R2A30445BX

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2-Channel Motor Driver IC for DSC, DVC and Surveillance Cameras

Overview

The R2A30445BX is a semiconductor integrated circuit that incorporates driver circuits suitable for motor of digital cameras.

Features

- An ultra-fine CMOS process has been adopted for low power consumption in a design.
- A small 32-pin WLBGA package (ball pitch of 0.4mm/t=0.64mm)
- Built-in of 2CH H-bridge (with a FS/BTL selectable function).
- BTL has a selectable built-in DAC control capable of 10bit accuracy.
- Hall device drive, built-in Hall output computation circuit.
- 8bitDAC built-in for various offset adjustments.
- Selection of 2 line serial communication (I2C) and 3 line serial communication (SPI) is possible.
- For I2C, the input interface control voltage is compatible with 1.8V system.
- For SPI, the input interface control voltage is dependent on DVDD.
- Built-in power-on reset circuit, reference voltage, prevention from low-voltage malfunction and thermal shutdown circuit.

Application

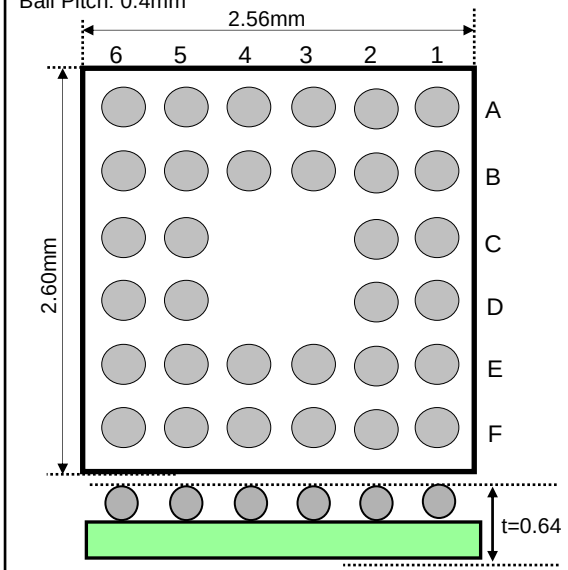
Motor driver for digital still cameras

Recommended operating conditions

Power-supply voltage range · · · · · · · · · · · · · VM/AVCC: 2.7V~5.5V
DVDD: 2.7V~3.6V
Rated power-supply voltage · · · · · · · · · · · · · VM: 5.0V
AVCC/DVDD: 3.25V

