

Structure : Silicon Monolithic Integrated Circuit

Product : Band-pass filter for spectrum analyzer for car audio systems

Type : **BA3830F**

Function : 1. Built-in band pass filter for spectrum analyzer  
 2. Designed for 5V microcomputer power voltage  
 3. SOP18 package requiring few external parts

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Supply voltage	Vcc	9	V
Power dissipation	Pd	450*	mW
Operating temperature	Topr	-25~+75	°C
Storage temperature	Tstg	-55~+125	°C

※This value decreases 4.5 mW/°C for Ta=25°C or more.

Operating Voltage Range (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	Vcc	4.5	-	8.0	V

Application example

Note that ROHM cannot provide adequate confirmation of patents.

The product described in this specification is 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 this product 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.

Electrical Characteristics

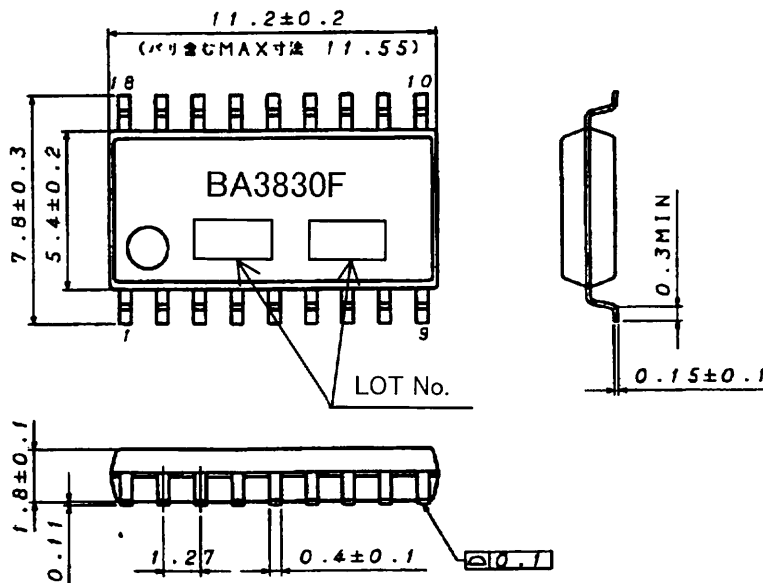
(Unless specified particularly,  $T_a=25^{\circ}\text{C}$ ,  $V_{CC}=5\text{V}$ ,  $R_i=10\text{M}\Omega$ ,  $R\phi_1=270\text{k}\Omega$ ,  $R\phi_2=270\text{k}\Omega$ )

Parameter	Symbol	Limit			Unit	Conditions
		Min.	Typ.	Max.		
Quiescent current	$I_Q$	—	3.8	5.2	mA	
Reference output level(LEVEL)	$V_{ol}$	-3	0	3	dB	$V_{IN}=-30\text{dBV}$ , $V_o=1.5\text{V}(0\text{dB})$ When $f$ =center frequencies is input
Max. output level(LEVEL)	$V_{olMax}$	3.2	4.2	—	V	$V_{IN}=-14\text{dBV}$ , When $f$ =center frequencies is input
Reference output level(REC LEVEL)	$V_{or}$	-3	0	3	dB	$V_{IN}=-30\text{dBV}$ , $V_o=1.5\text{V}(0\text{dB})$ $f=1\text{kHz}$
Max. output level(REC LEVEL)	$V_{orMax}$	3.8	4.8	—	V	$V_{IN}=-14\text{dBV}$ , $f=1\text{kHz}$
Output offset voltage	$V_{off}$	—	30	90	mV	With no signal
Center frequency 1	$f_{o1}$	49	63	77	Hz	$V_{IN}=-30\text{dBV}$
Center frequency 2	$f_{o2}$	117	150	183	Hz	$V_{IN}=-30\text{dBV}$
Center frequency 3	$f_{o3}$	257	330	403	Hz	$V_{IN}=-30\text{dBV}$
Center frequency 4	$f_{o4}$	0.78	1	1.22	kHz	$V_{IN}=-30\text{dBV}$
Center frequency 5	$f_{o5}$	2.55	3.3	4.03	kHz	$V_{IN}=-30\text{dBV}$
Center frequency 6	$f_{o6}$	7.8	10	12.2	kHz	$V_{IN}=-30\text{dBV}$
Input current when Reset pin is HIGH	$I_{IN}$	150	215	280	$\mu\text{A}$	$V_{th}=5\text{V}$
Threshold level when Reset pin is ON	$V_{th}$	—	1.4	1.8	V	
Threshold level when Reset pin is OFF	$V_{th}$	1.0	1.4	—	V	

