

- Structure Silicon monolithic integrated circuit
- Product name Boost DCDC converter for TV tuner
- Type **BD8924G**
- Package outline Fig. 1
- Block Diagram Fig. 2
- Features 1) For varactor voltage in the TV tuner.
 2) Over current Protection circuit
 3) SSOP-5 small size

© This chip is not designed to protect itself against radioactive rays.

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit	Condition
Maximum applied voltage1	Vmax1	7.0	V	It applies to VIN terminal
Maximum applied voltage 2	Vmax2	36	V	It applies to SW, VOUT terminals
Power dissipation	Pd1	674.9 (Note1)	mW	At single unit
Operating temperature range	Topr	-30 ~ +85	°C	
Storage temperature range	Tstr	-55 ~ +150	°C	

(Note1) Pd derated at 5.4mW/°C for temperature above Ta=25°C,
 mounted on 70mm×70mm×1.6mm glass-epoxy PCB.

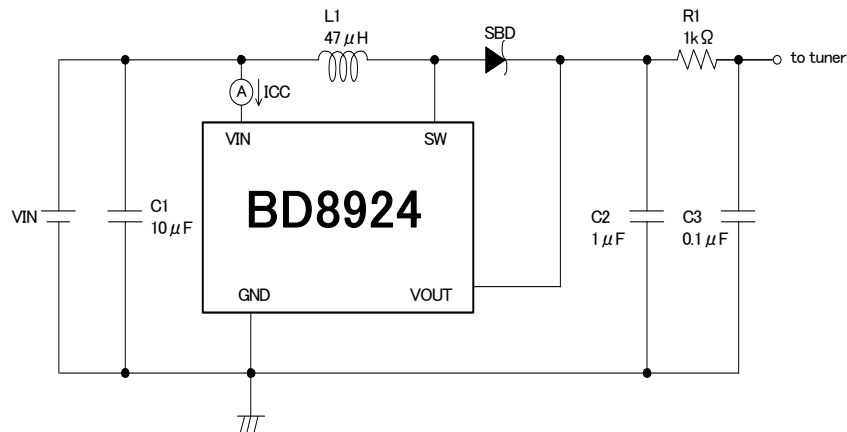
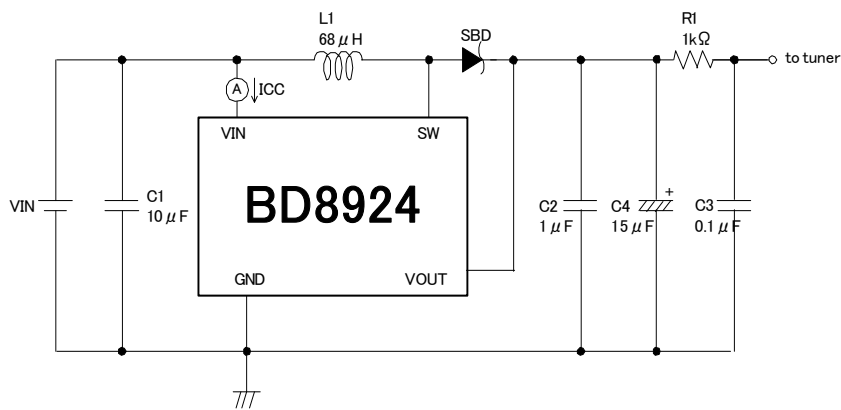
Operation condition (Ta=25°C)

Parameter	Symbol	Ratings	Unit	Condition
Power supply voltage range	VCC	4.5~5.5	V	VIN terminal voltage



NO.	Pin Name	I/O	Function
1	SW	I	Inductor connection terminal
2	GND	–	GND
3	VOUT	O	Boost voltage output
4	GND	–	GND
5	VIN	–	Power supply input



(a) $I_{\text{omax}} \leq 2.0\text{mA}$

 (b) $2\text{mA} < I_{\text{omax}} \leq 4.0\text{mA}$


Please use RC-LPF of R1 and C3 if you need to cut the noise.
 We do not guarantee the operation of circuit if you use LC filter.
 About recommended parts, please see the technical-note.

