DATA SHEET

Part No.	AN41904A
Package Code No.	UBGA064-P-0606ACA

Contents

AN41904A

Lens Driver IC for camcorder incorporating Iris control

■ Overview

AN41904A is a lens motor driver IC for camcorder featuring the functions of Iris control and Flicker noise detection. Voltage drive system and several torque ripple correction techniques enable super-low noise microstep drive.

■ Features

- Voltage drive system 256-step microstep drivers (2 systems)
- Built-in Iris controller
- Built-in Flicker noise detector
- Motor control by 4-line serial data communication
- 2 systems of open-drain for driving LED

■ Applications

- Camcorder

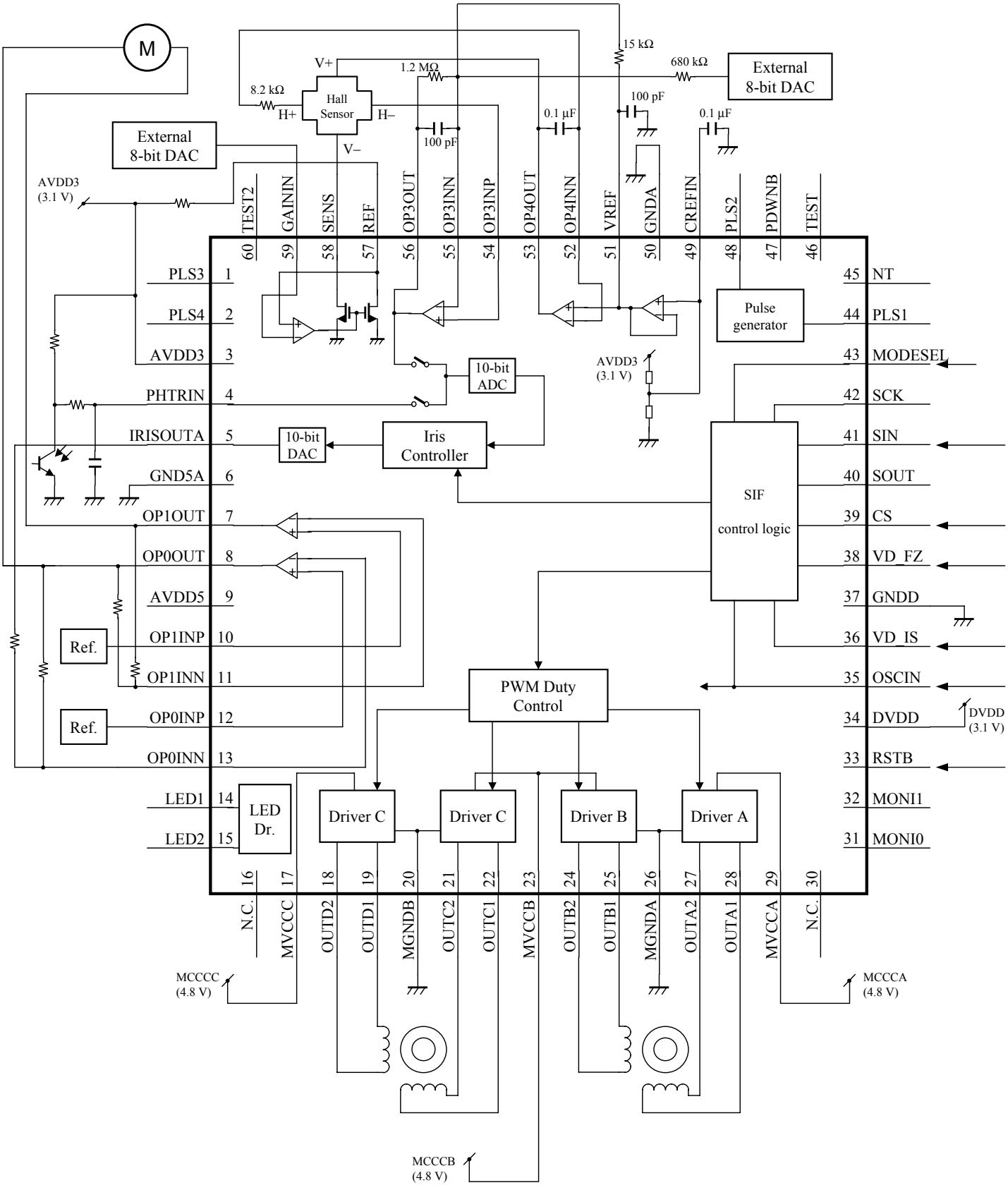
■ Package

- 64-pin plastic quad 10 column BGA package (0.5 mm pitch)

