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!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Video/Audio Interfaces for TV and DVD Recorders

PAL Audio I/O Interface

BD3825FS

Pb Free
ROHM Electronic Components

●Description

BD3825FS is an audio signal switch IC used for PAL DVD-Recorders. BD3825FS supports six input lines which are controlled by the I^2C-BUS of video signal LSI BH7624KS2. In addition, BD3825FS has two built-in Function Switch features.

●Features

1) Vcc = ±5V (for Audio signal), +12V (for Function SW)
   Audio SW (C-MOS analog switch configuration)
2) 3 inputs - 1output SW, (2 circuits built-in with MUTE function)
3) 2 inputs - 1output SW, (2 circuits built-in with MUTE function)
4) THD (typ.) = 0.007%
5) S/N (typ.) = 90dB
6) Crosstalk (typ.) = 90dB
7) ON resistance (max.) = 300Ω
8) 2 Function Switch outputs

●Applications

DVD-Recorder, STB, etc.

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power Supply Voltage1	V_1	±6.0	V
Power Supply Voltage2	V_2	+13.5	V
Power Dissipation	Pd	800 *1	mW
Operating Temperature Range	Topr	-25 ～ +75	°C
Storage Temperature Range	Tstg	-55 ～ +125	°C

*1 Reduced by 9 mW/°C over 25°C.

●Operating range (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage1	Vcc1	±4.5～±5.5	V
Supply voltage2	Vcc2	11.5～12.5	V

Note: This IC is not designed to be radiation-resistant.

●**Electrical characteristics** (Unless otherwise specified, Vcc1=±5.0V, Vcc2=12V, Ta=25°C)

Item	Symbol	Limit			Unit	Conditions
		MIN.	TYP.	MAX.		
＜whole＞						
Circuit Current 1	I_{ATYP1}	2.5	5.0	7.5	mA	Vcc1=±5V
Circuit Current 2	I_{ATYP2}	5.0	10.0	15.0	mA	Vcc2=12V
＜AUX, L1_R,L OUT＞						
Frequency Characteristic	F_{FC}	-1.0	0.0	1.0	dB	Vin=2Vrms, f=20Hz/100kHz R_L=47kΩ
Distortion	F_{DIS}	-	0.007	0.1	%	Vin=2.2Vrms, f=1kHz R_L=47kΩ
S/N	F_{SN}	80	90	-	dB	Vin=2Vrms, f=1kHz No Filter
ON Resistance	R_{ON}	-	200	300	Ω	Vin=0V
MUTE Attenuation	F_{MUTE}	-	-80	-75	dB	Vin=2Vrms, f=1kHz R_L=47kΩ
ASW1 SW Crosstalk	F_{SWCRS1}	-	-90	-85	dB	Vin=2Vrms, f=1kHz
ASW2 SW Crosstalk	F_{SWCRS2}	-	-90	-85	dB	Vin=2Vrms, f=1kHz
Between crosstalk channel (AUX_L ch⇔R ch)	F_{CHCRS1}	-	-90	-85	dB	Vin=2Vrms, f=1kHz
Between crosstalk channel (L1_L ch⇔R ch)	F_{CHCRS2}	-	-90	-85	dB	Vin=2Vrms, f=1kHz
FS_AUX,FS_L1 output voltage H	V_{FSOH}	10.0	11.0	12.0	V	R_L=10kΩ
FS_AUX,FS_L1 output voltage M	V_{FSOM}	5	5.75	6.5	V	R_L =10kΩ
FS_AUX,FS_L1 output voltage L	V_{FSOL}	0	0	1.5	V	R_L =10kΩ
ASW1,2,3,4 input voltage H	V_{ASWH}	2.0	-	+Vcc1	V	
ASW1,2,3,4 input voltage L	V_{ASWL}	0	-	1.0	V	
FS_AUX, FS_L1 input voltage H	V_{FSIH}	3.9	-	+Vcc1	V	
FS_AUX, FS_L1 input voltage M	V_{FSIM}	1.65	-	3.1	V	
FS_AUX, FS_L1 input voltage L	V_{FSIL}	0	-	0.85	V	

