whether or not particular changes in the example application circuits would result in patent infringement.
- 2) The application examples, their constants, and other types of information contained herein are applicable only when the products are used in accordance with standard methods.
 - Therefore, if mass production is intended, sufficient consideration to external conditions must be made.

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 - [a] Infringement of the intellectual property rights of a third party
 - [b] Problems arising from the use of the products listed herein
- 3) The Company prohibits the purchaser from exercising or using the intellectual/industrial property rights or any rights belonging to or are controlled by the Company, other than the right to use, sell, or dispose of the products.

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