Audio Accessory IC Series

Band-pass Filter for Spectrum Analyzer Indication

BA3835F, BA3830F, BA3834F

Pb Free
ROHM Electronic Components

●Description

As BA3835F, BA3830F, and BA3834F contain band pass filters for spectrum analyzer, external mount parts can be significantly reduced enabling compact unit size and high reliability.

●Features

1) Built-in band pass filter for spectrum analyzer. BA3835F has 5 bands filters, BA3830F has 6 bands filters, and BA3834F has 7 bands filters.
2) BA3834F and BA3835 have an integrated multiplexer circuit. Controlled by a microcontroller, detection level is serially output with DC level.
3) BA3830F output for recording indicator. Detection level is parallel output in DC.
4) Support 5V microcomputer bus
5) SOP18 package with few external parts

●Applications

Car audio, mini audio stereo systems, and CD radio cassette players.

●Product lineup

Item	BA3835F	BA3830F	BA3834F
Number of Band	5	6	7
Center frequency of the band pass filter (Hz)	105,340,1K,3.4K,10.5K	63,150,330,1K,3.3K,10K	68,170,420,1K,2.4K, 5.9K,14.4K
Power voltage（V）	4.5～6.5	4.5～8	4.5～6.5
Output type	Serial output	Parallel output	Serial output
Working temperature range（℃）	-25 ~ +75	-25 ~ +75	-25 ~ +75
Package	SOP18	SOP18	SOP18

●**Absolute maximum ratings** (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Power supply voltage	BA3834F,BA3835F	Vcc	7	V
	BA3830F		9	
Power dissipation		Pd	450*	mW
Operating temperature		Topr	-25～+75	℃
Storage temperature		Tstg	-55～+125	℃

＊Reduced by 4.5 mW/°C over 25°C

●**Recommended operating conditions** (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	BA3834F,BA3835F	Vcc	4.5	5.0	6.5	V
	BA3830F		4.5	—	8.0	

●**Electrical characteristics**

BA3835F (unless otherwise noted, Ta＝25℃, V_{CC}＝5V, R_L＝10MΩ,V_{AIN}＝－30dBV, SEL＝1)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I_{CC}	—	8.5	13	mA	V_{AIN} = 0V, A, B, C, SEL = 0
Maximum output level	V_{OM}	4.0	4.8	—	V	V_{AIN} = -14dBV, Measured at each output
Output offset voltage	V_{OS}	—	30	150	mV	V_{AIN} = 0V, SEL = 0/1 Measured at each output (cycle time : Ts=50ms)
Standard output level 1	V_{01}	0.65	1.35	1.70	V	f_{IN} =105Hz, A=0, B=0, C=1
Standard output level 2	V_{02}	0.65	1.35	1.70	V	f_{IN} =340Hz, A=0, B=1, C=0
Standard output level 3	V_{03}	0.65	1.35	1.70	V	f_{IN} =1kHz, A=1, B=0, C=0
Standard output level 4	V_{04}	0.65	1.35	1.70	V	f_{IN} =3.4kHz, A=1, B=1, C=0
Standard output level 5	V_{05}	0.65	1.35	1.70	V	f_{IN} =10.5kHz, A=1, B=1, C=1
Input impedance	R_{IN}	80	100	120		f_{IN} =1kHz
Common-mode rejection ratio	CMRR	25	50	—	dB	f_{IN} =1kHz, V_{AIN} =V_{CIN}
Logic input high level	V_{IH}	2.5	5.0	—	V	
Logic input low level	V_{IL}	—	0	0.5	V	Not Applicable in the when item 3 of the operation notes applies.
Output response time*1	T_O	—	5	10	μs	
Discharge level	DL	—	3	—	dB	Reset pulse within T_R=10μs (Typ.)*2

*1 The time from the rise of A, B, C or SEL until the rise of AOUT (90% of peak). If the output selection time is less than this, the output value is not guaranteed and the reset pulse is not generated.

*2 Automatically generated intemally based on the output select signal. For the duration that this signal is “H”, a resistor is connected to the peak hold capacitor, and the output level drops by -3dB (typ.) for one pluse,

*3 The Q of the bandpass filter is 3.5.

◎ Not designed for radiation resistance.

BA3830F (unless otherwise noted, Ta＝25℃，V_{CC}＝5V，R_L＝10MΩ，$R\phi_1$＝270kΩ，$R\phi_2$＝270kΩ)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I_O	—	3.8	5.2	mA	
Reference output level (LEVEL)	V_{ol}	-3	0	3	dB	V_{IN} = -30dBV, V_O = 1.5V (0dB) When f = center frequencies is input
Max. output level (LEVEL)	V_{olmax}	3.2	4.2	—	V	V_{IN} = -14dBV, When f = center frequencies is input
Reference output level (REC LEVEL)	V_{or}	-3	0	3	dB	V_{IN} = -30dBV, V_O= 1.5V (0dB) f = 1kHz
Max. output level (REC LEVEL)	V_{olmax}	3.8	4.8	—	V	V_{IN} = -14dBV, f = 1kHz
Output offset voltage	V_{off}	—	30	90	mV	With no signal
Center frequency 1	f_{01}	49	63	77	Hz	V_{IN} = -30dBV
Center frequency 2	f_{02}	117	150	183	Hz	V_{IN} = -30dBV
Center frequency 3	f_{03}	257	330	403	Hz	V_{IN} = -30dBV
Center frequency 4	f_{04}	0.78	1	1.22	kHz	V_{IN} = -30dBV
Center frequency 5	f_{05}	2.55	3.3	4.03	kHz	V_{IN} = -30dBV
Center frequency 6	f_{06}	7.8	10	12.2	kHz	V_{IN} = -30dBV
Input current when Reset pin is HIGH	I_{IN}	150	215	280	μA	V_{IN} = 5V
Input current when Reset pin is ON	V_{th}	—	1.4	1.8	V	
Input current when Reset pin is OFF	V_{th}	1.0	1.4	—	V	

＊Q is set to 4.5.

◎ Not designed for radiation resistance.

BA3834F (unless otherwise noted, Ta＝25℃，V_{CC}＝5V，R_L＝10MΩ,V_{AIN}＝-30dBV，SEL＝1)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I_{CC}	—	10	15	mA	V_{AIN} = 0V, A, B, C, SEL=0
Maximum output level	V_{OM}	4.0	4.8	—	V	V_{AIN} = -14dBV, Measured at each output
Output offset voltage	V_{OS}	—	30	150	mV	V_{AIN} = 0V, SEL=0/1, Measured at each output (cycle time : Ts=50ms)
Standard output level 1	V_{01}	0.65	1.35	1.70	V	f_{IN} =68Hz, A=0, B=0, C=1
Standard output level 2	V_{02}	0.65	1.35	1.70	V	f_{IN} =170Hz, A=0, B=1, C=0
Standard output level 3	V_{03}	0.65	1.35	1.70	V	f_{IN} =420Hz, A=0, B=1, C=1
Standard output level 4	V_{04}	0.65	1.35	1.70	V	f_{IN} =1kHz, A=1, B=0, C=0
Standard output level 5	V_{05}	0.65	1.35	1.70	V	f_{IN} =2.4kHz, A=1, B=0, C=1
Standard output level 6	V_{06}	0.65	1.35	1.70	V	f_{IN} =5.9kHz, A=1, B=1, C=0
Standard output level 7	V_{07}	0.65	1.35	1.70	V	f_{IN} =14.4kHz, A=1, B=1, C=1
Input impedance	R_{IN}	80	100	120	V	f_{IN} =1kHz
Common-mode rejection ratio	CMRR	25	50	—	dB	f_{IN} =1kHz, V_{AIN} =V_{CIN}
Logic input high level	V_{IH}	2.5	5.0	—	V	
Logic input low level	V_{IL}	—	0	0.5	V	Not Applicable in the when item 3 of the operation notes applies.
Output response time*1	T_O	—	5	10	μs	
Discharge level	DL	—	3	—	dB	Reset pulse within T_R =10μs (Typ.)*2

*1 The time from the rise of A, B, C or SEL until the rise of AOUT (90% of peak). If the output selection time is less than this, the output value is not guaranteed and the reset pulse is not generated.

