



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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AC100V input, 12V/200mA output

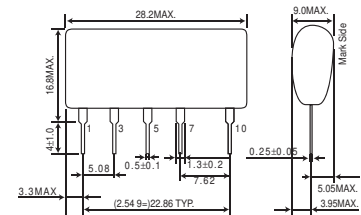
Non-isolated AC/DC converter

BP5037B12

● Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	V_i	170	V
Maximum Output current	$I_{o\max}$	200	mA(pk)
ESD endurance	V_{surge}	2	kV
Operating temperature range	T_{opr}	-25 to +80	°C
Storage temperature range	T_{stg}	-25 to +105	°C
Maximum surface temperature	T_{cmax}	105	°C

● Dimensions (Unit : mm)

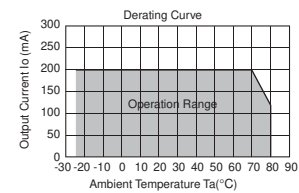


● Electrical Characteristics

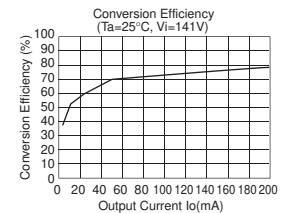
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V_i	113	141	170	V	DC(80 to 120VAC)
Output voltage	V_o	11.0	12.0	13.0	V	$V_i=141V, I_o=100mA$
Output current	I_o	0	-	200	mA	$V_i=141V$ *1
Line regulation	V_r	-	0.05	0.15	V	$V_i=113$ to $170V, I_o=100mA$
Load regulation	V_l	-	0.07	0.20	V	$V_i=141V, I_o=0$ to $100mA$
Output ripple voltage	V_p	-	0.05	0.15	Vp-p	$V_i=141V, I_o=100mA$ *2
Power conversion efficiency	η	70	78	-	%	$V_i=141V, I_o=200mA$

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

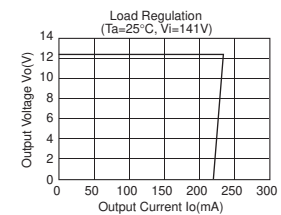
● Derating Curve



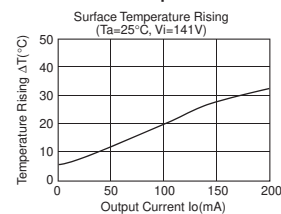
● Conversion Efficiency



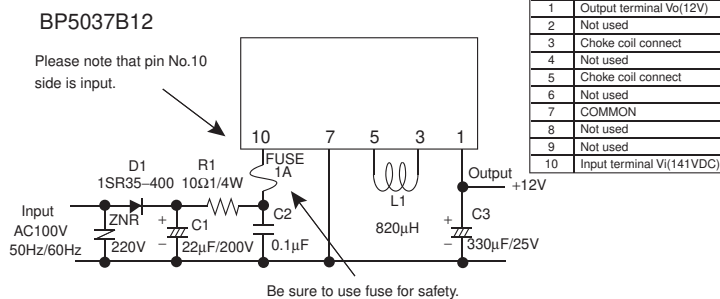
● Load Regulation



● Surface Temperature Rising



● Application circuit



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 Max. rated current by using the current probe.

External components setting

FUSE: Fuse

C1: Capacitor for input voltage smoothing

C2: For noise terminal voltage reduction

C3: Capacitor for Output voltage smoothing

D1: Rectifier diode

L1: Choke coil

R1: For noise terminal voltage reduction

ZNR: Varistor

Please make sure to use quick acting fuse 1A

Capacitance : 22 to 100 μ F Rated voltage : 200V or higher
Ripple current is 0.13Arms above.

Capacitance : 0.1 to 0.22 μ F Rated voltage : 200V or higher
Film capacitor or ceramic capacitor. Reduce the noise terminal voltage.
The constant value should be evaluated in the set.

Capacitance : 100 to 470 μ F Rated voltage : 25V or higher,
ESR is 0.25 Ω max. Ripple current is 0.4Arms above.
Output noise voltage is influenced. Please evaluate it in the actual set.

In the absolute maximum ratings, the reverse peak voltage should be 400V or higher, the average rectifying current should be 0.5A or higher, and the peak surge current should be 20A or higher.
(Full-wave rectifier can be used in our part.)

Coil for switching regulator. The inductance should be 820 μ H, the rated direct current should be 0.42A above.
Otherwise heating or abnormal oscillation occurs.

10 to 22 Ω 1/4W
Reduce the noise terminal voltage. Please set it, if necessary.
The constant value should be evaluated in set.

Varistor must be used. It protects this part from lightning surge and static electricity.

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. Cl₂, H₂S, NH₃, SO₂, NO₂) 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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- 1) The specifications included herein contain information related to the Company's industrial property. Their use other than pertaining to the relevant products is forbidden. Duplication and/or disclosure to a third party without express written permission is strictly prohibited.
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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
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Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

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Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

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