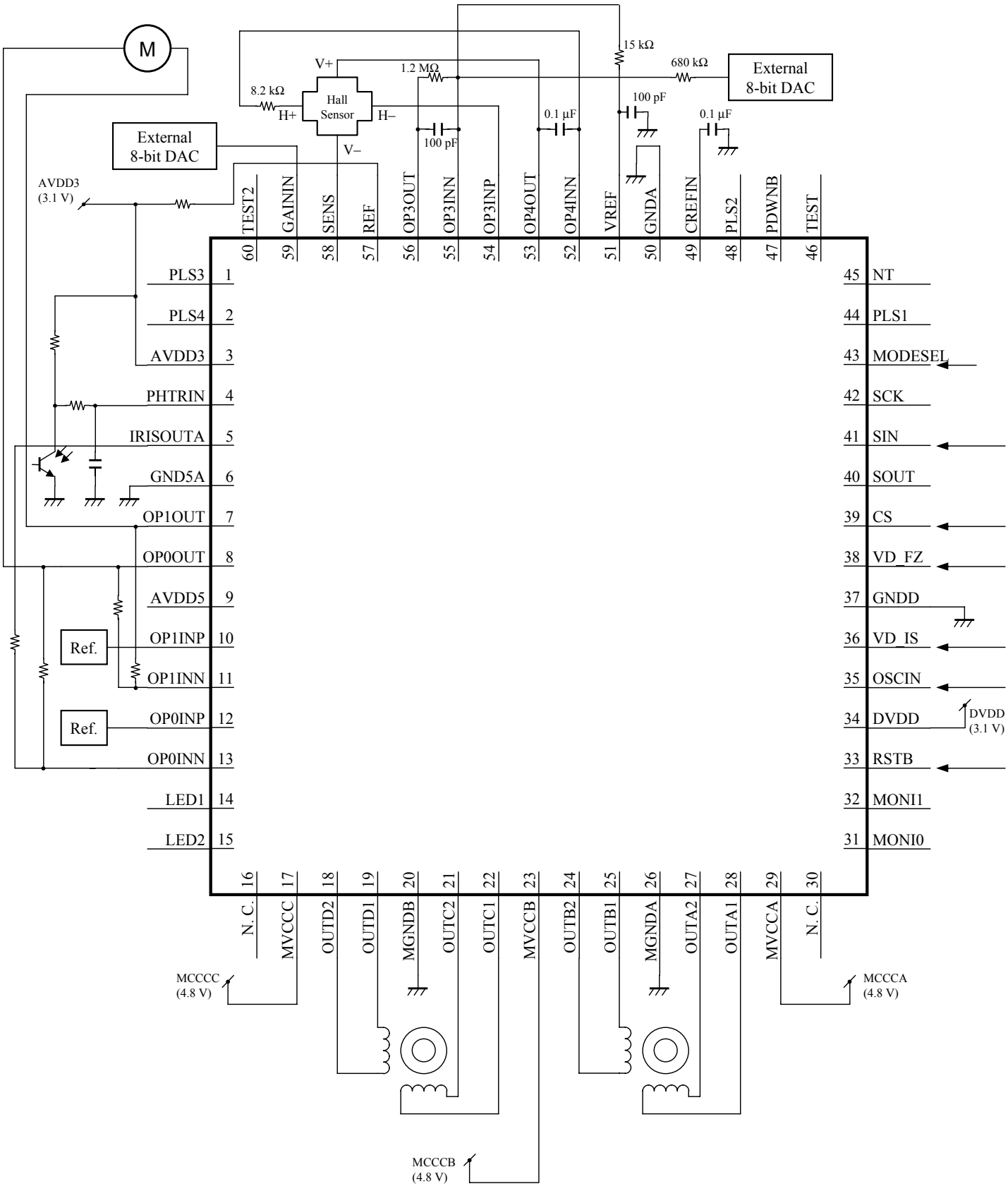
■ Type

- Bi-CMOS IC

■ Block Diagram



■ Application Circuit Example



■ Pin Descriptions

Pin No.	Pin name	Type	Description
1	PLS3	Output	Test output 3
2	PLS4	Output	Test output 4
3	AVDD3	Power supply	3 V analog power supply
4	PHTRIN	Input	Photo transistor input
5	IRISOUTA	Output	10-bit DAC output
6	GND5A	Ground	5 V analog GND
7	OP1OUT	Output	Iris driving amplifier 1 output
8	OP0OUT	Output	Iris driving amplifier 0 output
9	AVDD5	Power supply	5 V analog power supply
10	OP1INP	Input	Iris driving amplifier 1 non-inverting input
11	OP1INN	Input	Iris driving amplifier 1 inverting input
12	OP0INP	Input	Iris driving amplifier 0 non-inverting input
13	OP0INN	Input	Iris driving amplifier 0 inverting input
14	LED1	Input	Open-drain 1 for driving LED
15	LED2	Input	Open-drain 2 for driving LED
16	N.C.	—	N.C.
17	MVCCC	Power supply	Power supply for motor C
18	OUTD2	Output	Motor output D2
19	OUTD1	Output	Motor output D1
20	MGNDB	Ground	GND for motor B
21	OUTC2	Output	Motor output C2
22	OUTC1	Output	Motor output C1
23	MVCCB	Power supply	Power supply for motor B
24	OUTB2	Output	Motor output B2
25	OUTB1	Output	Motor output B1
26	MGNDA	Ground	GND for motor A
27	OUTA2	Output	Motor output A2
28	OUTA1	Output	Motor output A1
29	MVCCA	Power supply	Power supply for motor A
30	N.C.	—	N.C.
31	MONI0	Output	Test output 0
32	MONI1	Output	Test output 1
33	RSTB	Input	Reset signal input
34	DVDD	Power supply	3 V digital power supply
35	OSCIN	Input	OSCIN input

■ Pin Descriptions (continued)

Pin No.	Pin name	Type	Description
36	VD_IS	Input	Iris video sync. signal input
37	GNDD	Ground	Digital GND
38	VD_FZ	Input	Focus zoom sync. signal input
39	CS	Input	Chip select signal input
40	SOUT	Output	Serial data output
41	SIN	Input	Serial data input
42	SCK	Input	Serial clock input
43	MODESEL	Input	Video sync. signal polarity selection input