*2 Automatically generated intemally based on the output select signal. For the duration that this signal is “H”, a resistor is connected to the peak hold capacitor, and the output level drops by -3dB (typ.) for one pulse,

*3 The Q of the bandpass filter is 3.5 for f_{01} to f_{06}, and 2.5 for f_{07}.

◎ Not designed for radiation resistance.

●**Application example** (BA3835F)

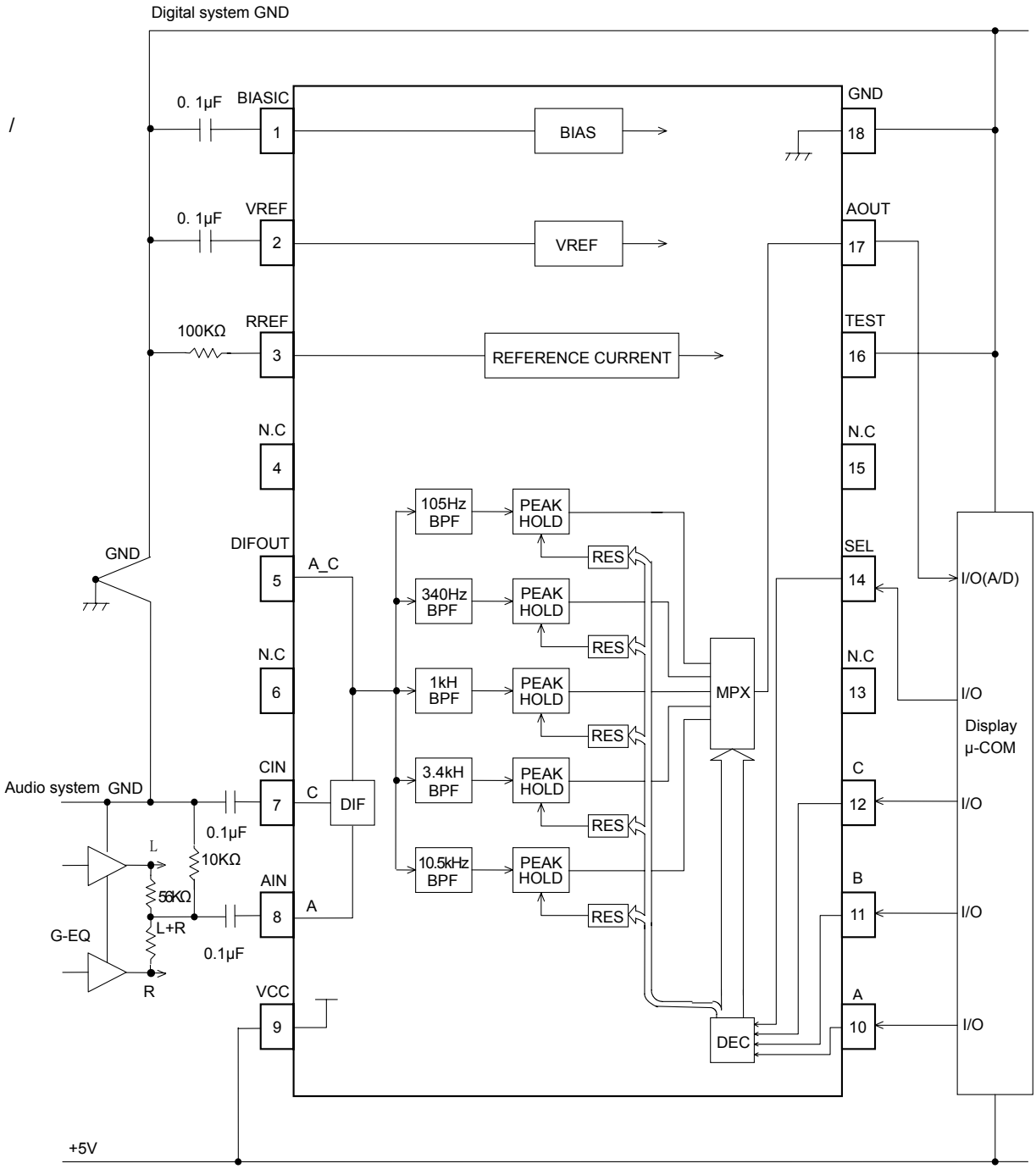


Fig.1

● **Application example** (BA3835F)

