



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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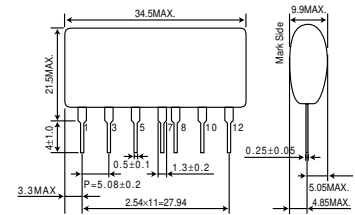
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Absolute Maximum Ratings

Parameter	Symbol	Limits	Unit
Input voltage	V_i	-190	V
Output current	I_o	500	mA(pk)
ESD endurance	V_{surge}	2	kV
Operating temperature range	T_{opr}	-20 ~ +80	°C
Storage temperature range	T_{stg}	-25 ~ +105	°C

Dimension(Unit : mm)

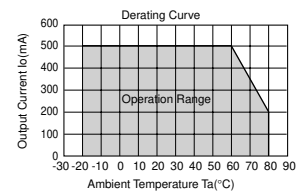


Electrical Characteristics

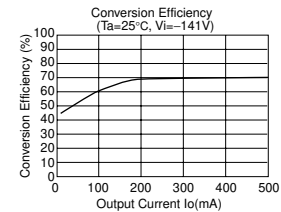
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage range	V_i	-113	-141	-170	V	DC (80~120VAC)
Output voltage	V_o	-4.7	-5.0	-5.3	V	$V_i=-141V, I_o=500mA$
Output current	I_o	0	-	500	mA	$V_i=-141V$ ≈ 1
Line regulation	V_r	-	0.05	0.2	V	$V_i=-113V \sim -170V, I_o=500mA$
Load regulation	V_l	-	0.07	0.3	V	$V_i=-141V, I_o=0 \sim 500mA$
Output ripple voltage	V_p	-	0.15	0.3	Vp-p	$V_i=-141V, I_o=500mA$ ≈ 2
Power conversion efficiency	η	60	71	-	%	$V_i=-141V, I_o=500mA$

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

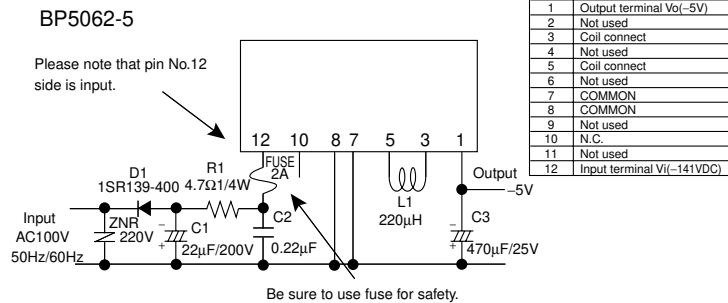
Derating Curve



Conversion Efficiency



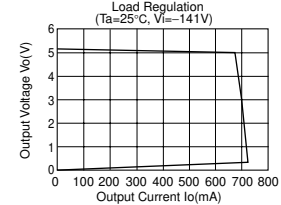
Application circuit



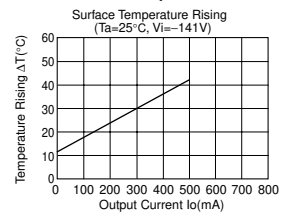
Pin No.	Function
1	Output terminal $V_o(-5V)$
2	Not used
3	Coil connect
4	Not used
5	Coil connect
6	Not used
7	COMMON
8	COMMON
9	Not used
10	N.C.
11	Not used
12	Input terminal $V_i(-141VDC)$

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 whether the load current exceed Max. rated current by using the current probe.

Load Regulation



Surface Temperature Rising



External components setting

- FUSE:** Fuse. Please make sure to use quick acting fuse 2A.
- C1:** Capacitor for input voltage smoothing. Capacitance : 22μF~100μF Rated voltage : 200V or higher. Ripple current is 0.22Arms above. Especially when the capacity is enlarged, rush current at powering up is increased. Please be careful in the evaluation.
- C2:** For noise terminal voltage reduction. Capacitance : 0.1μF~0.22μF Rated voltage : 200V or higher. Film capacitor or ceramic capacitor. Reduce the noise terminal voltage. The constant value should be evaluated in the set.
- C3:** Capacitor for Output voltage smoothing. Capacitance : 220μF~820μF Rated voltage : 16V or higher, ESR is 0.25Ω max. Ripple current is 0.4Arms above. Output noise voltage is influenced. Please evaluate it in the actual set.
- D1:** Rectifier diode. In the absolute maximum ratings, the reverse peak voltage should be 400V or higher, the average rectifying current should be 1A or higher, and the peak surge current should be 40A or higher. (Full-wave rectifier can be used in out part.)
- L1:** Choke coil. The inductance should be 220μH, the rated direct current should be 1.3A above. Otherwise heating or abnormal oscilation occurs. When the input smoothing capacitor is enlarged, the rating of the rectifier diode should be higher.
- R1:** For noise terminal voltage reduction. 4.7Ω~10Ω 1/4W. Reduce the noise terminal voltage. The constant value should be evaluated in set.
- ZNR:** Varistor. Varistor must be used. It protects this part from lightning surge and static electricity.

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 other 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.

Precautions Regarding Application Example and External Circuits

- 1) If change is made to the constant of an external circuit, allow a sufficient margin due to variations of the characteristics of the products and external components, including transient characteristics, as well as static characteristics. Please be informed that the Company has not conducted investigations on whether or not particular changes in the application examples or external circuits would result in the infringement of patent rights of a third party.
- 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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- 1) These Specifications contain information related to the Company's industrial property. Any use of them other than pertaining to the usage of appropriate products is not permitted. Duplication of these Specifications and its disclosure to a third party without the Company's permission is prohibited.
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 - [b] any problems incurred by the use of the products listed herein.
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- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
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- Products listed in this document use silicon as a basic material.
Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

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Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.