●Block diagram

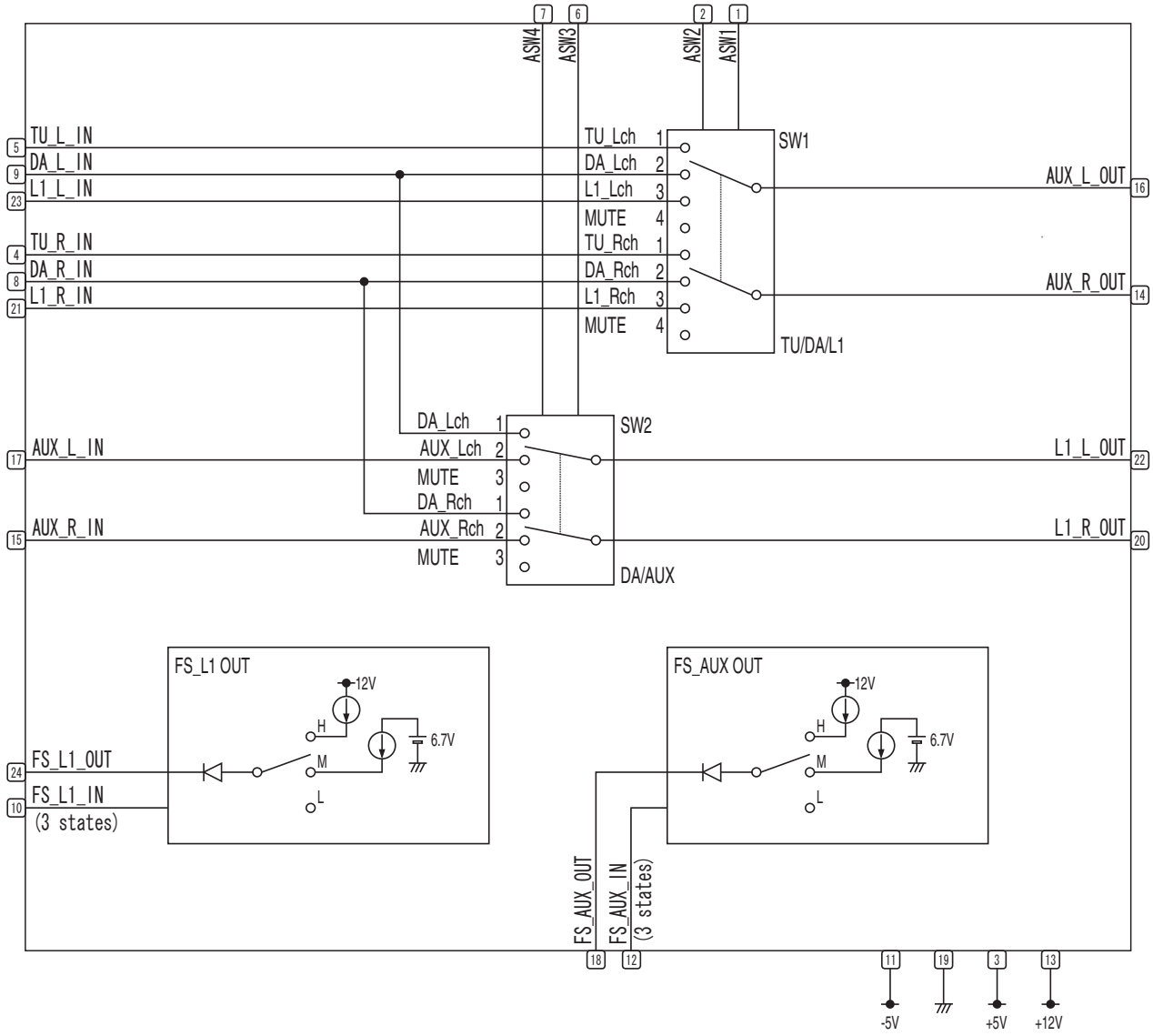
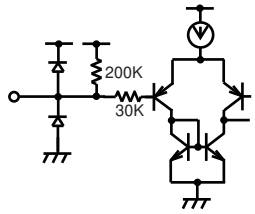
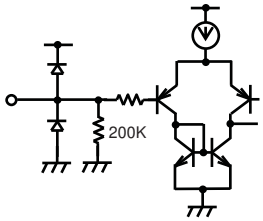
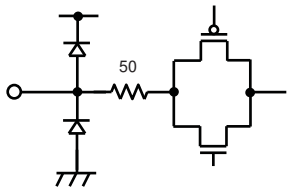
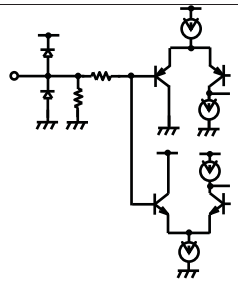
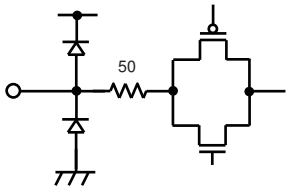
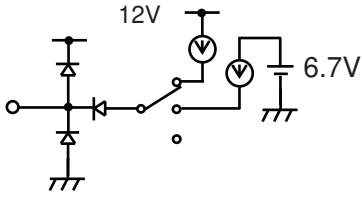
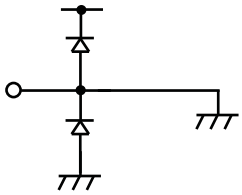


