

5V/150mA Output

# Step-down DC/DC Converter(Non-isolated)

**BP5223**

## Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	$V_i$	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

## Electrical Characteristics

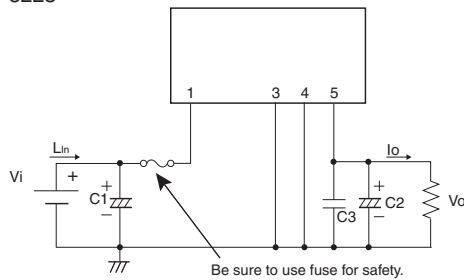
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	$V_i$	8.0	14.0	18.0	V	DC
Output voltage	$V_o$	4.7	5.0	5.3	V	$V_i=14V, I_o=100mA$
Output current	$I_o$	-	-	150	mA	$V_i=14V$ *1
Line regulation	$V_L$	-	0.03	0.10	V	$V_i=8$ to 18V, $I_o=100mA$
Load regulation	$V_R$	-	0.05	0.15	V	$V_i=14V,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

\*1 Maximum output current varies depending on ambient temperature ; please refer to derating curve.

\*2 The output ripple voltage may vary depending on the capacitance, environment, and location of peripheral components. Especially right attention has to be paid to aluminum electrolytic capacitor, because ESR changes greatly at the time of the low temperature and output ripple voltages increase.

## Application Circuit

BP5223



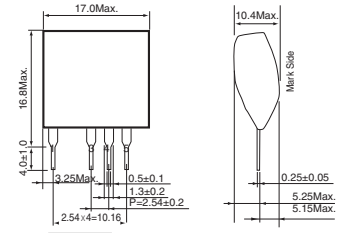
Pin No.	Function
1	Input terminal $V_i$
2	Not used
3	GND
4	GND
5	Output terminal $V_o$

Please verify operation and characteristics in the customer's circuit before actual usage. Ensure that the load current does not exceed the maximum rating.

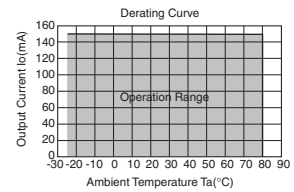
### External Component Specifications

FUSE: fuse	Use a fast-acting fuse of 0.5A
C1: Input capacitor	Rated voltage : Beyond 50V Capacitance : 33 to 220 $\mu$ F, low impedance type Rated ripple current : Beyond 0.1Arms
C2: Output capacitor	Rated voltage : Beyond 25V Capacitance : 100 to 470 $\mu$ F, low impedance type ESR : Less than 0.39 $\Omega$ Rated ripple current : Beyond 0.37Arms Evaluate under actual operating conditions since it affects the output ripple voltage.
C3: Noise removal capacitor	Rated voltage : Beyond 25V Capacitance : 0.1 to 0.22 $\mu$ F Film or ceramic capacitor

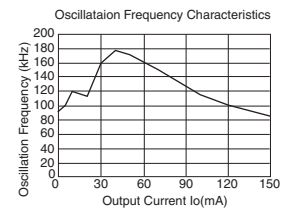
## Dimensions (Unit : mm)



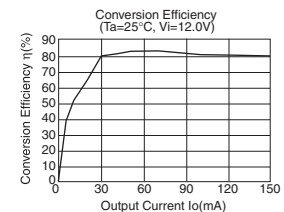
## Derating Curve



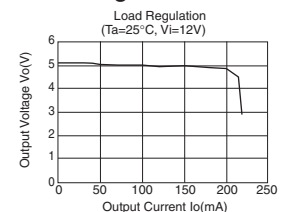
## Oscillation Frequency



## Conversion Efficiency



## Load Regulation



## Surface Temperature Increase