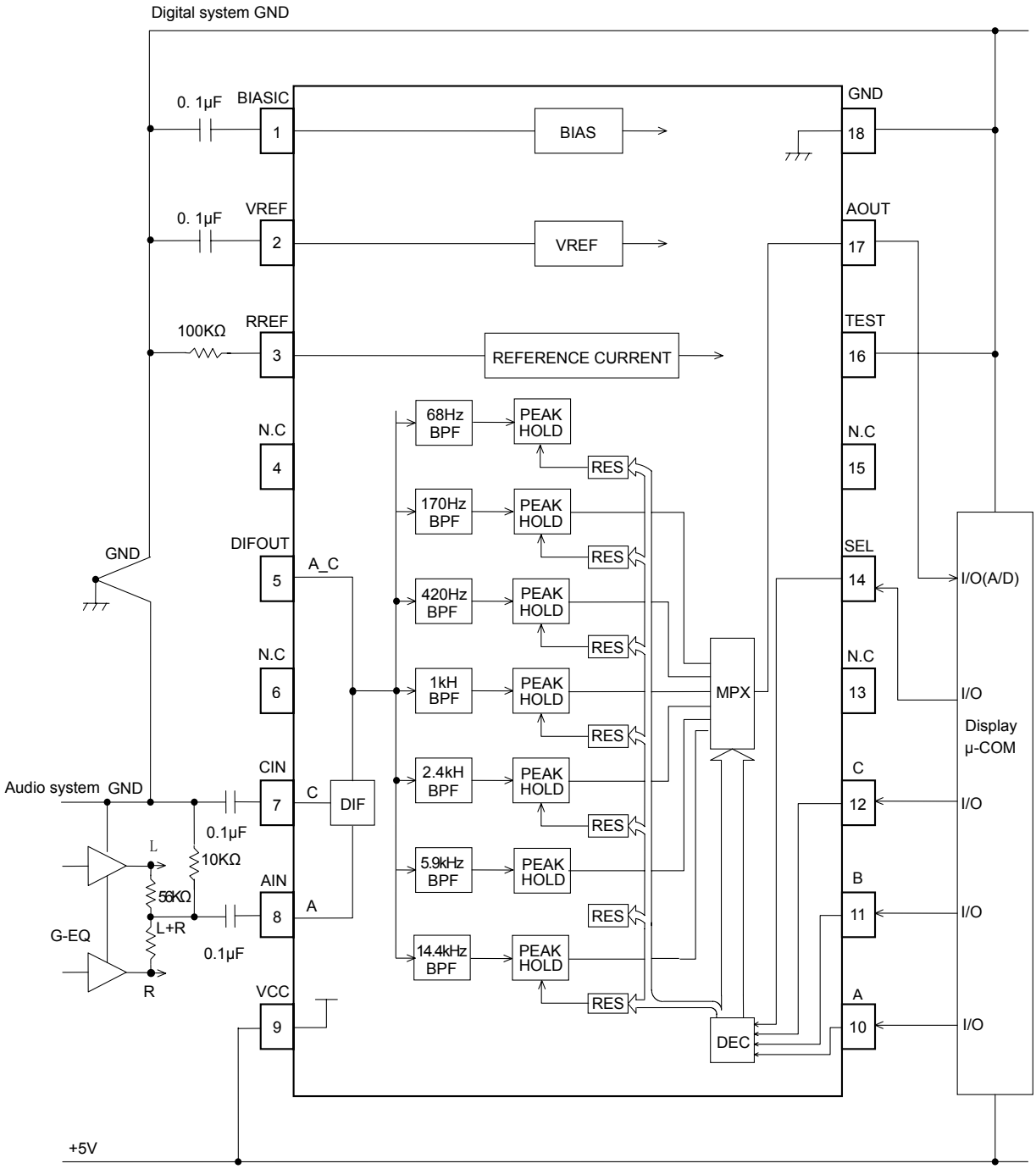


Fig.1

●**Application example**（BA3830F）

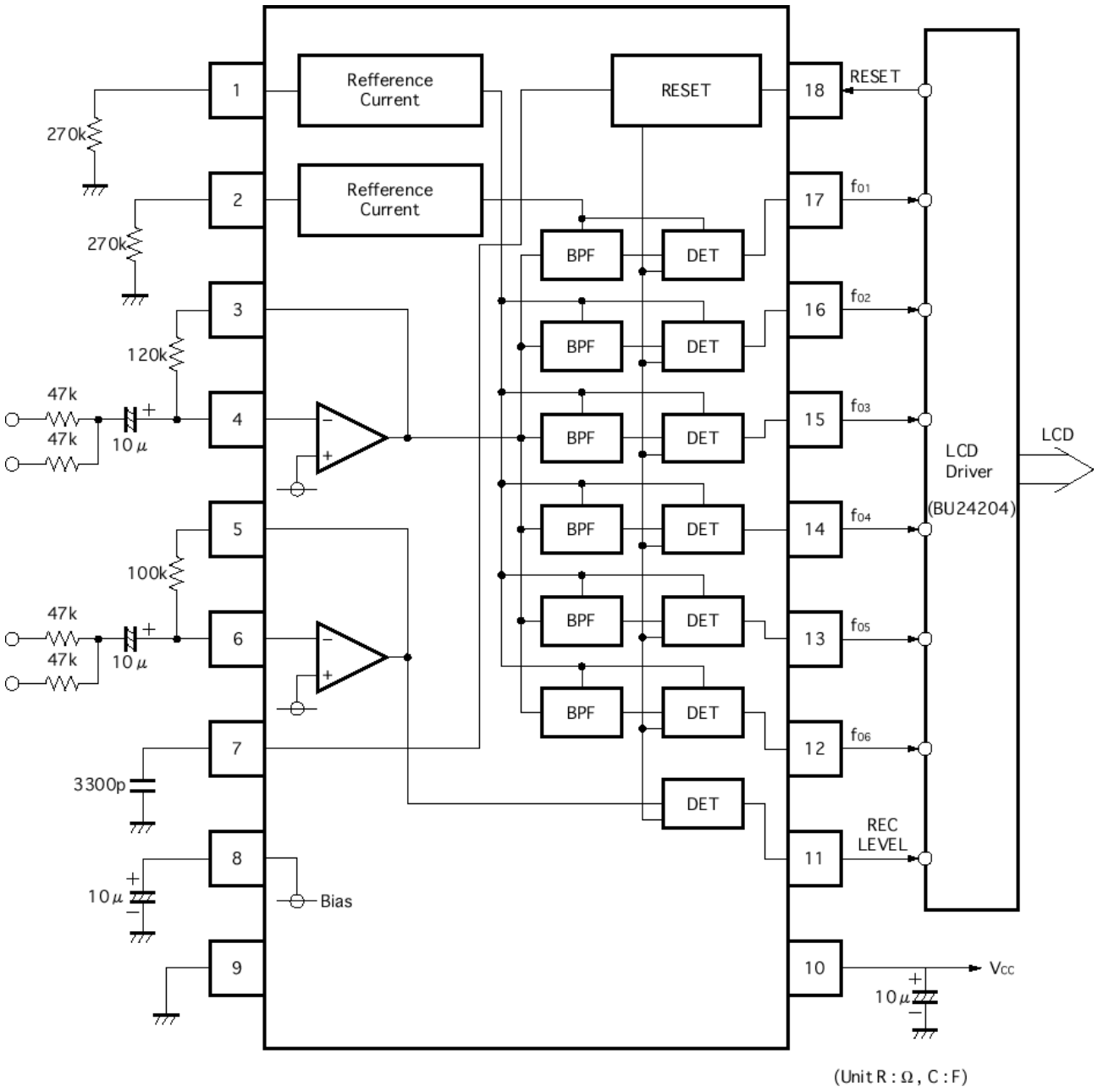


Fig.3

●Electrical characteristics curves

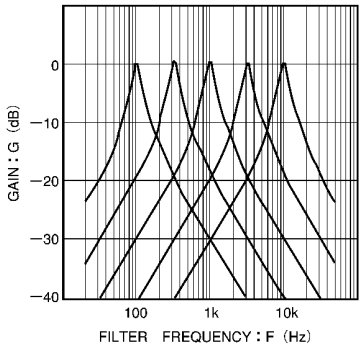


Fig.4 BPF frequency characteristics (BA3835F)

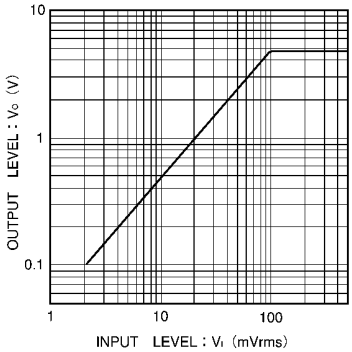


Fig.5 Input level vs. output level (BA3835F)

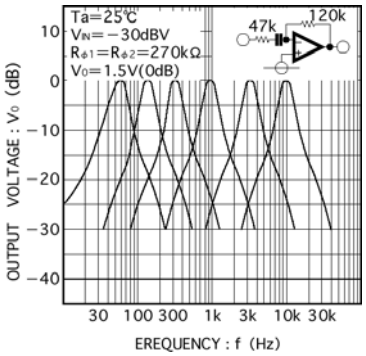


Fig.6 Output vs. frequency (BA3830F)