Fig.1 Block Diagram

●**Equivalent circuit**

PIN NO.	Pin name	IN	OUT	Referance Voltage	Equivalent Circuit	Function
1 7	ASW1 ASW4	○	—	Threshold 1.0～2.0V		SW control signal input terminal At Input open, input becomes “H” due to the pull up resistance. Input impedance is 200kΩ
2 6	ASW2 ASW3	○	—	Threshold 1.0～2.0V		SW control signal input terminal At input open, input becomes “L” due to the pull down resistance. Input Impedance is 200kΩ.
3 11 13	+5V -5V +12V	—	—	5V -5V 12V		Power supply terminal
4 5 8 9 15 17 21 23	TU_R_IN TU_L_IN DA_R_IN DA_L_IN AUX_R_IN AUX_L_IN L1_R_IN L1_L_IN	○	—	—		Audio signal input terminal The audio signal input terminal is connected to the analog switch inside.
10 12	FS_L1_IN FS_AUX_IN	○	—	Threshold 0.85～ 1.65V 3.1～ 3.9V		FS control signal input terminal It has two threshold voltages. At input open, it becomes “L” input due to the pull down resistance. Input impedance is 200kΩ
14 16 20 22	AUX_R_OUT AUX_L_OUT L1_R_OUT L1_L_OUT	—	○	—		Audio signal output terminal A chosen audio signal can be outputted using the input transfer switch.
18 24	FS_AUX_OUT FS_L1_OUT	—	○	H:11.0V M:5.75V L:0V		FS output terminal FS output circuit has 3 output states H, M & L. Load resistance above 10kΩ is used. Output becomes HiZ at “L” selection.
19	GND	—	—	0V		GND terminal

●Description of operations

① SW1, SW2
Audio input is controlled by I^2C-BUS of BH7624KS2.

② FS_L1_OUT, FS_AUX_OUT
The 3 states signal (HI, MID, LOW) of the 5V standard is input into FS_L1_IN (10pin), FS_AUX_IN (12pin).
Then FS_L1_OUT (24pin), FS_AUX_OUT (18pin) output standard signal of the 12V.
This output becomes a Function Switch of the scart connector.

