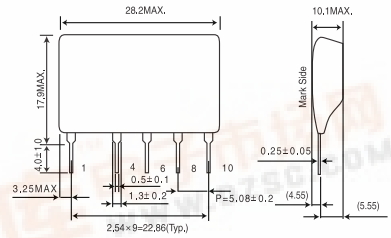
AC/DC converter BP5045A

AC220V input, -12V/200mA output

● Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	Vi	–390	V
Output voltage	Io	200	mApk
ESD endurance	Vsurge	2	kV
Operating temperature range	Topr	–25 to +80	℃
Storage temperature range	Tstg	–25 to +105	℃

● Dimension(Unit : mm)

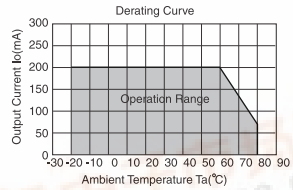


● Electrical Characteristics

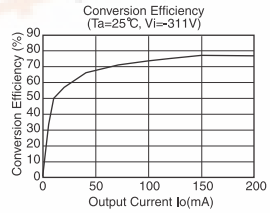
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	Vi	–113	–311	–358	V	DC (80 to 276VAC)
Output voltage	Vo	–11.5	–12.5	–13.2	V	Vi= –311V, Io=200mA
Output current	Io	0	–	200	mApk	Vi= –311V *1
Line regulation	Vr	–	–	0.15	V	Vi= –113 to –380V, Io=200mA
Load regulation	Vl	–	–	0.20	V	Vi= –311V, Io=0 to 200mA
Output ripple voltage	Vp	–	0.15	–	Vp-p	Vi= –311V, Io=200mA *2
Power conversion efficiency	η	72	77	–	%	Vi= –311V, Io=200mA

*1 Maximum output current varies depending on ambient temperature ; please refer to derating curve.
*2 Spike noise is not included in output ripple voltage.

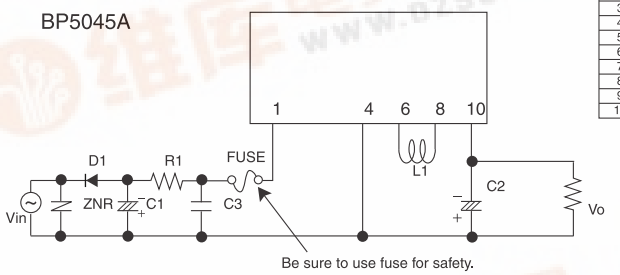
● Derating Curve



● Conversion Efficiency



● Application circuit



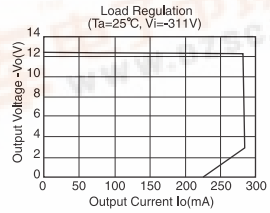
Pin No.	Function
1	Input terminal
2	Not used
3	Not used
4	COMMON terminal
5	Not used
6	Coil connect
7	Not used
8	Coil connect
9	Not used
10	Output terminal

For acutual 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.

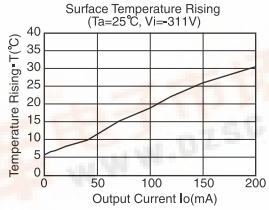
External components setting

FUSE: Fuse	Please make sure to use quick acting fuse 1A
C1: Capacitor for input voltage smoothing	Capacitance : 22 to 100μF Rated voltage : 450V or higher
C2: Capacitor for output voltage smoothing	Capacitance : 220μF to 470μF Rated voltage : 35V or higher, ESR is 0.16 max. Ripple current is 0.58Arms above. Output noise voltage is infulenced.Please evaluate it in the actual set.
C3: For noise terminal voltage reduction	Capacitance : 0.1μF to 0.22μF Rated voltage : 450V or higher Film capacitor or ceramic capacitor. Reduce the noise terminal voltage. The constant value should be evaluated in the set.
L1: Choke coil	L : 820μH Allowable current : 0.42A or higher Please use the one that is hard to be magnetic saturated even in the high temperature.
R1: For noise terminal voltage reduction	10 to 22 1/4W (short time overload guranteed product) Reduce the noise terminal voltage.please set it,if necessary. The constant value should be evaluated in set.
D1: Rectifier diode	In the absolute maximum ratings, the reverse peak voltage should be 800V or higher, the average rectifying current should be 1.0A or higher, and the peak surge current should be 20A or higher. (Full-wave rectifier can be used in out part.) If larger input smoothing capacitor is used, the rating of rectifier diode should be higher.
ZNR: Varistor	Varistor must be used. It protects this part from lightning surge and static electricity.

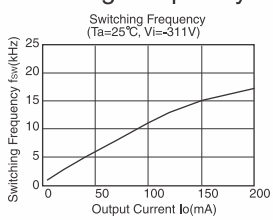
● Load Regulation



● Surface Temperature Rising



● Switching Frequency



Precautions on Use of ROHM Power Module

Safety Precautions

1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, telecommunication equipment, home appliances, amusement equipment etc.).
   If the products are to be used in devices requiring extremely high reliability (medical equipment, transport equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or operational error may endanger human life and sufficient fail-safe measures, please consult with the Company's sales staff in advance. If product malfunctions may result in serious damage, including that to human life, sufficient fail-safe measures must be taken, including the following:
   [a] Installation of protection circuits or other protective devices to improve system safety
   [b] Installation of redundant circuits in the case of single-circuit failure
2) The products are designed for use in a standard environment and not in any special environments. Application of the products in a special environment can deteriorate product performance. Accordingly, verification and confirmation of product performance, prior to use, is recommended if used under the following conditions:
   [a] Use in various types of liquid, including water, oils, chemicals, and organic solvents
   [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
   [c] Use in places where the products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
   [d] Use in places where the products are exposed to static electricity or electromagnetic waves
   [e] Use in proximity to heat-producing components, plastic cords, or othe flammable items
   [f] Use involving sealing or coating the products with resin or other coating materials
   [g] Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering
   [h] Use of the products in places subject to dew condensation
3) The products are not 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.

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