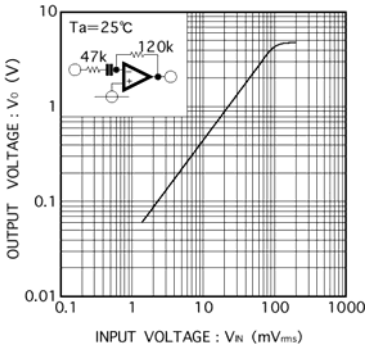


Fig.7 Input vs. output level (BA3830F)

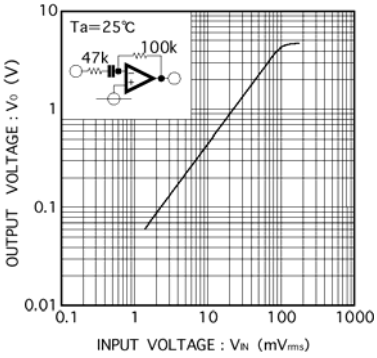


Fig.8 Input vs. output level (BA3830F REC mode)

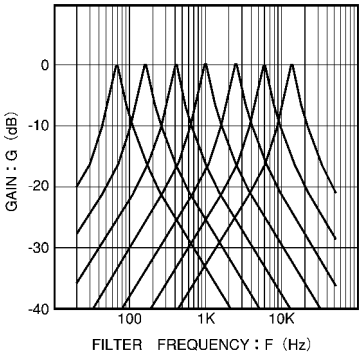


Fig.9 BPF frequency characteristics (BA3834F)

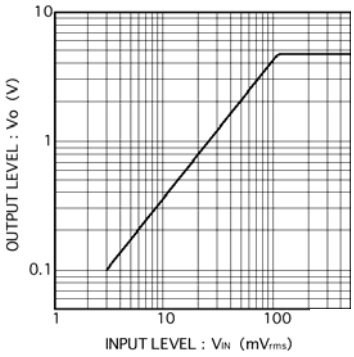
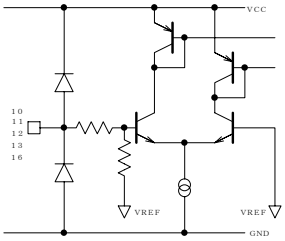
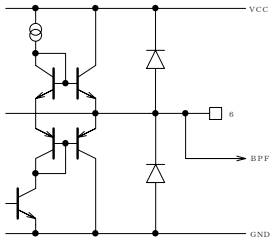
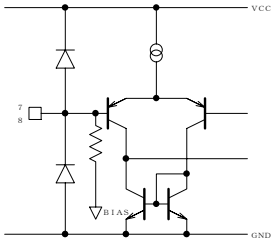
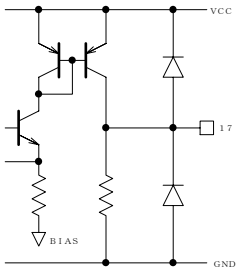
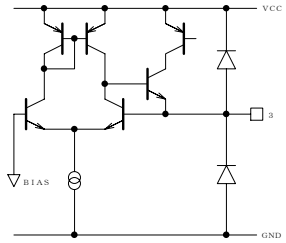
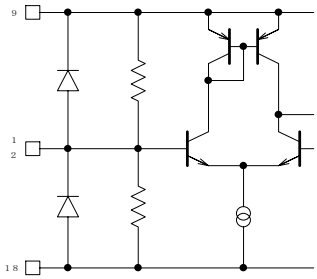


Fig.10 Input level vs. output level (BA3834F)

● **Terminal explanation**（BA3834F,BA3835F）

Terminal No.	Terminal name	Terminal Explanation	I/O Circuit Diagram
10	A	Output selection control terminal (Refer to the output selection logic table)	
11	B		
12	C		
14	SEL		
16	TEST	Test signal input terminal must be connect to GND.	
4, 6 13, 15	N.C.	Terminal not used	
5	DIFOUT	Differential amplifier output terminal Open for proper use	
7	CIN	Differential amplifier input terminal2 Connect capacitor to GND for audio signals.	
8	AIN	Differential amplifier input terminal1 Input audio signal through coupling capacitor.	
17	AOUT	Multiplex output terminal Select one band out of 5 or 7 bands. Peak hold voltage is output. After selection, reset pulse will cause it to attenuate to -3dB level	

Terminal No.	Terminal name	Terminal Explanation	I/O Circuit Diagram
3	RREF	Setting of band pass filter Connect external adjustments. Reference resister to terminal (for band shift only).	
2	VREFC	For logic voltage Decoupling capacitor connection terminal	
1	BIASC	For analog voltage Decoupling capacitor connection terminal	
9	VCC	Power supply terminal	
18	GND	Grounding terminal	

●**Output select logic table**（BA3835F）

SEL	A	B	C	AOUT
0	×	×	×	GND
1	0	0	0	GND
1	0	0	1	105Hz
1	0	1	0	340Hz
1	0	1	1	GND
1	1	0	0	1kHz
1	1	0	1	GND
1	1	1	0	3.4kHz
1	1	1	1	10.5kHz