Pin Layout (Ball side) Outline/Package WLBGA

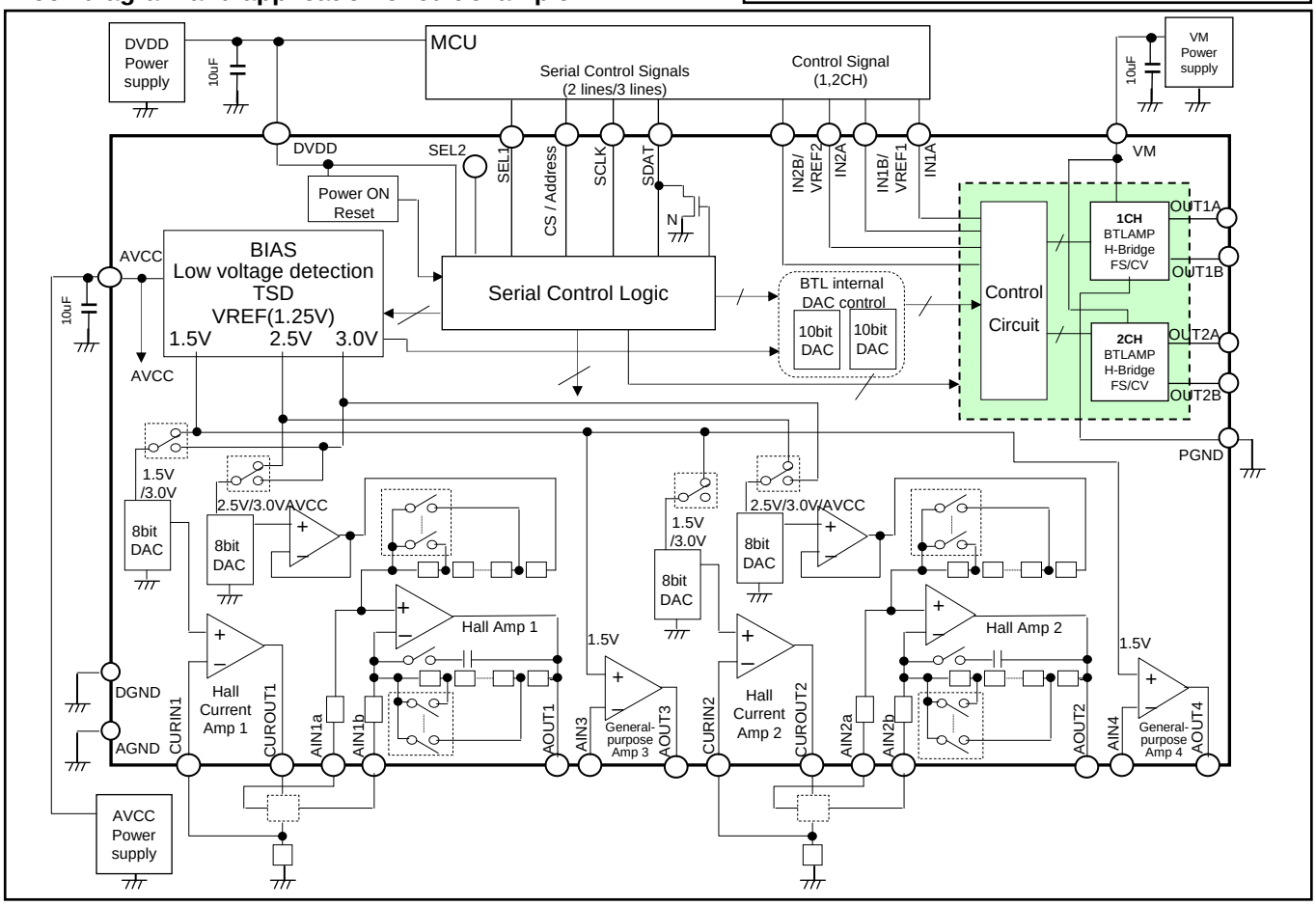
Body: 2.56mm x 2.60mm t=0.64
Ball Pitch: 0.4mm



Note:
· SEL2 terminal is connected to DVDD by rewiring Cu.

