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

3-channel, 8-bit D / A converter
BU3616K

The BU3616K, a CMOS IC, is a high-speed, low-power-consumption 3-channel 8-bit D / A converter. Its internal reference voltage source eliminates the need for an external reference voltage source.

●Applications
Video CDs, CD-V, CD karaoke

●Features
1) 8-bit resolution.
2) Current output.
3) Low power consumption (typically 75mW).
4) High-speed operation.
5) Internal reference voltage circuit.
6) TTL input.

●Absolute maximum ratings (Ta = 25°C)

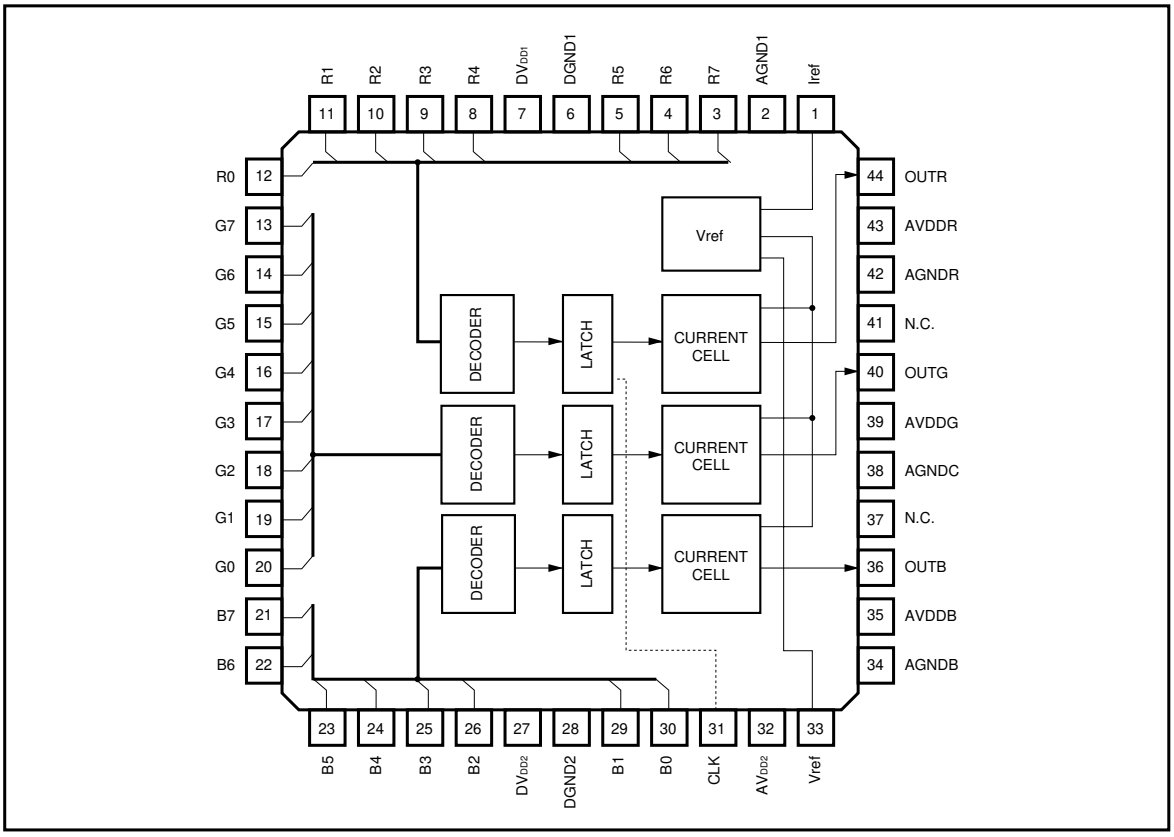
Parameter	Symbol	Limits	Unit
Power supply voltage	DV_{DD}	– 0.5 ~ + 7.0	V
Analog power supply voltage	AV_{DD}	DV_{DD} – 0.3 ~ DV_{DD} + 0.3	V
Input voltage	V_{IN}	– 0.5 ~ DV_{DD} + 0.5	V
Output voltage	V_{OUT}	– 0.5 ~ DV_{DD} + 0.5	V
Storage temperature	Tstg	– 55 ~ + 125	°C
Power dissipation*1	P_D	500	mW