×:Don't Care。

●**Timing chart**（BA3835F）

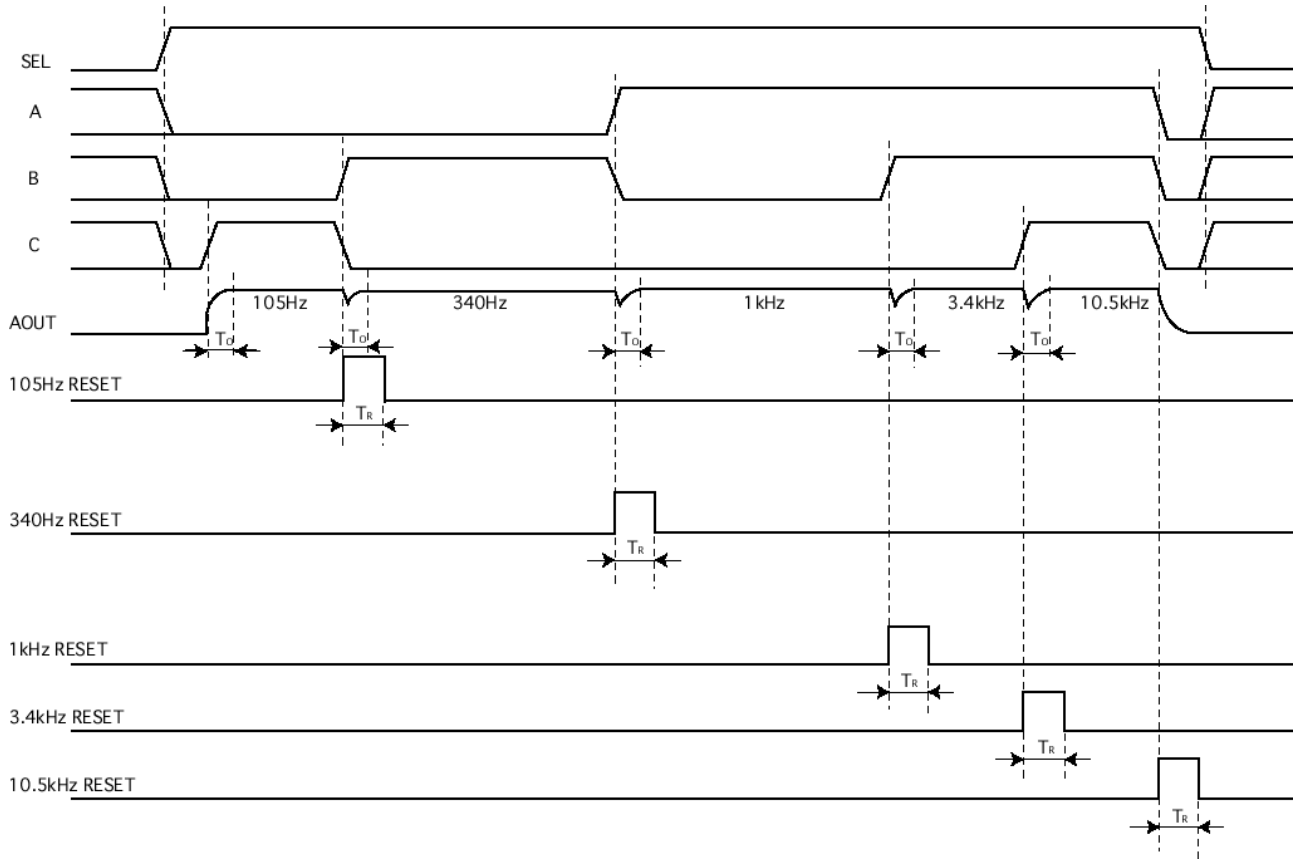


Fig.11

●**Output select logic table**（BA3834F）

SEL	A	B	C	AOUT
0	×	×	×	GND
1	0	0	0	GND
1	0	0	1	68Hz
1	0	1	0	170Hz
1	0	1	1	420Hz
1	1	0	0	1kHz
1	1	0	1	2.4kHz
1	1	1	0	5.9kHz
1	1	1	1	14.4kHz

×:Don't Care。

●**Timing chart**（BA3834F）

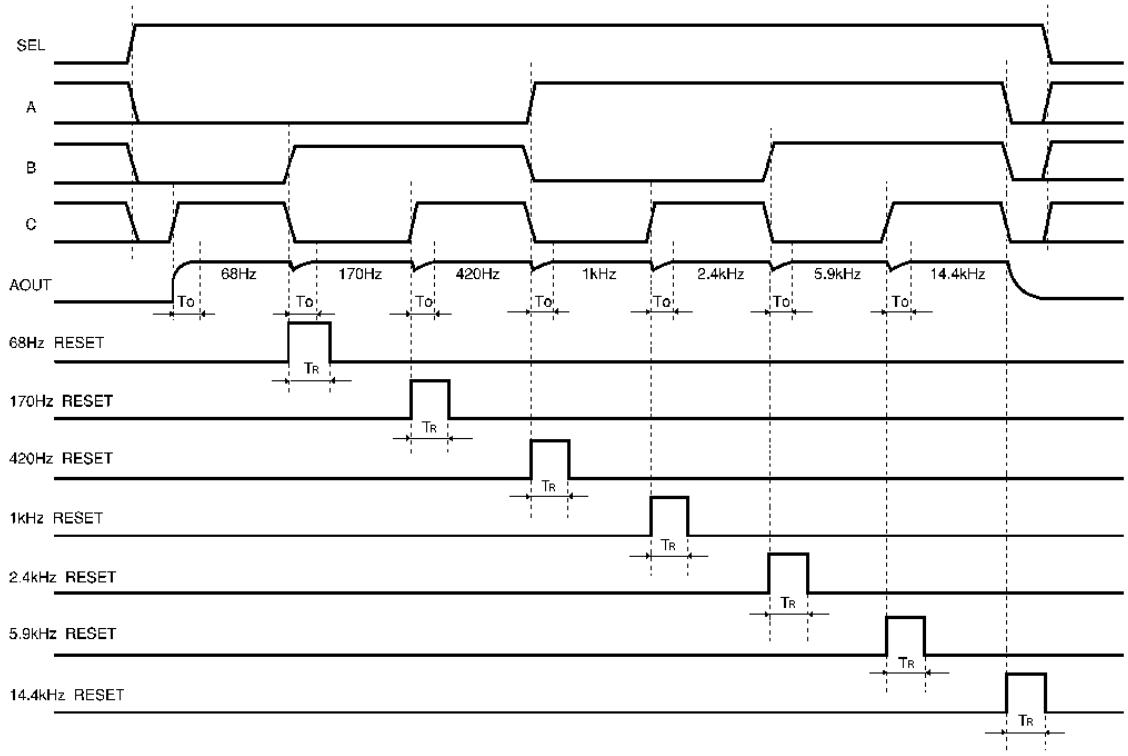


Fig.12

●**Cautions on use**（BA3835F）

(1) Numbers and data in entries

Numbers and data in entries are representative design values and are not guaranteed values of the items.

(2) Example application circuit

Although ROHM is confident that the example application circuit reflects the best possible recommendations, be sure to verify circuit characteristics for your particular application. Modification of constants for other externally connected circuits may cause variations in both static and transient characteristics for external components as well as this Rohm IC. Allow for sufficient margins when determining circuit constants.

(3) Absolute maximum ratings

Use of the IC in excess of absolute maximum ratings, such as the applied voltage or operating temperature range (Topr), may result in IC damage. Assumptions should not be made regarding the state of the IC (short mode or open mode) when such damage is suffered. A physical safety measure, such as a fuse, should be implemented when using the IC at times where the absolute maximum ratings may be exceeded.

(4) GND potential

Ensure a minimum GND pin potential in all operating conditions. Make sure that no pins are at a voltage below the GND at any time, regardless of whether it is a transient signal or not.

(5) Thermal design

Perform thermal design, in which there are adequate margins, by taking into account the power dissipation (Pd) in actual states of use.

(6) Short circuit between terminals and erroneous mounting

Pay attention to the assembly direction of the ICs. Wrong mounting direction or shorts between terminals, GND, or other components on the circuits, can damage the IC.

(7) Operation in strong electromagnetic field

Using the ICs in a strong electromagnetic field can cause operation malfunction.

(8) Frequency characteristics

The frequency characteristics of this IC are determined by the resistor connected between the R_{REF} terminal and GND. For the specification conditions, the value of this resistor is 100kΩ. If it is necessary to set the frequency characteristics accurately, use a variable resistor

Note: all bands will shift together.

(9) Load characteristics

To convert the bias sense output signal to the GND sense signal, the IC performs a V / I conversion, and then an I /V conversion using a 10kΩ resistor (Typ.) for the output. The AOUT can drive a CMOS load. (e.g. Microprocessor input port) but if it is connected to a circuit with low input impedance, it may cause the output level to drop.

(10) External resistor for the control pin

When using a common port for the output select control and FL drive, you must add a diode and resistor as shown in Fig. 13 to prevent the FL drive "L" voltage from damaging the IC.