●SW Control truth table

SW1

ASW1	ASW2	AUX_L_OUT	AUX_R_OUT
L	L	TU_L_IN	TU_R_IN
L	H	DA_L_IN	DA_R_IN
H	L	L1_L_IN	L1_R_IN
H	H	MUTE	MUTE

SW2

ASW3	ASW4	L1_L_OUT	L1_R_OUT
L	L	DA_L_IN	DA_R_IN
L	H	AUX_L_IN	AUX_R_IN
H	L	MUTE	MUTE
H	H	MUTE	MUTE

At power Activation

ASW1 : H
ASW2 : L
ASW3 : L
ASW4 : H

●Application circuit

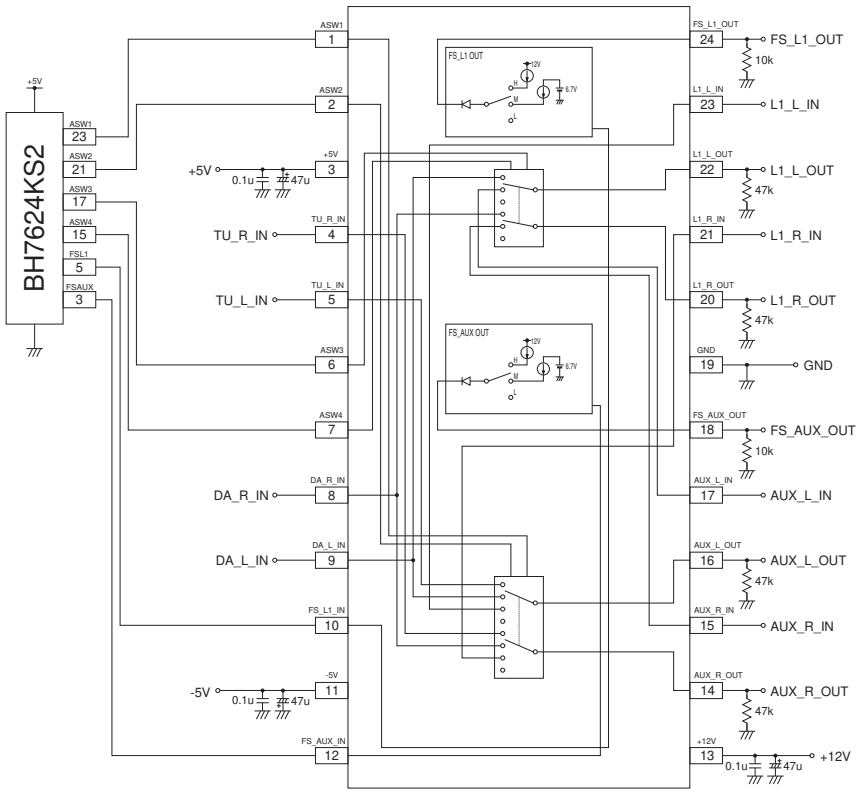


Fig.2

ASW1, 2, 3, 4, FS_L1_IN, FS_AUX_IN are controlled by I^2C-BUS of BH7624KS2.