*1 Reduced by 5.0mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Power supply voltage	DV_{DD}	4.5	5.0	5.5	V	
Analog power supply voltage	AV_{DD}	4.5	5.0	5.5	V	
Transfer clock width	TCK	58.8	—	—	ns	
Transfer clock width, low level	TCKL	15	—	—	ns	
RGB setup time	TS	5	—	—	ns	
RGB hold time	TH	10	—	—	ns	
Input voltage, low level	V_{IL}	—	—	0.8	V	
Input voltage, high level	V_{IH}	2.2	—	—	V	
Operating temperature	T_{OPR}	– 10	—	70	°C	

●Block diagram



●Electrical characteristics (unless otherwise noted, Ta = 25°C, DV_{DD} = 5.0V, AV_{DD} = 5.0V, R_{REF} = 6.8kΩ, R_L = 470Ω, F_{CK} = 15MHz)

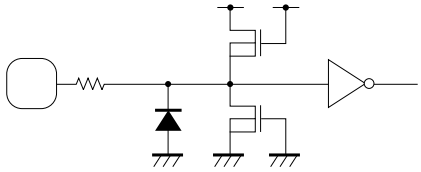
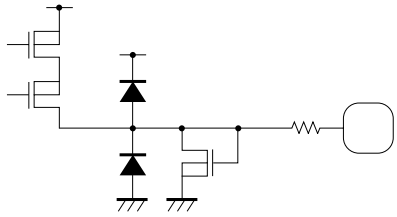
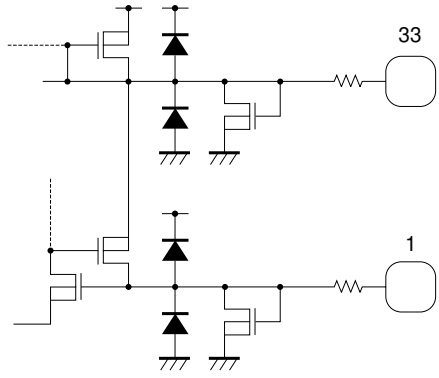
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Current dissipation	I_{CC}	—	15	30	mA	
Differential linearity error	ED	– 0.5	—	0.5	LSB	DV_{DD} = 5.0V AV_{DD} = 5.0V
Linearity error	EL	– 1.0	—	1.0	LSB	R_{REF} = 6.8kΩ R_L = 470Ω
Full-scale voltage	FS	1.29	1.44	1.58	V	F_{CK} = 15MHz
RGB output voltage ratio	F_{SCR}	0	0.5	5.0	%	
Output delay time	T_D	—	30	—	ns	C_L = 15pF
Settling time	T_{SET}	—	40	—	ns	C_L = 15pF

●Pin descriptions

Pin No.	I / O	Pin name	Function
1	—	Iref	Output current adjustment resistor connection, Vref output
2	—	AGND 1	Analog ground 1
3	I	R7	RED data input (bit 7, MSB)
4	I	R6	RED data input (bit 6)
5	I	R5	RED data input (bit 5)
6	—	DGND1	Digital ground 1
7	—	$DV_{DD}1$	Digital power supply 1
8	I	R4	RED data input (bit 4)
9	I	R3	RED data input (bit 3)
10	I	R2	RED data input (bit 2)
11	I	R1	RED data input (bit 1)
12	I	R0	RED data input (bit 0, LSB)
13	I	G7	GREEN data input (bit 7, MSB)
14	I	G6	GREEN data input (bit 6)
15	I	G5	GREEN data input (bit 5)
16	I	G4	GREEN data input (bit 4)
17	I	G3	GREEN data input (bit 3)
18	I	G2	GREEN data input (bit 2)
19	I	G1	GREEN data input (bit 1)
20	I	G0	GREEN data input (bit 0, LSB)
21	I	B7	BLUE data input (bit 7, MSB)
22	I	B6	BLUE data input (bit 6)
23	I	B5	BLUE data input (bit 5)
24	I	B4	BLUE data input (bit 4)
25	I	B3	BLUE data input (bit 3)
26	I	B2	BLUE data input (bit 2)
27	—	$DV_{DD}2$	Digital power supply 2
28	—	DGND2	Digital ground 2
29	I	B1	BLUE data input (bit 1)
30	I	B0	BLUE data input (bit 0, LSB)
31	I	CLK	System lock
32	—	$AV_{DD}2$	Analog power supply 2
33	O	Vref	Attached capacitance-adding pin (C = 0.1 μF)
34	—	AGNDB	Analog ground B
35	—	AVDDB	Analog power supply B
36	O	OUTB	BLUE output
37	—	N.C.	—