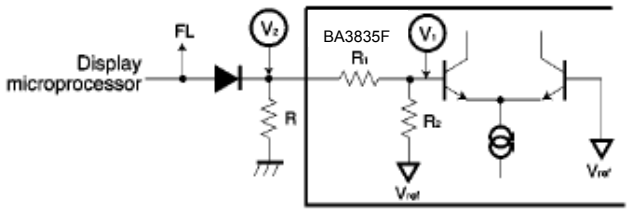


Fig.13

In this case, the "L" voltage applied to the internal comparator input terminal V_1 is given by:

$$V_1 = \frac{R_1 + R}{R_1 + R_2 + R} \times V_{ref}$$

To maintain a noise margin of at least 2.5V with respect to the comparator threshold level V_{REF}, the representative values for V_{REF}, R_1 and R_2 are 1.5V, 20kΩ, and 10kΩ respectively. This gives:

$$\frac{20k\Omega + R}{20k\Omega + 20k\Omega + R} \times 1.5V + 0.25V < 1.5V$$

And from this, the following condition is obtained:

$R < 30k\Omega$

In this case, the "L" level voltage V_2 for the IC will be:

$V_2 < 0.75V$

(11) Recommended operating ranges

Provided that the IC is operated within the recommended operating conditions and the recommended temperature range, the basic circuit functions are guaranteed. Within these ranges, ratings for electrical characteristics for conditions other than those spec cannot be guaranteed, but the basic function of the band pass filter will be maintained.

(12) Output offset voltage

The relationship between the output offset voltage and the output selection cycle (cycle time) for this IC is shown in Fig.14. The maximum output offset voltage of 150mV that is given in the electrical characteristics table is under the condition that Ts = 200ms.

When Ts is greater than 50ms, the graph of the output offset voltage is a straight line at 150mV. When Ts is below 50ms, can be sensitive to transient characteristics of the peak hold circuit, the shorter the cycle, the larger the output offset voltage is. Furthermore, the output offset voltage may shift due to soldering or other temperature stresses. Therefore, when setting the spectral analyzer light level, take into consideration the points given above and make sure that the spectral analyzer light does not light up during quiescent periods. Use the chart below as a guide and, if necessary, leave an even a larger margin.

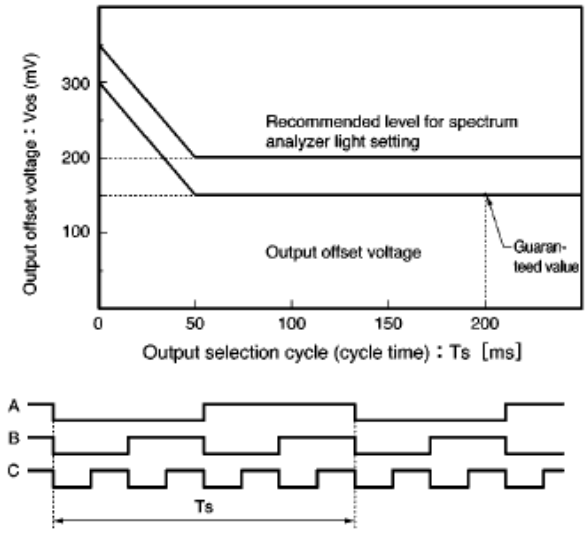


Fig. 14

●**Cautions on use** (BA3834F)

(1) Numbers and data in entries

Numbers and data in entries are representative design values and are not guaranteed values of the items.

(2) Example application circuit

Although ROHM is confident that the example application circuit reflects the best possible recommendations, be sure to verify circuit characteristics for your particular application. Modification of constants for other externally connected circuits may cause variations in both static and transient characteristics for external components as well as this Rohm IC. Allow for sufficient margins when determining circuit constants.

(3) Absolute maximum ratings

Use of the IC in excess of absolute maximum ratings, such as the applied voltage or operating temperature range (Topr), may result in IC damage. Assumptions should not be made regarding the state of the IC (short mode or open mode) when such damage is suffered. A physical safety measure, such as a fuse, should be implemented when using the IC at times where the absolute maximum ratings may be exceeded.

(4) GND potential

Ensure a minimum GND pin potential in all operating conditions. Make sure that no pins are at a voltage below the GND at any time, regardless of whether it is a transient signal or not.

(5) Thermal design

Perform thermal design, in which there are adequate margins, by taking into account the power dissipation (Pd) in actual states of use.

(6) Short circuit between terminals and erroneous mounting

Pay attention to the assembly direction of the ICs. Wrong mounting direction or shorts between terminals, GND, or other components on the circuits, can damage the IC.

(7) Operation in strong electromagnetic field

Using the ICs in a strong electromagnetic field can cause operation malfunction.

(8) Frequency characteristics

The frequency characteristics of this IC are determined by the resistor connected between the R_{REF} terminal and GND. For the specification conditions, the value of this resistor is 100kΩ. If it is necessary to set the frequency characteristics accurately, use a variable resistor

Note: all bands will shift together.

(9) Load characteristics

To convert the bias sense output signal to the GND sense signal, the IC performs a V / I conversion, and then an I /V conversion using a 10kΩ resistor (Typ.) for the output. The AOUT can drive a CMOS load. (e.g. Microprocessor input port) but if it is connected to a circuit with low input impedance, it may cause the output level to drop.

(10) External resistor for the control pin

When using a common port for the output select control and FL drive, you must add a diode and resistor as shown in Fig. 15 to prevent the FL drive "L" voltage from damaging the IC.

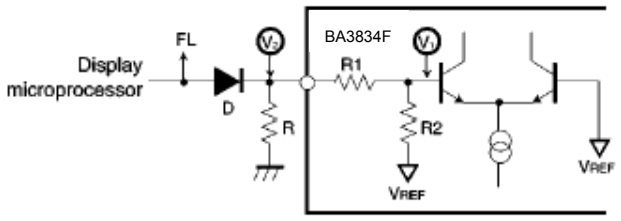


Fig. 15

In this case, the "L" voltage applied to the internal comparator input terminal V_1 is given by:

$$V_1 = \frac{R_1 + R}{R_1 + R_2 + R} \times V_{REF}$$

To maintain a noise margin of at least 2.5V with respect to the comparator threshold level V_{ref}, the representative values for V_{ref}, R_1 and R_2 are 1.5V, 20kΩ, and 10kΩ respectively. This gives :

$$\frac{20k\Omega + R}{20k\Omega + 20k\Omega + R} \times 1.5V + 0.25V < 1.5V$$

And from this, the following condition is obtained :R < 30kΩ

In this case, the "L" level voltage V2 for the IC will be :

V2 < 0.75V

(11) Recommended operating ranges

Provided that the IC is operated within the recommended operating conditions and the recommended temperature range, the basic circuit functions are guaranteed. Within these ranges, ratings for electrical characteristics for conditions other than those spec cannot be guaranteed, but the basic function of the band pass filter will be maintained.

(12) Output offset voltage

The relationship between the output offset voltage and the output selection cycle (cycle time) for this IC is shown in Fig.16. The maximum output offset voltage of 150mV that is given in the electrical characteristics table is under the condition that Ts = 200ms.