※Q is set to 4.5.

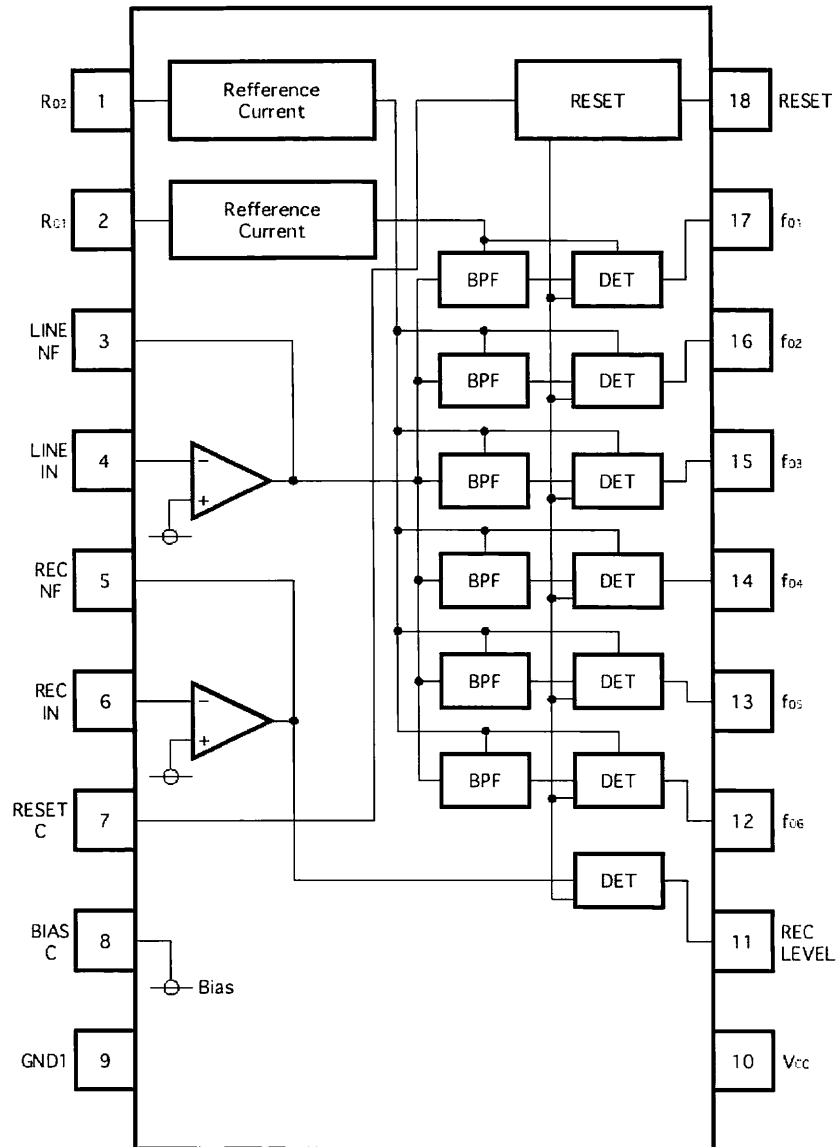
◎ Not designed for radiation resistance.

