AC110V input, -12V / 100mA output

Non-isolated AC / DC Converter

BP5075-12

●Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	Vin	−187	V
Operating temperature range	Topr	−20 to +80	°C
Storage temperature range	Tstg	−25 to +105	°C
Case temperature	Tsmax	105	°C
Output current	Iopeak	100	mApk

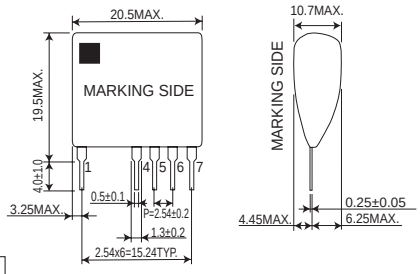
●Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	Vin	−113	−141	−187	V	DC
Output voltage	Vo	−11.7	−12.5	−13.2	V	Vin=−141V, Io=50mA
Output current	Io *1	−	−	100	mA	
Line regulation	Vr	−	0.02	0.20	V	Vin=−113 to −187V
Load regulation	Vl	−	0.01	0.20	V	Vin=−141V, Io=0 to 50mA
Output ripple voltage	Vp *2	−	0.04	0.20	Vp-p	Vin=−141V, Io=50mA
Conversion efficiency	η	68	73	−	%	Vin=−141V, Io=100mA

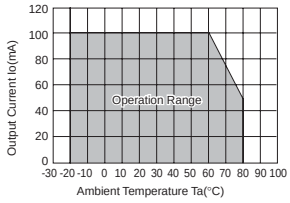
*1Max output current should be reduced according to the surrounding temperature.

*2 The output ripple voltage may vary depending on the capacitance, environment, and location of peripheral components. Especially right attention has to be paid to aluminum electrolytic capacitor, because ESR changes greatly at the time of the low temperature and output ripple voltages increase.

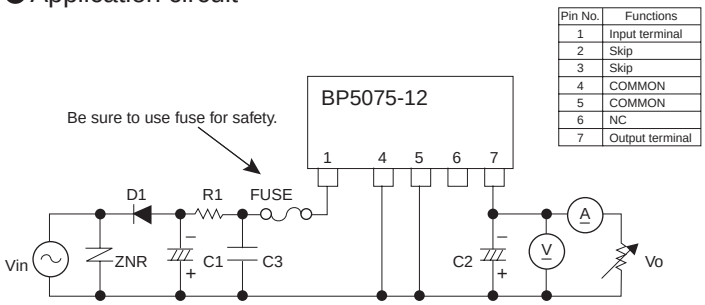
●Dimensions (Unit : mm)



●Derating Curve



●Application circuit



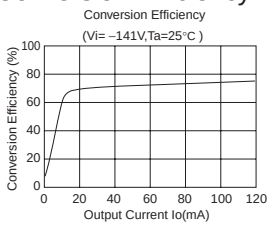
Pin No.	Functions
1	Input terminal
2	Skip
3	Skip
4	COMMON
5	COMMON
6	NC
7	Output terminal

For actual usage, Please kindly evaluate and confirm our part mounted in your product.
Especially, Please make sure to confirm whether the load current exceed absolute maximum rating by using current probe.

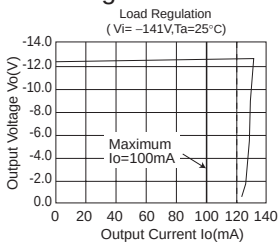
External components setting

FUSE: Fuse	Please make sure to use quick acting fuse (1.0A)
C1: Input capacitor	above 250V, 10 to 47μF
C2: Output capacitor	above 25V, 47 to 470μF, Low impedance ESR:0.42Ω Max. Ripple current 0.2Arms above Impedance of capacitor effects the output ripple voltage.
C3: For noise terminal voltage reduction capacitor	Above 250V, 0.1 to 0.22μF Film capacitor or Ceramic capacitor Reduce the noise terminal voltage. The constant value should be evaluated in the product.
R1: For noise terminal voltage reduction resistor	10 to 100Ω, 1/4W Reduce the noise terminal voltage. The constant value should be evaluated in the product.
D1: Rectifier diode	Use a rectifying diode with the peak reverse voltage of 400V or higher, the average rectification current of 1A or larger and the peak surge current of 40A or larger. When using an input capacitor of a large capacity, choose a component that endures the inrush current on power-up. This product is compatible with full-wave rectification.
ZNR: Varistor	Varistor must be used.It protects this part from lightning surge and static electricity.

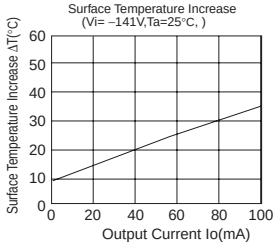
●Conversion Efficiency



●Load Regulation



●Temperature Curve



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

1) 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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   [b] Problems arising from the use of the products listed herein
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