

Step-down DC/DC converter

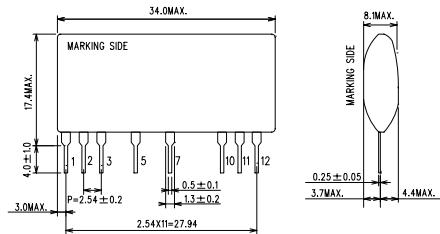
18V/500mA output type

BP5226-18

● Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit	Conditions
Input voltage	V_{IN}	46	V	DC
Operating temperature range	T_{opr}	-20 to +80	°C	Refer to derating curve
Storage temperature range	T_{stg}	-25 to +105	°C	
Maximum surface temperature	T_{cmax}	105	°C	(Ambient temperature + the module self-heating) $\leq T_{cmax}$
Maximum output current	I_{omax}	500	mA	

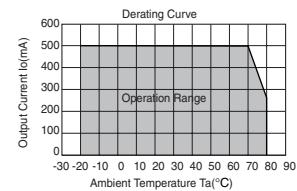
● Dimensions (Unit : mm)



● Electrical Characteristics

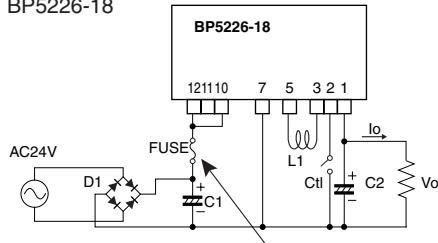
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V_i	20	34	46	V	DC
Output voltage	V_o	17.0	18.0	19.0	V	$V_i=34V, I_o=500mA$
Output current	I_o	0	—	500	mA	$V_i=34V$
Line regulation	V_r	—	0.10	0.20	V	$V_i=20$ to $46V, I_o=500mA$
Load regulation	V_l	—	0.10	0.20	V	$V_i=34V, I_o=0$ to $500mA$
Output ripple voltage	V_p	—	0.05	0.20	V_{pp}	$V_i=34V, I_o=500mA$
CTL pin OFF voltage	V_{ctl}	3.1	—	14.0	V	SW1 OFF (V_o OFF)
CTL pin ON voltage	$V_{ctl(ON)}$	—	—	0.4	V	SW1 ON (V_o ON)
CTL terminal pull-up resistance	R_{ctl}	135	150	165	kΩ	
Power conversion efficiency	η	85	90	—	%	$V_i=34V, I_o=500mA$

● Derating Curve



● Application circuit

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Pin No.	Function
1	Output terminal: V_o (18V)
2	CTL terminal
3	Power inductor terminal
4	Skip
5	Power inductor terminal
6	Skip
7	COMMON
8	Skip
9	Skip
10	Input terminal
11	N.C.
12	Input terminal

Be sure to use fuse for safety.

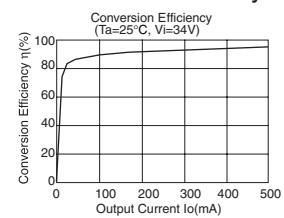
For actual usage, Please kindly evaluate and confirm our part mounted in your product, Especially, Please make sure to confirm the load current does not exceed Max. rated current by using the current probe.

● Input terminal is 10 and 12.

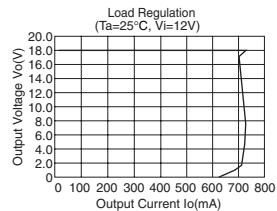
External components setting

FUSE: fuse Please make sure to use quick acting (1.8A)
 C1: Input capacitor Above 50V, 470μF to 820μF
 C2: Output capacitor Above 25V, 100μF to 1000μF, Low impedance
 L1: Power inductor Inductance 100μH, Rating current: above 1.4A
 Choose components that do not easily get magnetically saturated in high temperature
 D1: Diode Above 60V, current: above 1.0A

● Conversion Efficiency



● Load Regulation



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.
- 2) Product information and data, including application examples, contained in the specifications are for reference purposes only; the Company does not guarantee the industrial/intellectual property rights or any other rights of a third party. Accordingly, the Company shall not bear responsibility for:
 - [a] Infringement of the intellectual property rights of a third party
 - [b] Problems arising from the use of the products listed herein
- 3) The Company prohibits the purchaser from exercising or using the intellectual/industrial property rights or any rights belonging to or are controlled by the Company, other than the right to use, sell, or dispose of the products.

Appendix

Notes

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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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- Products listed in this document are no antiradiation design.

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).

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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.