

Insulation type DC/DC converter

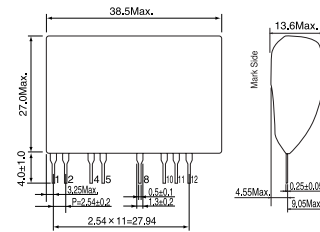
12V/250mA output type

BP5324A

Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	V_{IN}	7	V
Maximum output current	I_{Opeak}	250	mA
Operating temperature range	T_{opr}	-25 to +80	°C
Storage temperature range	T_{stg}	-25 to +85	°C
Isolation voltage	V_{iso}	500	Vrms

Dimension (Unit : mm)

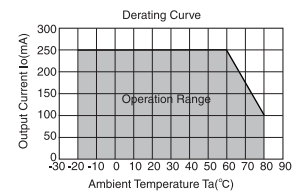


Electrical Characteristics

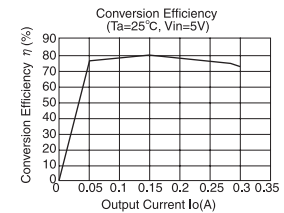
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V_i	4.5	5.0	5.5	V	
Output voltage	V_o	11.4	12.0	12.6	V	$V_i=5V, I_o=250mA$
Output current	I_o	0	-	250	mA	$V_i=5V$ * 1
Line regulation	V_L	-	0.01	0.05	V	$V_i=4.5$ to $5.5V, I_o=200mA$
Load regulation	V_R	-	0.23	0.5	V	$V_i=5V, I_o=0$ to $250mA$ * 2
Output ripple voltage	V_p	-	0.03	0.15	Vpp	$V_i=5V, I_o=250mA$
Power conversion efficiency	η	65	74	-	%	$V_i=5V, I_o=250mA$ * 2

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

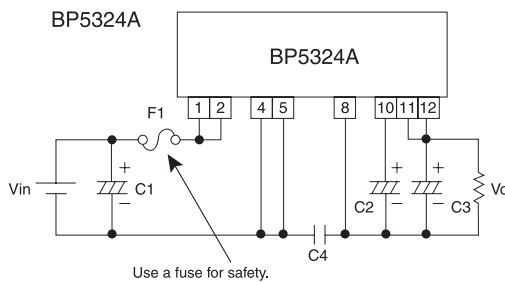
Derating Curve



Conversion Efficiency



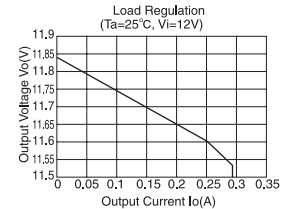
Application circuit



Pin No.	Function
1	Input terminal (5V)
2	Input terminal (5V)
3	Not used
4	Input terminal (0V)
5	Input terminal (0V)
6	Not used
7	Not used
8	Output GND terminal
9	Not used
10	Capacitor connect
11	Output terminal
12	Output terminal

Verify proper operation under actual conditions before use.
 In particular, confirm that the load current dose not exceed the maximum rating.

Load Regulation



External Components Settings

- F1 : Fuse Use a quick-acting, 2.5A fuse
- C1: Input Capacitor Capacitance : 100μF to 220μF Rated voltage : 16V or higher .
- C2: Output Capacitor Capacitance : 100μF, Rated voltage : 25V or higher.
- C3: Output Capacitor Capacitance : 100μF to 470μF, Rated Voltage : 25V or higher.
- C4: Noise Reduction Capacitor Capacitance : 4700pF to 0.1μF, Rated Voltage : AC500V or higher.

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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 - [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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- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
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The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

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Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.