Unit: mm

Block diagram and application circuit example

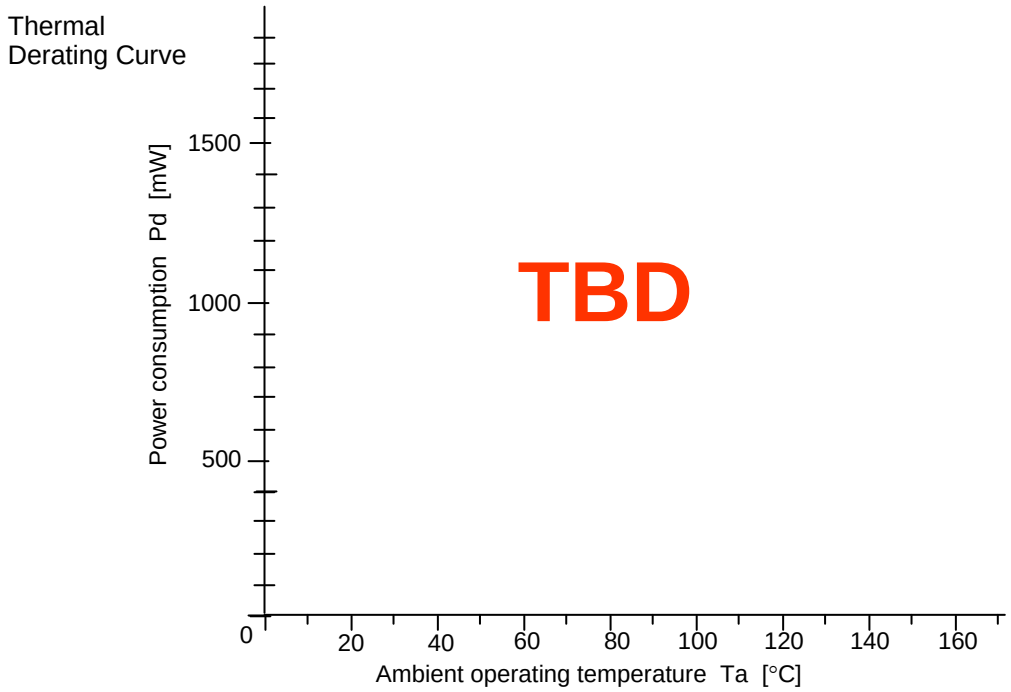


The specifications are subject to change without notice.
When it is examined for use, please confirm that this is the latest version.

Absolute Maximum Ratings (Unless specified, the ambient temperature is 25°C)

Item	Symbol	Rated Value	Unit	Remarks
Power-supply voltage 1	VM	6.5	V	Note1
Power-supply voltage 2	AVCC	6.5	V	Note1
Power-supply voltage 3	DVDD	6.5	V	Note1
Direct current (1ch~2ch)	Iod	±400	mA/ch	Note4 Note5 DC
Instant output current (1ch~2ch)	Iop	±1000	mA/ch	Note4 PW < 10ms, Duty ≤ 20%
Allowable power consumption	Pd	TBD	mW	Note2 (Ta = 25°C)
Thermal derating ratio	Kθ	TBD	mW/°C	Note2 (Ta ≥ 25°C)
Max. junction temperature	Tj	150	°C	
Applied input voltages	Vin	–0.3~DVDD+0.3 –0.3~VM+0.3	V	Note3 /DVDD.VM system input
Ambient operating temperature	Topr	–30~85	°C	
Storage temperature	Tstg	–40~125	°C	

Notes: 1. As a rule, do not apply reverse power-supply voltages.
2. Glass epoxy board: 76.2mm x 114.5mm x 1.6mm,
copper-occupancy ratio in a 4-layer board: 20% in layers 1 and 4, 100% in layers 2 and 3.
Note that the allowable power consumption changes according to the conditions imposed on the board.
3. As a rule, do not apply voltages above the power-supply voltage or below the GND voltage.
4. The total output current does not exceed the rated value in usage with multiple channels simultaneously turned on.



[Remarks]

The electric power which the power consumption of this IC with the output transistor of 1ch - 2ch becomes dominant.

Output transistor power consumption formula

<Full Swing>: (output current)^2 x ON resistance E.g. (500mA)^2 x 2.0ohm=500mW

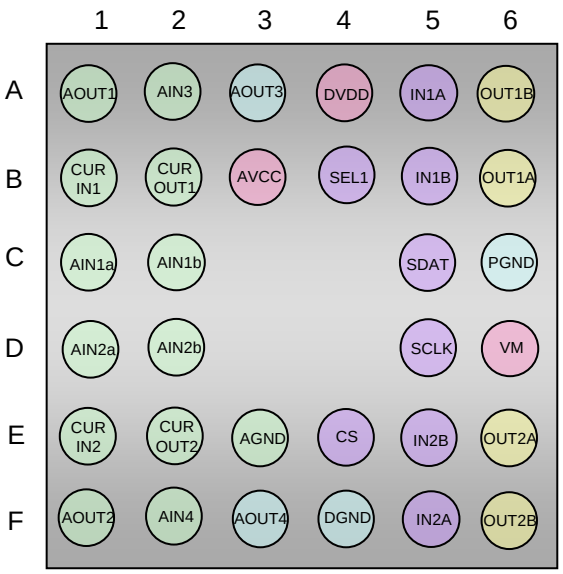
<Constant Voltage>: (VM-Voltage between terminals) x Voltage between terminals /RL

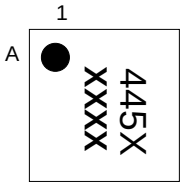
Note: In constant voltage control, the on resistance is not included in the calculation

When the ambient temperature is 25°C or more, refer to the above figure in selecting the required heat sink.

