

● Absolute Maximum Ratings

Parameter	Symbol	Limits		Unit
Input voltage	Vi	400	*1	V
Maximum output current(15V)	I15OMAX	80	*2	mA _{pk}
Maximum output current(5V)	I5OMAX	350	*2	mA _{pk}
ESD endurance	V _{surge}	2		kV
Operating temperature range	T _{opr}	-20 ~ +80		°C
Storage temperature range	T _{stg}	-25 ~ +105		°C

*1 Maximum input voltage at steady mode is 358V, but the over-applied voltage is 400V_{pk}, within 10 seconds.

*2 Maximum output current is the peak of load current after the output smoothing capacitor. The maximum heating part of this module have to be below 150°C including self-heating and ambient temperature. And the average current must be in the range of electrical characteristics below.

● Electrical Characteristics

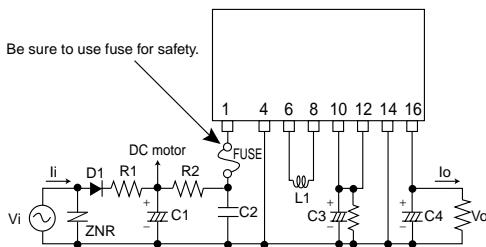
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	Vi	226	282	358	V	DC
Output voltage1	V15	14.0	15.0	16.0	V	Vi=282V, I15=80mA, I5=0mA
Output current1	I15	0	—	80	mA	Vi=282V
Output voltage2	V5	4.75	5.0	5.25	V	Vi=282V, I15=0mA, I5=200mA
Output current2	I5	0	—	350	mA	Vi=282V
Line regulation1	Vr1	-0.3	0.1	0.3	V	Vi=226~358V, I15=80mA, I5=0mA
Line regulation2	Vr2	-0.3	0.1	0.3	V	Vi=226~358V, I15=0mA, I5=350mA
Load regulation1	VI1	-0.3	0.05	0.3	V	Vi=282V, I15=0~80mA, I5=0mA
Load regulation2	VI2	-0.3	0.05	0.3	V	Vi=282V, I15=0mA, I5=0~350mA
Output ripple voltage1	Vp1	—	0.1	0.2	V _{p-p}	Vi=282V, I15=80mA, I5=0mA
Output ripple voltage2	Vp2	—	0.1	0.2	V _{p-p}	Vi=282V, I15=0mA, I5=350mA
Power conversion efficiency1	η1	60	70	—	%	Vi=282V, I15=80mA, I5=0mA
Power conversion efficiency2	η2	45	55	—	%	Vi=282V, I15=0mA, I5=350mA

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

*2 Please refer to Load regulation, Conversion efficiency.

● Application circuit

BP5085-15



Pin No.	Function
1	Input terminal Vi(282VDC)
2	Not used
3	Not used
4	COMMON1
5	Not used
6	Choke coil connect
7	Not used
8	Choke coil connect
9	Not used
10	15V output terminal
11	Not used
12	15V input terminal
13	Not used
14	COMMON2
15	Not used
16	Output terminal Vo(5V)

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

C1: Capacitor for input voltage smoothing

C2: For noise terminal voltage reduction

C3: Capacitor for Output (15V output)

C4: Capacitor for Output (5V output)

L1: Choke coil

D1: Rectifier diode

R1: Rush current limiting resistance

R2: For noise terminal

ZNR: Varistor

Please make sure to use quick acting fuse 1A / Please use the fuse resistance for R2.

Capacitance : 33μF~820μF Rated voltage : 450V or higher

Ripple current is 0.13Arms above.

Capacitance : 0.1μF~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.

Capacitance : 220μF~1000μF Rated voltage : 35V or higher,

ESR is 0.16Ω max. Ripple current is 0.4Arms above.

Output ripple voltage is influenced. Please evaluate it in the actual set

Capacitance : 220μF~1000μF Rated voltage : 16V or higher,

ESR is 0.25Ω max. Ripple current is 0.4Arms above.

Output ripple voltage is influenced. Please evaluate it in the actual set.

L : 1mH Allowable current : 600mA or higher.

Please use the one that is hard to be magnetic saturated even in the high temperature.

In the absolute maximum ratings, the reverse peak voltage should be 800V or higher, the average rectifying current should be 1A or higher, and the peak surge current should be 40A or higher.

For rush current, to use the large capacity diode for surge current is recommended.

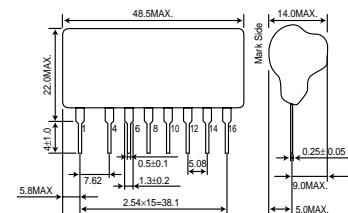
Limiting resistance must be used because rush current at powering up is applied in proportion to the C1 capacitance. Please determine the resistance value after confirming the rising characteristics of the module at powering up.

10Ω~22Ω 1/4W Reduce the noise terminal voltage. Please set it, if necessary.

The constant value should be evaluated in set.

Varistor must be used. It protects this part from lightning surge and static electricity.

● Dimension(Unit : mm)



Precautions on Use of ROHM Power Module

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- 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:
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 - [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.
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 - [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.

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