

# Step-down DC/DC converter

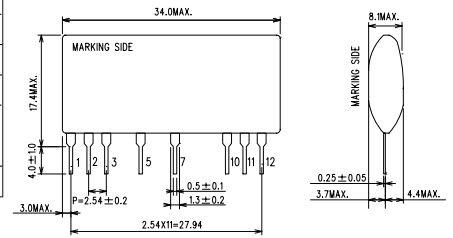
# BP5226-18

## 18V/500mA output type

### 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	mApk	

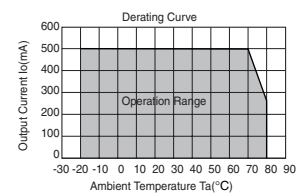
### Dimensions(Unit : mm)



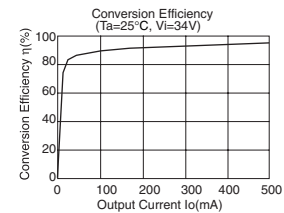
### Electrical Characteristics

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	Vpp	$V_i=34V, I_o=500mA$
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	$\eta$	85	90	-	%	$V_i=34V, I_o=500mA$

### Derating Curve

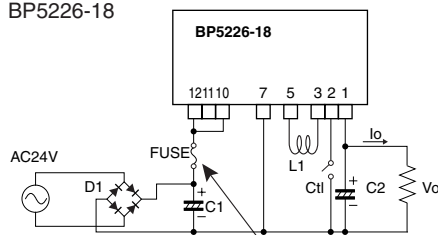


### Conversion Efficiency



### Application circuit

BP5226-18



Pin No.	Function
1	Output terminal:Vo(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.

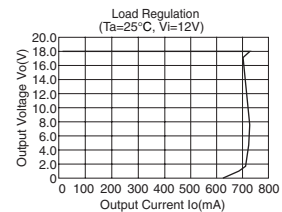
For actual usage, Please kindly evaluate and confirm our part mounted in your product, Especially, Please make sure to confirm the load current does not exceed Max. rated current by using the current probe.

- 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

### 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. Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>2</sub>) 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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  - [b] Problems arising from the use of the products listed herein
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