Pin No.	I / O	Pin name	Function
38	—	AGNDG	Analog ground G
39	—	AVDDG	Analog power supply G
40	O	OUTG	GREEN output
41	—	N.C.	—
42	—	AGNDR	Analog ground R
43	—	AVDDR	Analog power supply R
44	O	OUTR	RED output

● Input / output circuits

Pin No.	Pin name	Equivalent circuit
3 ~ 5 8 ~ 26 29 ~ 31	R0 ~ R7, G0 ~ G7 B0 ~ B7, CLK	
36, 40, 44	OUTR, OUTG OUTB	
1, 33	Iref, Vref	

●Application example

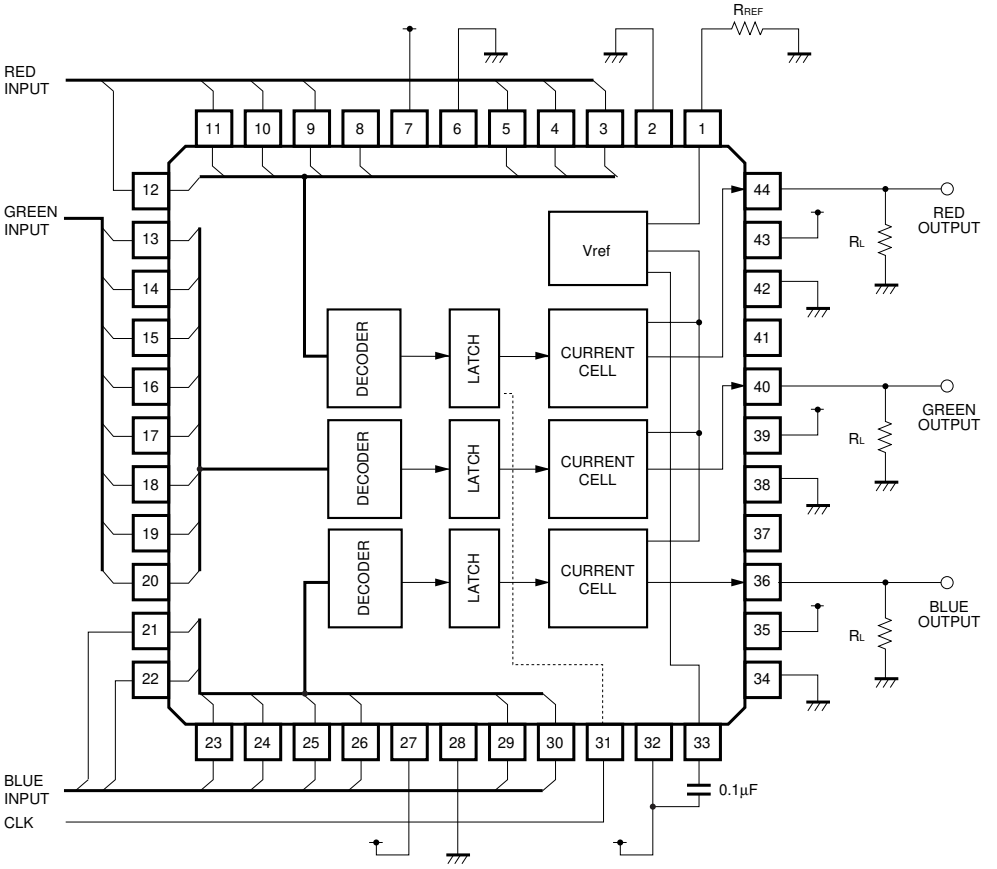
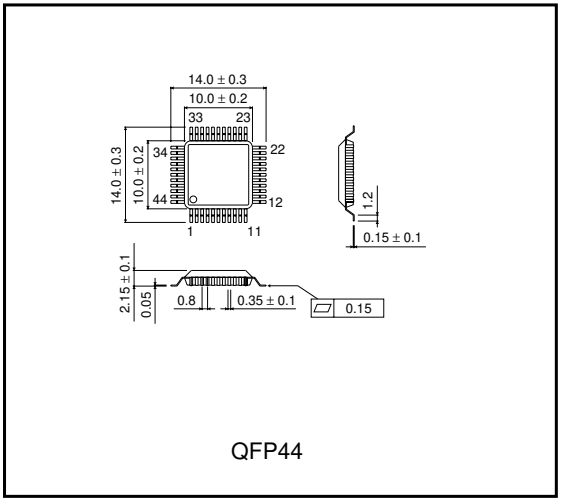


Fig.1

●External dimensions (Units: mm)



QFP44

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 use silicon as a basic material.
  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 with 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.