

AC 200V Input 15V*200mA Output Type Low Standby Consumption With Built In ON/OFF Function

Non-Isolated AC/DC Converter

BP5078-15

● Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Input voltage	Vi	450	V
Operating temperature range	Topr	-20 to 80	°C
Storage temperature range	Tstg	-25 to 105	°C
Allowable maximum surface temperature	Tcmax	105	°C
ESD endurance	Vsurge	2	kV
Maximum output current	Iomax	200	mA

●Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	Vi	180	311	390	V	DC
Output voltage	Vo	14.5	15.5	16.5	V	Vi=311V, Io=100mA When turn on SW1
Output voltage	Vo	–	–	0.5	V	Vi=311V, Io=100mA When turn off SW1 *1
Output current	Io	0	–	200	mA	Vi=311V *2
Line regulation	Vr	–0.20	0.05	0.20	V	Vi=180 to 390V, Io=100mA
Load regulation	VI	–0.20	0.05	0.20	V	Vi=311V, Io=0 to 100mA
Output ripple voltage	Vp	–	0.07	0.15	Vp-p	Vi=311V, Io=100mA *3
Conversion efficiency	η	62	77	–	%	Vi=311V, Io=200mA

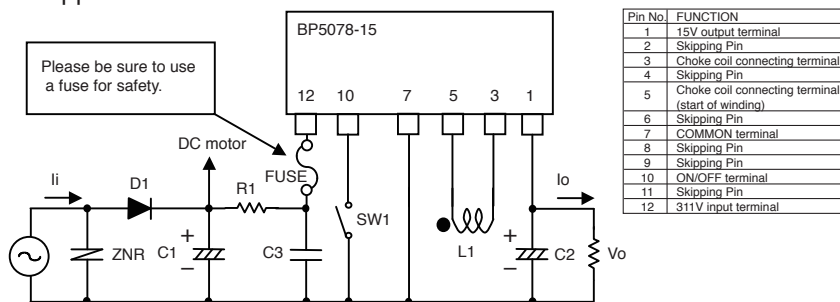
*1 The power module will be operating when turn on the SW1(10 pin and 7pin shorts)

*2 Max output current should be reduced according to the surrounding temperature.

*3 The output ripple voltage may vary depending on the capacitance, environment, and location of peripheral components.

Especially more attention has to be paid to aluminum electrolytic capacitor because ESR changes greatly and output ripple voltages increase at the time of the low temperature.

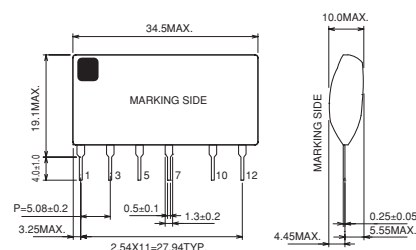
● Application Circuit



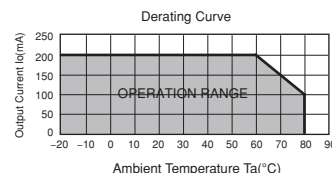
EXTERNAL COMPONENTS SETTING

FUSE	FUSE	Please make sure to use fuse 1A.
C1	Input smooth capacitor	Rated voltage 450V or higher, 22 to 820μF Ripple current: 0.13Arms or higher
C2	Output smooth capacitor	Rated voltage 25V or higher, 100 to 470μF, Low impedance type ESR: 0.4 Max. Ripple current: 0.25Arms or higher Impedance of capacitor affects the output ripple voltage. The constant value should be evaluated in the product.
C3	Noise removal capacitor	Rated voltage 450V or higher, 0.1 to 0.22μF Film or ceramic capacitor It reduces the noise terminal voltage. Please install it if necessary.
L1	Choke coil	The constant value should be evaluated in the product. L value: 1mH, Allowable current value 950mA or higher
D1	Rectifier diode	Please choose components that do not easily get magnetically saturated in high temperature. Recommended part: C13-FR 1mH(MITSUMI) Use a rectifying diode with: Reverse Peak Voltage: 600V or higher; Average Rectifying Current: 1A or higher, Peak Surge Current: 20A or higher. If capacity of input capacitor is enlarged, please use a product that can resist for rush current after power-on. This product is compatible with full-wave rectification.
R1	Noise removal resistor	10 to 22 , 1/4W It reduces the noise terminal voltage. Please install it if necessary. The constant value should be evaluated in the product.
ZNR	Varistor	It must be used in order to protect against lightning surges and static electricity.

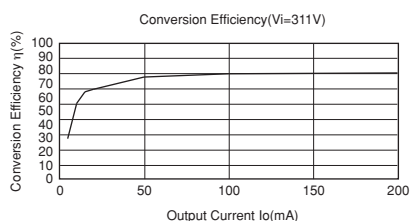
●Dimensions (Unit : mm)



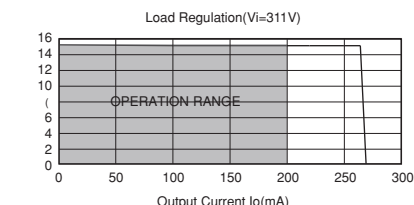
- Derating Curve



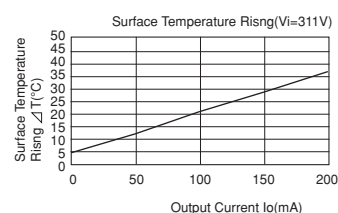
● Conversion Efficiency



- Load Regulation



● Surface Temperature Increase



Notes

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