When Ts is greater than 50ms, the graph of the output offset voltage is a straight line at 150mV. When Ts is below 50ms, can be sensitive to transient characteristics of the peak hold circuit, the shorter the cycle, the larger the output offset voltage is. Furthermore, the output offset voltage may shift due to soldering or other temperature stresses. Therefore, when setting the spectral analyzer light level, take into consideration the points given above and make sure that the spectral analyzer light does not light up during quiescent periods. Use the chart below as a guide and, if necessary, leave an even a larger margin.

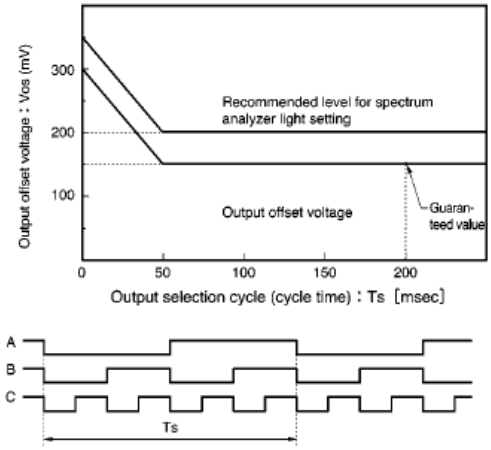
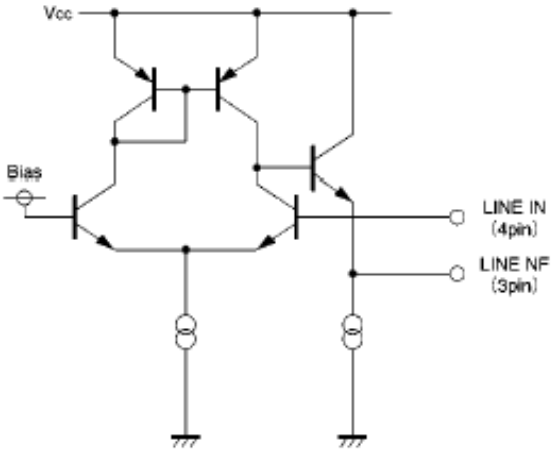


Fig.16

●**Circuit operation** (BA3830F)

(1) LINE and REC input circuits

The LINE and REC input circuits are configured as differential amplifiers, and the gain can be set to any required value using an external resistor. The input impedance is determined by the external resistor.



(Note: All resistance values in the internal circuit diagrams noted here are reference values.)

Fig.17

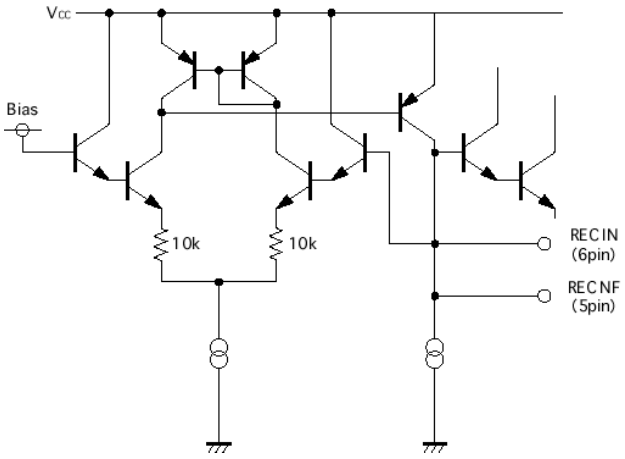
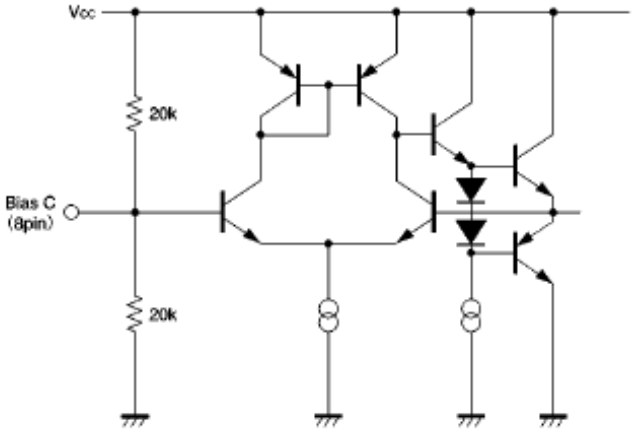


Fig.18

(2) Bias circuit

A bias voltage of VCC /2 is applied to each of the circuits. Since the output stage uses a push-pull configuration, a stable bias source can be obtained.



(Note: All resistance values in the internal circuit diagrams noted here are reference values.)

Fig.19

(3) BPF circuit

This is a circuit that selects the required frequency component from the input signal and amplifies it. With this configuration, no external capacitor is needed. In addition, the center frequency is set based on the current, so f01 and f02 to f06 can be set individually, using separate external resistors (pins1 and 2). Q is set to 4.5V (Typ.).

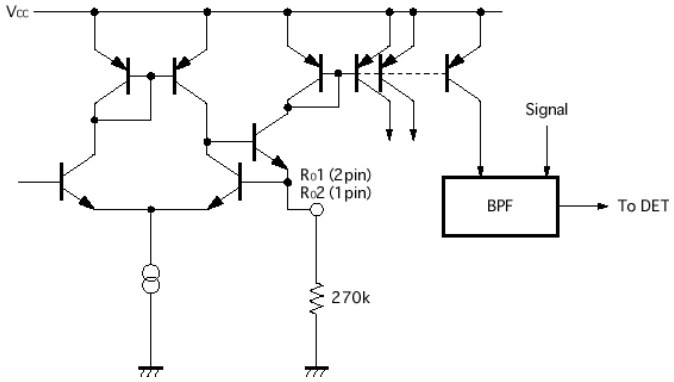


Fig.20

(4) DET circuit

This circuit carries out phase detection on the signal selected and amplified by the BPF, and holds it at the peak level. It is configured so that all of the capacitors are internal. The charge that was charged by the internal capacitors in the DET circuit is set to be discharged at 75ms/V (Typ.), but in order to eliminate any effects of disparity, a reset circuit is also included.

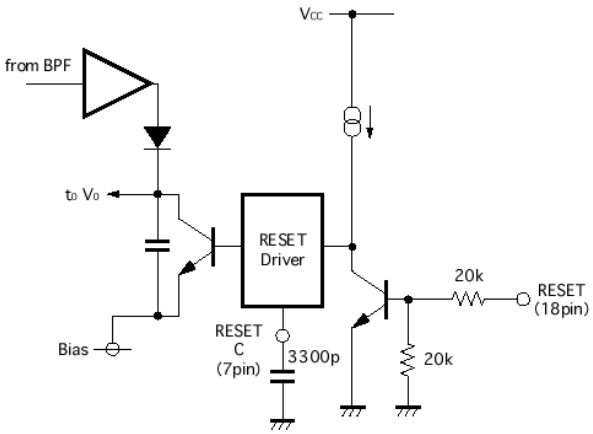


Fig.21

(5) Output section circuit

The signal level held at peak level by the DET undergoes V/ I conversion and is output. Since the next stage supports MOS (high-input impedance), there is a resistance of 33.9kW (44.3kW for REC output only) between the output pin and the GND in the IC, so the output value changes based on the input impedance.