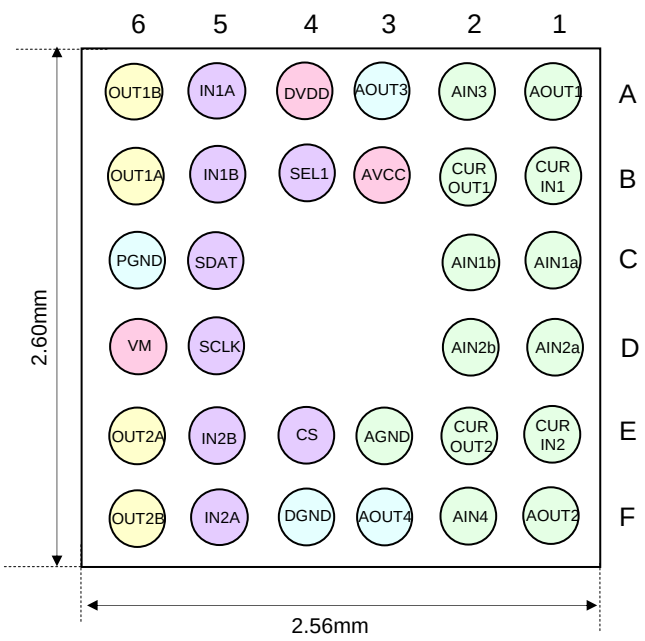
Terminal Function Explanation

Top VIEW (Marking Side)





Bottom VIEW (Pin Side)



Pin No	Pin Name	I/O	Pin Function
A1	AOUT1	O	Hall amplifier 1 output
A2	AIN3	I	General-purpose Amplifier 3 input
A3	AOUT3	O	General-purpose Amplifier 3 output
A4	DVDD	Supply	Digital circuit power supply
A5	IN1A	I	1CH control signal
A6	OUT1B	O	1CH B output
B1	CURIN1	I	Hall current amplifier 1 input
B2	CUROUT1	O	Hall current amplifier 1 output
B3	AVCC	Supply	Analog circuitry power supply
B4	SEL1	I	Communication mode selection
B5	IN1B /VREF1	I	1CH control signal
B6	OUT1A	O	1CH A output
C1	AIN1a	I	Hall amplifier 1 input
C2	AIN1b	I	Hall amplifier 1 input
C3	—	—	—
C4	—	—	—
C5	SDAT	I/O	Serial control signal
C6	PGND	GND	12CH power GND

Pin No	Pin Name	I/O	Pin Function
D1	AIN2a	I	Hall amplifier 2 input
D2	AIN2b	I	Hall amplifier 2 input
D3	—	—	—
D4	—	—	—
D5	SCLK	I	Serial control signal
D6	VM	Supply	1 / 2CH motor power supply
E1	CURIN2	I	Hall current amplifier 2 input
E2	CUROUT2	O	Hall current amplifier 2 output
E3	AGND	GND	Analog GND
E4	Address /CS	I	I2C address setup /serial control signal
E5	IN2B /VREF2	I	2CH control signal
E6	OUT2A	O	2CH A output
F1	AOUT2	O	Hall amplifier 2 output
F2	AIN4	I	General-purpose Amplifier 4 input
F3	AOUT4	O	General-purpose Amplifier 4 output
F4	DGND	GND	Digital GND
F5	IN2A	I	2CH control signal
F6	OUT2B	O	2CH B output

Ordering Information

Orderable Part No.	Package Code	Quantity
R2A30445BX#W0	SWBG0032LA-A	3000 pcs

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