

DC/DC converter

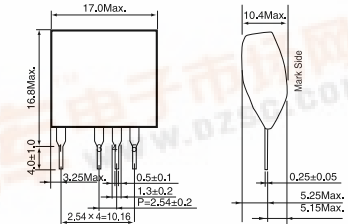
BP5223

5V/150mA output type

Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	V_{IN}	18	V
Operating temperature range	T_{opr}	-25 to +80	°C
Storage temperature range	T_{stg}	-25 to +85	°C
Maximum surface temperature	T_{smax}	100	°C
Maximum output current	I_{opeak}	150	mA

Dimension(Unit : mm)

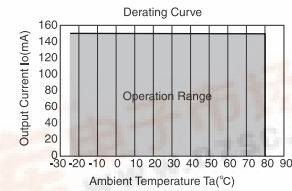


Electrical Characteristics

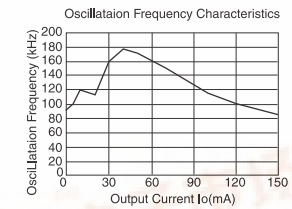
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V_i	8.0	14.0	18.0	V	
Output voltage	V_o	4.7	5.0	5.3	V	$V_i=14V, I_o=100mA$
Output current	I_o	—	—	150	mA	$V_i=14V$ * 1
Line regulation	V_L	—	0.03	0.10	V	$V_i=8$ to 18V, $I_o=100mA$
Load regulation	V_R	—	0.05	0.15	V	$V_i=14V, I_o=0$ to 100mA * 2
Output ripple voltage	V_p	—	0.06	0.15	V _{pp}	$V_i=14V, I_o=100mA$
Power conversion efficiency	η	75	80	—	%	$V_i=14V, I_o=150mA$ * 2

* 1 Maximum output current varies depending on ambient temperature ; please refer to derating curve.
* 2 Please refer to Load regulation, Conversion efficiency.

Derating Curve

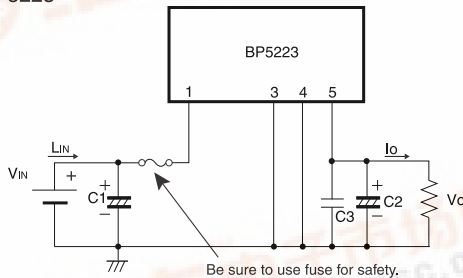


Oscillation Frequency characteristics



Application circuit

BP5223



Pin No.	Function
1	Input terminal V_i
2	Not used
3	GND
4	GND
5	Output terminal V_o

Be sure to use fuse for safety.
For actual usage, Please kindly evaluate and confirm our part mounted in your product, Especially, Please make sure to confirm the load current does not exceed Max. rated current by using the current probe.

External components setting

FUSE: fuse

C1: Capacitor for input voltage smoothing

C2: Capacitor for Output voltage smoothing

C3: For noise terminal voltage reduction

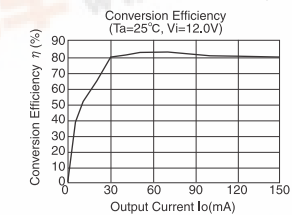
Please make sure to use quick acting fuse 0.5A

Capacitance : 33 μ F to 220 μ F Rated voltage : 35V or higher
Ripple current is 0.1Arms above.

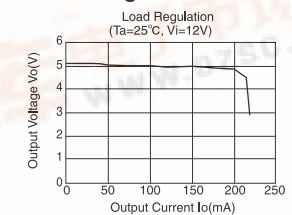
Capacitance : 100 μ F to 470 μ F Rated voltage : 25V or higher,
ESR is 0.39 max. Ripple current is 0.37Arms above.
Output noise voltage is influenced.Please evaluate it in the actual set.

Capacitance : 0.1 μ F to 0.22 μ F Rated voltage : 25V or higher
Film capacitor or ceramic capacitor.
The constant value should be evaluated in the set.

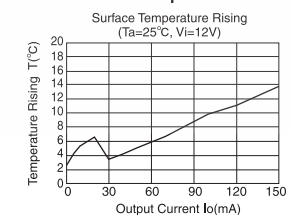
Conversion Efficiency



Load Regulation



Surface Temperature Rising



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 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 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.

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- 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.
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