●Reference data

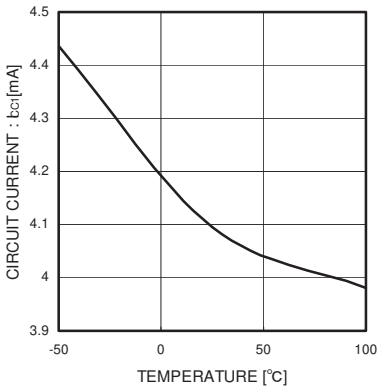


Fig3. Circuit Current1

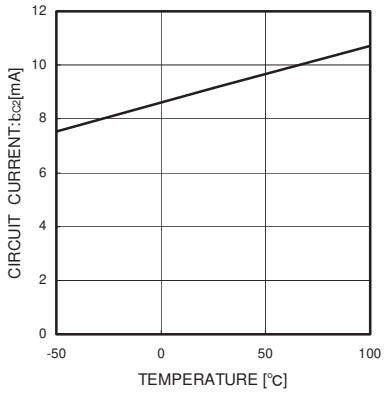


Fig4. Circuit Current2

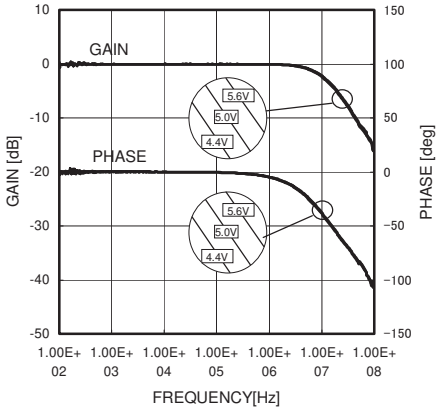


Fig5. Frequency characteristics
(Supply voltage dependence)

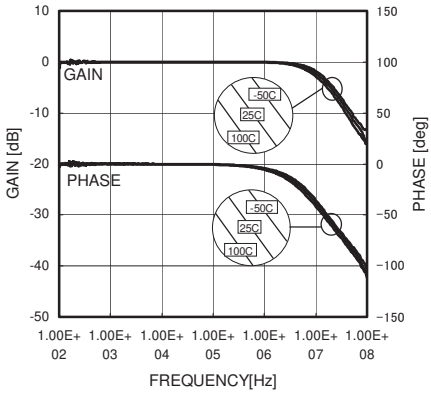


Fig6. Frequency characteristic
(Temperature dependence)

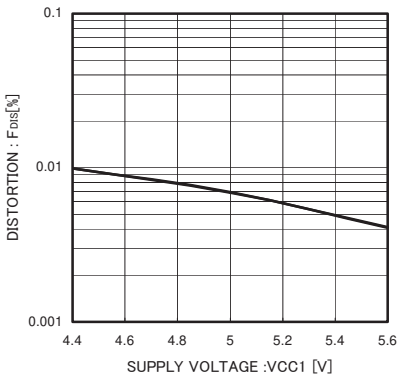


Fig7. Distortion
(Supply voltage dependence)

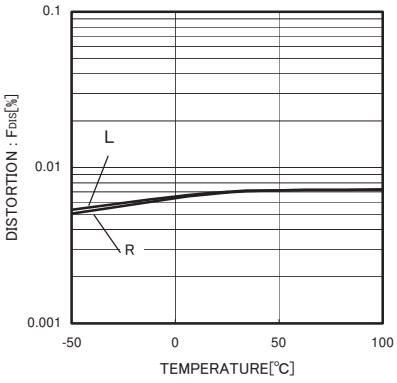


Fig8. Distortion
(Temperature dependence)

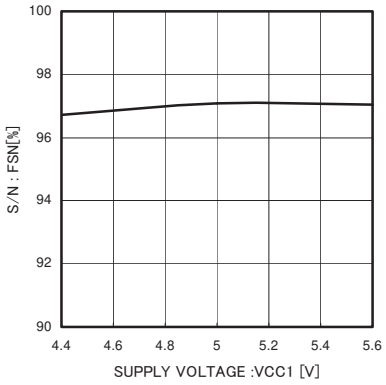


Fig9. S/N ratio
(Supply voltage Dependence)

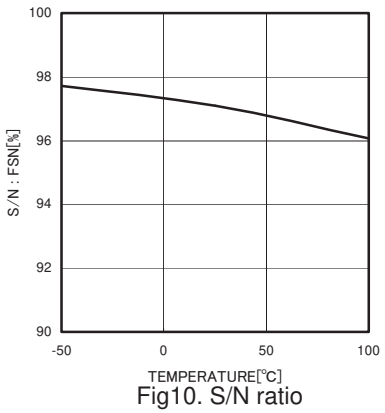


Fig10. S/N ratio
(Temperature dependence)