44	PLS1	Output	Pulse 1 output
45	NT	Input	Test mode input NT
46	TEST	Input	Test mode input TEST
47	PDWNB	Input	Power down input
48	PLS2	Output	Pulse 2 output
49	CREFIN	—	(AVDD3)/2 capacitor connection pin
50	GNDA	Ground	3 V analog GND
51	VREF	Output	VREF output
52	OP4INN	Input	Midpoint bias amplifier inverting input
53	OP4OUT	Output	Midpoint bias amplifier output
54	OP3INP	Input	Hall signal amplifier non-inverting input
55	OP3INN	Input	Hall signal amplifier inverting input
56	OP3OUT	Output	Hall signal amplifier output
57	REF	—	Resistor connection for Hall current bias setting
58	SENS	Output	Hall current bias output
59	GAININ	Input	DAC connection pin for Hall bias setting
60	TEST2	Input	Reset bypass setting pin

■ Absolute Maximum Ratings

A No.	Parameter	Symbol	Rating	Unit	Note
1	Controller supply voltage	AVDD3	– 0.3 to +4.0	V	*1
		DVDD	– 0.3 to +4.0		
2	Supply voltage for motor controller	AVDD5	– 0.3 to +6.0	V	*1
3	Supply voltage for motor driver	MVCCx	– 0.3 to +6.0	V	*1
4	Power dissipation	P_D	160.4	mW	*2
5	Operating ambient temperature	T_{opr}	– 10 to +85	°C	*3
6	Storage temperature	T_{stg}	– 55 to +125	°C	*3
7	H bridge drive current	$I_{M(CD)}$	±0.25	A/ch	—
8	Instantaneous H bridge drive current	$I_{M(pulse)}$	±0.4	A/ch	—
9	Digital input voltage	V_{in}	– 0.3 to (DVDD + 0.3)	V	—

Note) *1: The values are under the condition not exceeding the above absolute maximum ratings and the power dissipation.

*2: The power dissipation is the value of a discrete IC package without a heat sink at T_a = 85°C.

*3: Except for the power dissipation, operating ambient temperature, and storage temperature, all ratings are at T_a = 25°C±2°C.

■ Operating Supply Voltage Range

Parameter	Symbol	Range			Unit	Note
		Max	Typ	Min		
Supply voltage range	DVDD	2.7	3.1	3.6	V	—
	AVDD3	2.7	3.1	3.6		—
	AVDD5	3.0	4.8	5.5		—
	MVCCx	3.0	4.8	5.5		—

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