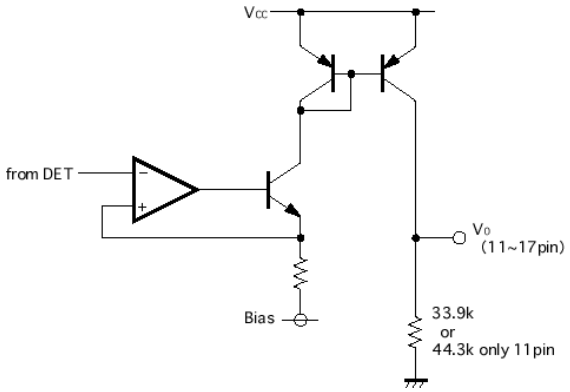


Fig.22

●Order model name selection

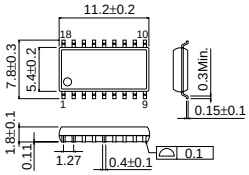
B	A	3	8	3	5	F	-	E	2

Product Name
BA3835F
BA3830F
BA3834F

Packing & Foaming Specification

SOP18

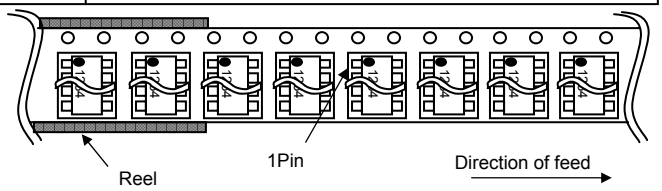
<Dimension>



(Unit:mm)

<Tape and Reel information>

Tape	Embossed carrier tape
Quantity	2000pcs
Direction of feed	E2 (Correct direction: 1pin of product should be at the upper left when you hold reel on the left hand, and you pull out the tape on the right hand)



※Orders are available in complete units only.

Excellence in Electronics

ROHM

ROHM CO., LTD.
21, Saiin Mizosaki-cho, Ukyo-ku, Kyoto
615-8585, Japan
TEL: (075)311-2121 FAX: (075)315-0172
URL http: // www. rohm. com

Published by
Application Engineering Group

Contact us for further information about the products.

Atlanta U.S.A. / ROHM ELECTRONICS ATLANTA SALES OFFICE
(DIVISION OF ROHM ELE. U.S.A.,LLC)
TEL: +1(770)754-5972 FAX: +1(770)754-0691
Dallas U.S.A. / ROHM ELECTRONICS DALLAS SALES OFFICE
(DIVISION OF ROHM ELE. U.S.A.,LLC)
TEL: +1(972)312-8818 FAX: +1(972)312-0330
San Diego U.S.A. / ROHM ELECTRONICS SAN DIEGO SALES OFFICE
(DIVISION OF ROHM ELE. U.S.A.,LLC)
TEL: +1(858)625-3630 FAX: +1(858)625-3670
Germany / ROHM ELECTRONICS GMBH (GERMANY)
TEL: +49(2154)9210 FAX: +49(2154)921400
United Kingdom / ROHM ELECTRONICS GMBH (UK)
TEL: +44(0)1908-306700 FAX: +44(0)1908-235788
France / ROHM ELECTRONICS GMBH (FRANCE)
TEL: +33(0)1 56 97 30 60 FAX: +33(0)1 56 97 30 80
Hong Kong China / ROHM ELECTRONICS (H.K.) CO., LTD.
TEL: +852(2)7406262 FAX: +852(2)375-8971
Shanghai China / ROHM ELECTRONICS (SHANGHAI) CO., LTD.
TEL: +86(21)6279-2727 FAX: +86(21)6247-2066
Dalian China / ROHM ELECTRONICS TRADING (DALIAN) CO., LTD.
TEL:+86(411)8230-8549 FAX:+86(411)8230-8537
Beijing China / BEIJING REPRESENTATIVE OFFICE
TEL: +86(10)8525-2483 FAX: +86(10)8525-2489
Taiwan / ROHM ELECTRONICS TAIWAN CO., LTD.
TEL: +886(2)2500-6956 FAX: +886(2)2503-2869
Korea / ROHM ELECTRONICS KOREA CORPORATION
TEL: +82(2)8182-700 FAX: +82(2)8182-715
Singapore / ROHM ELECTRONICS ASIA PTE LTD. (RES / REI)
TEL: +65-6332-2322 FAX: +65-6332-5662
Malaysia / ROHM ELECTRONICS (MALAYSIA) SDN. BHD.
TEL: +60(3)7958-8355 FAX: +60(3)7958-8377
Philippines / ROHM ELECTRONICS (PHILIPPINES) SALES CORPORATION
TEL: +63(2)807-6872 FAX: +63(2)809-1422
Thailand / ROHM ELECTRONICS (THAILAND) CO., LTD.
TEL: +66(2)254-4890 FAX: +66(2)256-6334

Catalog NO.05T412Be '05.10 ROHM©2000 TSU

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.
It is our top priority to supply products with the utmost quality and reliability. However, there is always a chance of failure due to unexpected factors. Therefore, please take into account the derating characteristics and allow for sufficient safety features, such as extra margin, anti-flammability, and fail-safe measures when designing in order to prevent possible accidents that may result in bodily harm or fire caused by component failure. ROHM cannot be held responsible for any damages arising from the use of the products under conditions out of the range of the specifications or due to non-compliance with the NOTES specified in this catalog.

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

ROHM Customer Support System

THE AMERICAS / EUROPE / ASIA / JAPAN

www.rohm.com

Contact us : webmaster@rohm.co.jp

ROHM CO., LTD. 21 Saiin Mizosaki-cho, Ukyo-ku, Kyoto 615-8585, Japan
TEL : +81-75-311-2121
FAX : +81-75-315-0172

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Active Filters ***category:***

Click to view products by ROHM ***manufacturer:***

Other Similar products are found below :

VEMI256A-SD2-G4-08 HMC894LP5ETR HMC896LP4ETR HMC891LP5ETR MAX7491CEE+ MAX7413CUA+ MAX7411CUA+ MAX281AEWE+ MAX280EPA+ MAX274AENG+ LTC1064-3CSW#PBF LTC1060ACN#PBF LTC1069-1IS8#PBF LTC1164CSW#PBF LTC1164-6CSW#PBF LTC1064-2CSW#PBF LTC1569CS8-7#PBF LTC1164ACSW#PBF LTC1067-50CS#PBF LTC1164-6CN#PBF LTC1059CN#PBF LTC1069-1CN8#PBF LTC1069-7IS8#PBF LTC1069-6CS8#PBF LTC1562IG-2#PBF LTC1164-5CSW#PBF LTC1566-1CS8#PBF LTC1064-7CN#PBF LTC1063CN8#PBF LTC1062CN8#PBF LTC6603IUF#PBF LTC1061ACN#PBF LTC1061CN#PBF LTC1264CN#PBF LTC1562ACG#PBF LTC1562AIG#PBF LTC1064-3CN#PBF HMC890ALP5E HMC892ALP5E HMC891ALP5E HMC882ALP5E HMC881ALP5E ADMV8420ACPZ ADMV8432ACPZ HMC881LP5ETR HMC882LP5ETR HMC1000LP5ETR LTC1068IN#PBF LTC1566-1IS8#PBF LTC1569IS8-6#PBF