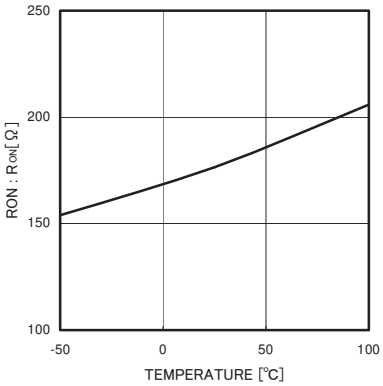


Fig11. ON Resistance

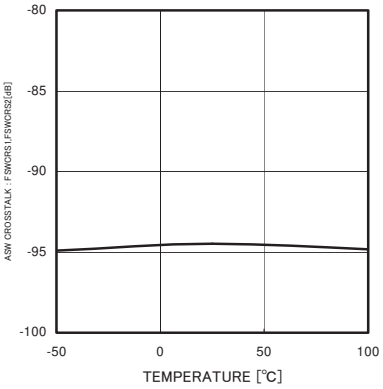


Fig12. MUTE Attenuation

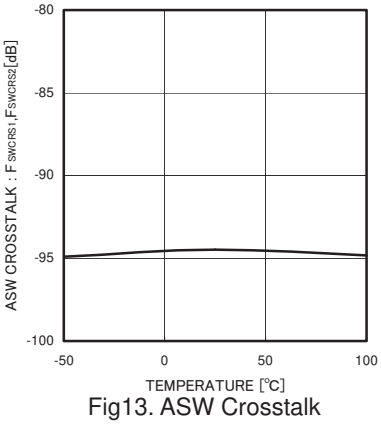


Fig13. ASW Crosstalk

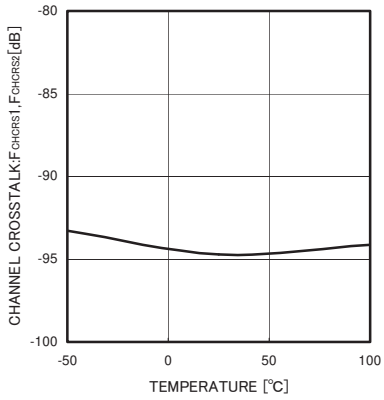


Fig14. Channel Crosstalk

●Cautions on use

1. Numbers and data in entries are representative design values and are not guaranteed values of the items.
2. 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. -5V pin potential

   Ensure a minimum -5V pin potential in all operating conditions. Make sure that no pins are at a voltage below the -5V pin at any time, regardless of whether it is a transient signal or not. <GND=0V>
5. Thermal design

   Perform thermal design, in which there are adequate margins, by taking into account the permissible 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. Supply voltage

   Although basic circuit function is guaranteed under normal voltage operation (5V: ±4.5～5.5V, 12V: 11.5～12.5V), ensure each parameter complies with appropriate electrical characteristics, when using this device.
9. The application circuitry example

   SW and FS output are controlled by BD3825FS which in turn is controlled by BH7624KS2 and therefore, BD3825FS and BH7624KS2 should be used in conjunction. Pins 18 and 24 should be pulled down by 10kΩ resistor. Pins 1, 2, 6, 7, 10, 12 must be controlled by the microcontroller when using BD3825FS on its own.

● Selection of order type

B	D	3	8	2	5	F	S	—	E	2

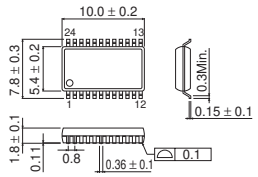
TYPE

BD3825FS

Package, Foaming specification

SSOP-A24

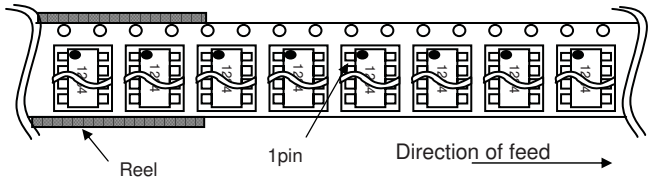
<Dimension>



(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.05T398Be '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