Fig. 3 Recommended Circuit

 Electrical characteristic (Unless otherwise specified $T_a=25^\circ\text{C}$, $V_{\text{IN}}=5\text{V}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Circuit current	I_{CC}	—	1.0	2.0	mA	$V_{\text{OUT}}=35\text{V}$ force
Oscillation frequency	f_{sw}	250	400	600	kHz	
Output voltage range	V_{omax}	30.0	31.0	32.0	V	$I_o=0\text{mA}$
Maximum output current1	I_{omax1}	2.0	—	—	mA	$L1=47\mu\text{H}$, $C2=1\mu\text{F}$
Maximum output current2	I_{omax2}	4.0	—	—	mA	$L1=68\mu\text{H}$, $C2=1\mu\text{F}$, $C4 \geq 15\mu\text{F}$
Oscillation beginning power-supply voltage	V_{st}	4.2	—	—	V	V_{IN} terminal voltage The oscillation is confirmed with SW pin.

Caution on use**(1) Absolute Maximum Ratings**

An excess in the absolute maximum rating, such as supply voltage, temperature range of operating conditions, etc., can break down devices, thus making impossible to identify breaking mode such as a short circuit or an open circuit. If any special mode exceeding the absolute maximum ratings is assumed, consideration should be given to take physical safety measures including the use of fuses, etc.

(2) The power supply and the GND lines

Design PCB pattern to provide low impedance for the wiring between the power supply and the GND lines. Please take care about interference by common impedance of the wiring pattern when there are two or more power supply and GND line. For the GND line, please note the separation of the large current route and the small signal route including the external circuit. Furthermore, for all power supply terminals to ICs, mount a capacitor between the power supply and the GND terminal. At the same time, in order to use an electrolytic capacitor, thoroughly check to be sure the characteristics of the capacitor to be used present no problem including the occurrence of capacity dropout at a low temperature, thus determining the constant.

(3) GND voltage

Make setting of the potential of the GND terminal so that it will be maintained at the minimum in any operating state.

(4) Short circuit between terminals and erroneous mounting

In order to mount ICs on a set PCB, pay thorough attention to the direction and offset of the ICs. Erroneous mounting can break down the ICs. Furthermore, if a short circuit occurs due to foreign matters entering between terminals or between the terminal and the power supply or the GND terminal, the ICs can break down.

(5) Operation in strong electromagnetic field

Be noted that using ICs in the strong electromagnetic field can malfunction them.

(6) Input terminals

In terms of the construction of IC, parasitic elements are inevitably formed in relation to potential. The operation of the parasitic element can cause interference with circuit operation, thus resulting in a malfunction and then breakdown of the input terminal. Therefore, pay thorough attention not to handle the input terminals, such as to apply to the input terminals a voltage lower than the GND respectively, so that any parasitic element will operate. Furthermore, do not apply a voltage to the input terminals when no power supply voltage is applied to the IC. In addition, even if the power supply voltage is applied, apply to the input terminals a voltage lower than the power supply voltage or within the guaranteed value of electrical characteristics.

(7) External capacitor

In order to use a ceramic capacitor as the external capacitor, determine the constant with consideration given to a degradation in the nominal capacitance due to DC bias and changes in the capacitance due to temperature, etc.

(8) Thermal design

Perform thermal design in which there are adequate margins by taking into account the permissible dissipation (Pd) in actual states of use. Moreover, please use it within the range where output Tr doesn't exceed the rated voltage and ASO.

(9) Rush current

In CMOS IC, when the power supply is turned on rush current might flow momentarily in logical internal irregular state. Therefore, note drawing the capacity of the power supply coupling, the power supply, and width and drawing the GND pattern wiring, please.

(10) Test terminal and unused terminal processing

Please process a test terminal and unused terminal according to explanations of the function manual and the application note, etc. to be unquestionable while real used. Moreover, please inquire of the person in charge of our company about the terminal without the explanation especially.

(11) Content of material

The application notes etc. are the design material to design the application, and no one of the content securing it. Please decide the application after it examines enough and it evaluates it including external parts.

Notes

No copying or reproduction of this document, in part or in whole, is permitted without the consent of ROHM Co.,Ltd.

The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing ROHM's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from ROHM upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, ROHM shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM and other parties. ROHM shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While ROHM always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). ROHM shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.



Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

<http://www.rohm.com/contact/>

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ROHM Semiconductor:](#)

[BD8924G-GTR](#)