

# DC / DC converter

## BP5027A

The BP5027A is a DC / DC converter that contains control circuits, switching devices, rectifiers and coils, and operates by only connecting an I / O smoothing capacitor. With no heat sink required, the module is available in stand-alone 6pin SIP packages.

### ● Applications

Household appliances such as TVs, VCRs, audio equipment, refrigerators and facsimiles

### ● Features

- 1) Small number of external components required. (2 capacitors)
- 2) Built-in protection circuit for short-circuit.
- 3) Small and light SIP 6pin package.

### ● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Input voltage	V <sub>IN</sub>	24	V
Operating temperature range	Topr	-25 ~ +80	°C
Storage temperature range	Tstg	-25 ~ +85	°C

### ● Recommended operating conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Input voltage	V <sub>IN</sub>	8	12	20	V

### ● Electrical characteristics (Unless otherwise noted, V<sub>IN</sub>=12V, I<sub>o</sub>=50mA, Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V <sub>IN</sub>	8	–	20	V	
Output voltage	V <sub>O</sub>	4.7	5.0	5.3	V	
Output current	I <sub>O</sub>	0	–	150	mA	
Line regulation	V <sub>L</sub>	–	0.06	0.15	V	V <sub>IN</sub> =8~20V
Load regulation	V <sub>R</sub>	–	0.04	0.15	V	I <sub>O</sub> =0~100mA
Output ripple voltage	V <sub>p</sub>	–	0.07	0.15	V <sub>PP</sub>	I <sub>O</sub> =100mA
Power conversion efficiency	η	65	74	–	%	I <sub>O</sub> =150mA

● Pin descriptions

Pin No.	Pin name
1	V <sub>IN1</sub>
2	V <sub>IN2</sub>
4	GND
5	GND
6	V <sub>OUT</sub>

Pin 3 is removed.

● Measurement circuit

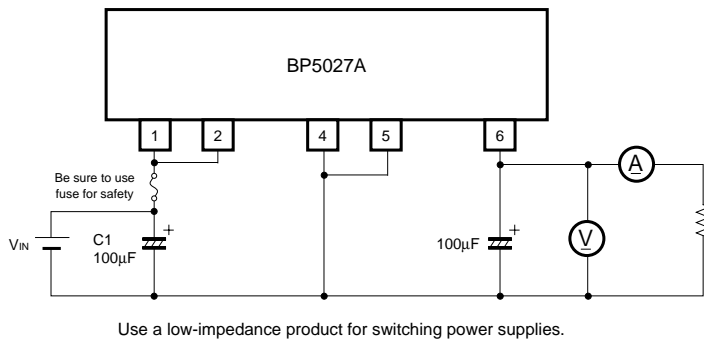


Fig.1

● Electrical characteristic curves

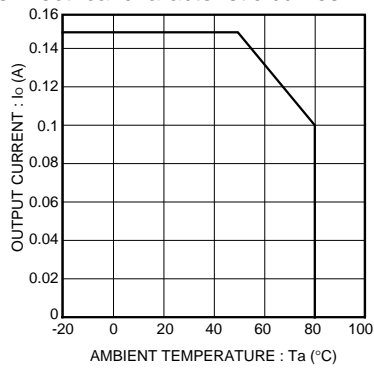


Fig.2 Derating curve

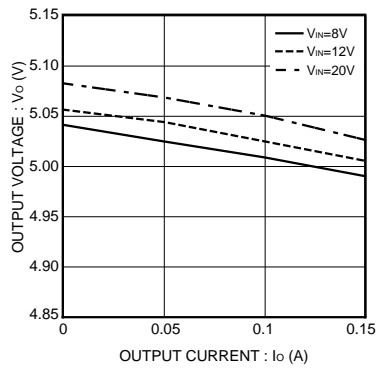


Fig.3 Output characteristic

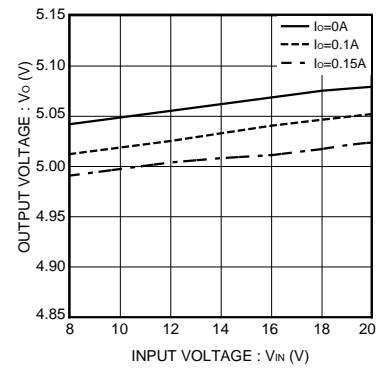


Fig.4 Line regulation

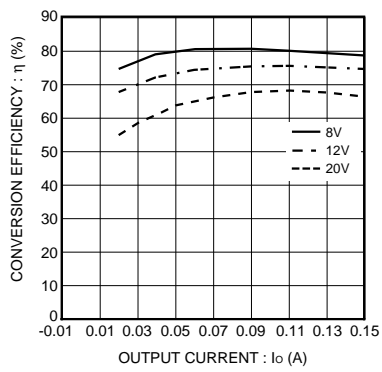
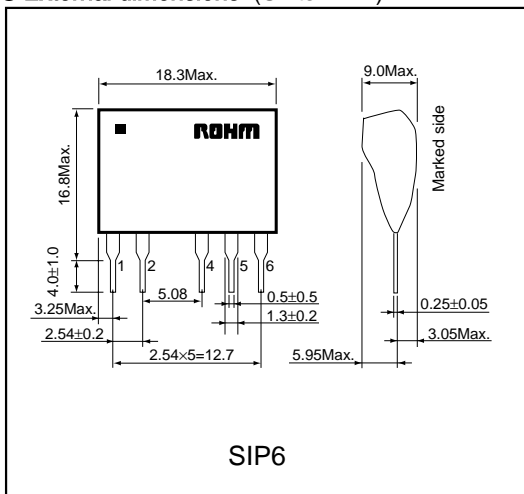


Fig.5 Conversion efficiency

● External dimensions (Units : mm)



# 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:
  - [a] Installation of protection circuits or other protective devices to improve system safety
  - [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:
  - [a] Use in various types of liquid, including water, oils, chemicals, and organic solvents
  - [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 Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [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 other 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.

## Precautions Regarding Application Example and External Circuits

- 1) If change is made to the constant of an external circuit, allow a sufficient margin due to variations of the characteristics of the products and external components, including transient characteristics, as well as static characteristics. Please be informed that the Company has not conducted investigations on whether or not particular changes in the application examples or external circuits would result in the infringement of patent rights of a third party.
- 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] any problems incurred by the use of the products listed herein.
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