Outline Dimension



SOP18 (Unit:mm)

Block Diagram



Terminal Number/ Terminal Name

Terminal Number	Terminal Name	Terminal Number	Terminal Name	Terminal Number	Terminal Name
1	Ro2	7	RESETC	13	fo5
2	Ro1	8	BASIC	14	fo4
3	LINENF	9	GND1	15	fo3
4	LINEIN	10	VCC	16	fo2
5	RECINF	11	RECLEVEL	17	fo1
6	RECIN	12	fo6	18	RESET

## Application example

- (1) Numbers and data in entries are representative design values and are not guaranteed values of the items.
- (2) Although we are confident in recommending the sample application circuits, carefully check their characteristics further when using them. When modifying externally attached component constants before use, determine them so that they have sufficient margins by taking into account variations in externally attached components and the Rohm LSI, not only for static characteristics but also including transient characteristics.
- (3) Absolute maximum ratings  
If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you think of a case in which absolute maximum ratings are exceeded, enforce fuses or other physical safety measures and investigate how not to apply the conditions under which absolute maximum ratings are exceeded to the LSI.
- (4) GND potential  
Make the GND pin voltage such that it is the lowest voltage even when operating below it. Actually confirm that the voltage of each pin does not become a lower voltage than the GND pin, including transient phenomena.
- (5) Thermal design  
Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.
- (6) Shorts between pins and misinstallation  
When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is misinstalled and the power is turned on, the LSI may be damaged. It also may be damaged if it is shorted by a foreign substance coming between pins of the LSI or between a pin and a power supply or a pin and a GND.
- (7) Operation in strong magnetic fields  
Adequately evaluate use in a strong magnetic field, since there is a possibility of malfunction.

### Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- 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.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- 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.

#### About Export Control Order in Japan

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.

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

Please contact our sales offices for details ;

U.S.A / San Diego	TEL : +1(858)625-3630	FAX : +1(858)625-3670
Atlanta	TEL : +1(770)754-5972	FAX : +1(770)754-0691
Dallas	TEL : +1(972)312-8818	FAX : +1(972)312-0330
Germany / Dusseldorf	TEL : +49(2154)9210	FAX : +49(2154)921400
United Kingdom / London	TEL : +44(1)908-282-666	FAX : +44(1)908-282-528
France / Paris	TEL : +33(0)1 56 97 30 60	FAX : +33(0) 1 56 97 30 80
China / Hong Kong	TEL : +852(2)740-6262	FAX : +852(2)375-8971
Shanghai	TEL : +86(21)6279-2727	FAX : +86(21)6247-2066
Dilian	TEL : +86(411)8230-8549	FAX : +86(411)8230-8537
Beijing	TEL : +86(10)8525-2483	FAX : +86(10)8525-2489
Taiwan / Taipei	TEL : +866(2)2500-6956	FAX : +866(2)2503-2869
Korea / Seoul	TEL : +82(2)8182-700	FAX : +82(2)8182-715
Singapore	TEL : +65-6332-2322	FAX : +65-6332-5662
Malaysia / Kuala Lumpur	TEL : +60(3)7958-8355	FAX : +60(3)7958-8377
Philippines / Manila	TEL : +63(2)807-6872	FAX : +63(2)809-1422
Thailand / Bangkok	TEL : +66(2)254-4890	FAX : +66(2)256-6334

Japan /  
(Internal Sales)

Tokyo	2-1-1, Yaesu, Chuo-ku, Tokyo 104-0082	TEL : +81(3)5203-0321	FAX : +81(3)5203-0300
Yokohama	2-4-8, Shin Yokohama, Kohoku-ku, Yokohama, Kanagawa 222-8575	TEL : +81(45)476-2131	FAX : +81(45)476-2128
Nagoya	Dainagayo Building 9F 3-28-12, Meieki, Nakamura-ku, Nagoya, Aichi 450-0002	TEL : +81(52)581-8521	FAX : +81(52)561-2173
Kyoto	579-32 Higashi Shiokouji-cho, Karasuma Nishi-iru, Shiokoujidori, Shimogyo-ku, Kyoto 600-8216	TEL : +81(75)311-2121	FAX : +81(75)314-6559

(Contact address for overseas customers in Japan)

Yokohama	TEL : +81(45)476-9270	FAX : +81(045)476-9271
----------	-----------------------	------------------------