AC/DC converter

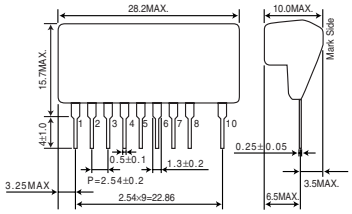
AC100V input, 20V/80mA output

BP5034B20

● Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	Vi	195	V
Output current	Io	80	mApk
Operating temperature range	Topr	–20 to +80	°C
Storage temperature range	Tstg	–25 to +85	°C
Maximum surface temperature	Tcmax	100	°C

● Dimensions(Unit : mm)

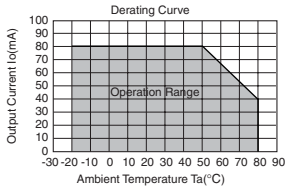


● Electrical Characteristics

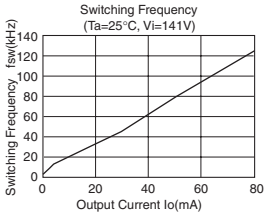
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	Vi	113	141	195	V	DC
Output voltage	Vo	18.5	20.0	21.5	V	Vi=141V, Io=50mA
Output current	Io	0	–	80	mA	Vi=141V ∗1
Line regulation	Vr	–	0.02	0.3	V	Vi=113 to 195V, Io=50mA
Load regulation	Vl	–	0.05	0.5	V	Vi=141V, Io=0 to 50mA ∗2
Output ripple voltage	Vp	–	0.05	0.2	Vp-p	Vi=141V, Io=50mA
Power conversion efficiency	η	65	72	–	%	Vi=141V, Io=80mA ∗2

∗1 Maximum output current varies depending on ambient temperature ; please refer to derating curve.
∗2 Please refer to Load regulation, Conversion efficiency.

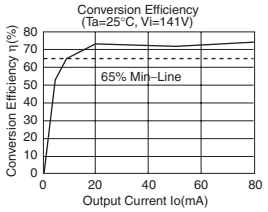
● Derating Curve



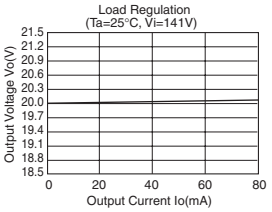
● Switching Frequency



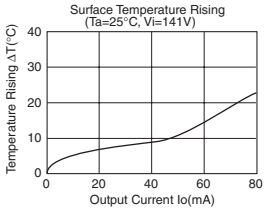
● Conversion Efficiency



● Load Regulation



● Surface Temperature Rising



● Application circuit

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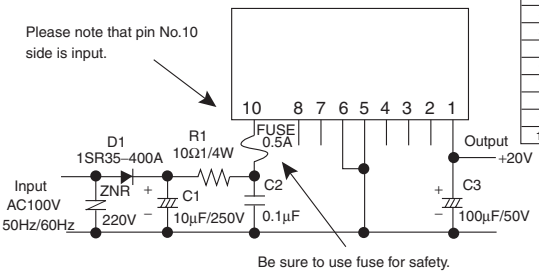

Pin No.	Function
1	Output terminal Vo(20V)
2	N.C.
3	N.C.
4	N.C.
5	COMMON
6	COMMON
7	N.C.
8	N.C.
9	Not used
10	Input terminal Vi(141VDC)

For actual usage, Please kindly evaluate and confirm our part mounted in your product, Especially, Please make sure to confirm whether the load current exceed Max. rated current by using the current probe.

External components setting

FUSE : FUSE	Recommend the use of fast-acting type fuse 0.5A.
C1: Input capacitor	Rated voltage : Beyond 200V Capacity : 3.3 to 22μF Rated ripple current : Beyond 0.13Arms
C2: Output capacitor	Rated voltage : Beyond 25V Capacity : 100 to 470μF, Low impedance type ESR : Less than 0.39Ω Rated ripple current : Beyond 0.1Arms Evaluate it with the actual opportunity because it influences an output ripple voltage.
C3: Noise removal capacitor	Rated voltage : Beyond 200V Capacity : 0.1 to 0.22μF Film capacitor, or Ceramics capacitor
D1: Rectifier diode	Peak reverse voltage : More than 400V Mean rectifying current : More than 0.5A Peak forward surge current : More than 20A This product can use even all the wave rectification.
R1: Noise removal resistor	Resistance : 10 to 22Ω Power : More than 1/4W
ZNR: Varistor	Be sure to use it to protect this product from thunder surge and the static electricity.

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_2, H_2S, NH_3, SO_2, NO_2) 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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