◇Structure Silicon monolithic integrated circuit
◇Product Series Lens control LSI
◇Type BU24038GW
◇Applications Digital still cameras
◇Functions ・Built-in 9 channels Driver block : 1-8ch Voltage control type H-bridge(Adaptable to STM 3systems)
: 9ch Current control type H-bridge
・Built-in 3 channels PI driving circuit
・Built-in 4 channels Waveforming circuit
・Built-in PLL circuit

◇Absolute maximum ratings (Ta = 25°C)

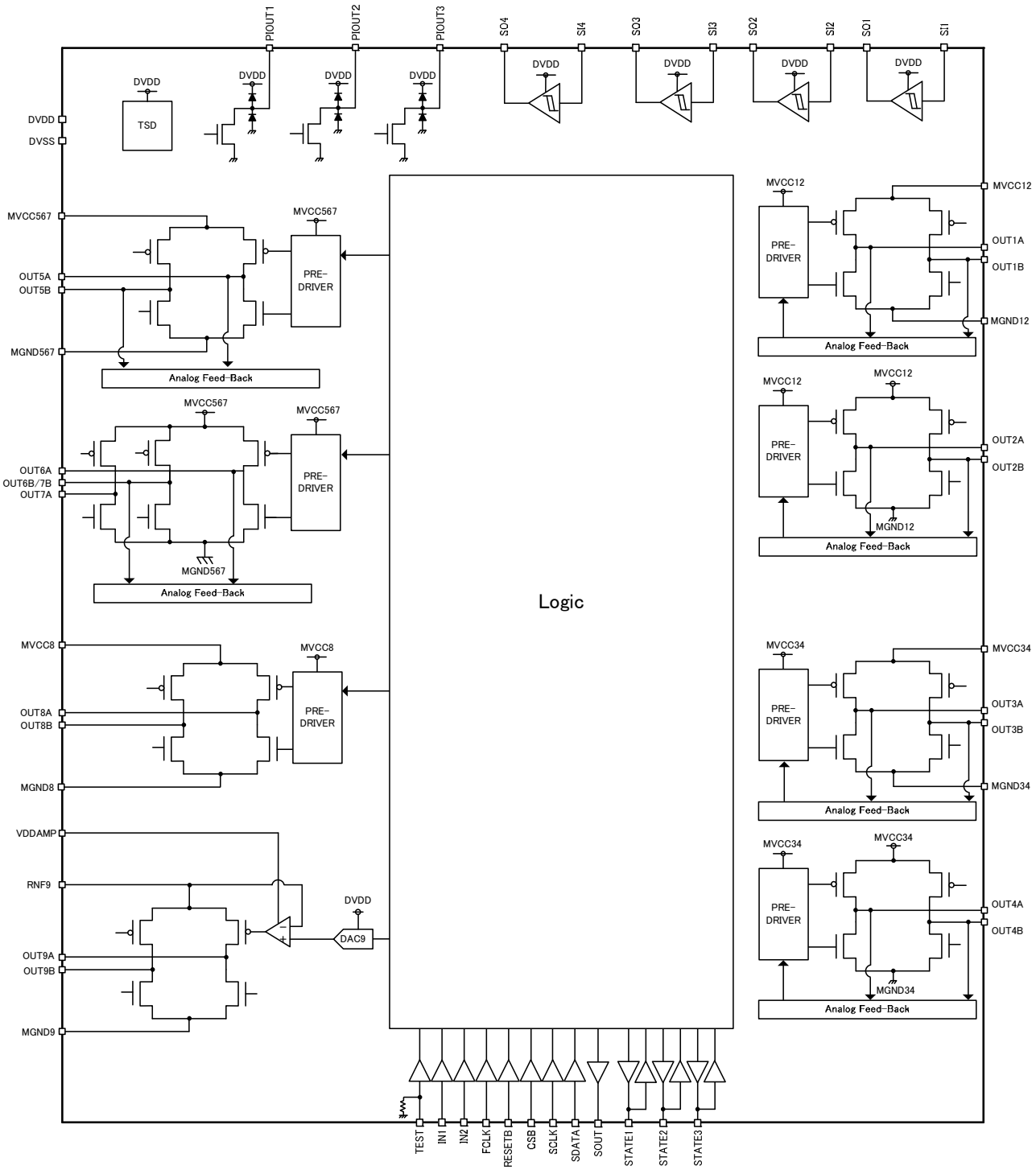
Parameter	Symbol	Limits	Unit	Remark
Power supply voltage	DVDD	−0.3～4.5	V	
	MVCC	−0.3～7.0	V	MVCC12,MVCC34,MVCC567, MVCC8, VDDAMP
Input voltage	VIN	−0.3～supply voltage+0.3	V	
Input/output current *1	IIN	±500	mA	MVCC12,MVCC34,MVCC567, MVCC8, RNF9
		+50	mA	by PIOUT pin
Storage temperature range	TSTG	−55～125	°C	
Operating temperature range	TOPE	−20～85	°C	
Permissible dissipation *2	PD	1300	mW	

This product is not designed for anti-radiation applications.
*1 Must not exceed PD.
*2 To use at a temperature higher than Ta=25 °C, derate 13mW per 1 °C
(At mounting 50mm x 58mm x 1.75mm glass epoxy board.)

◇Operating conditions (Ta = 25°C)

Parameter	Symbol	Limits	Unit	Remark
Digital power supply voltage	DVDD	2.7～3.6	V	DVDD≦MVCC
Driver power supply voltage	MVCC	2.7～5.5	V	MVCC12,MVCC34,MVCC567, MVCC8, VDDAMP
clock operating frequency	FCLK	1～28	MHz	Reference clock

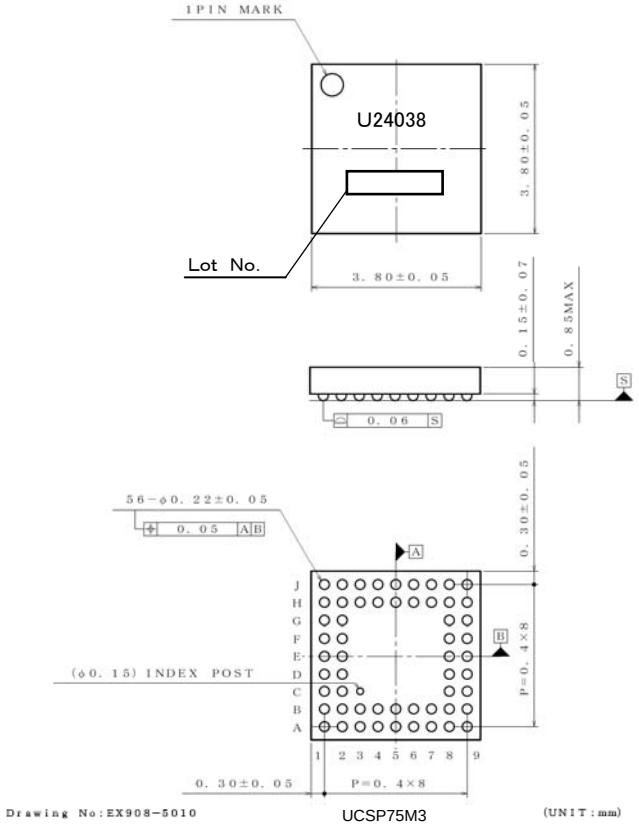
◇Block Diagram



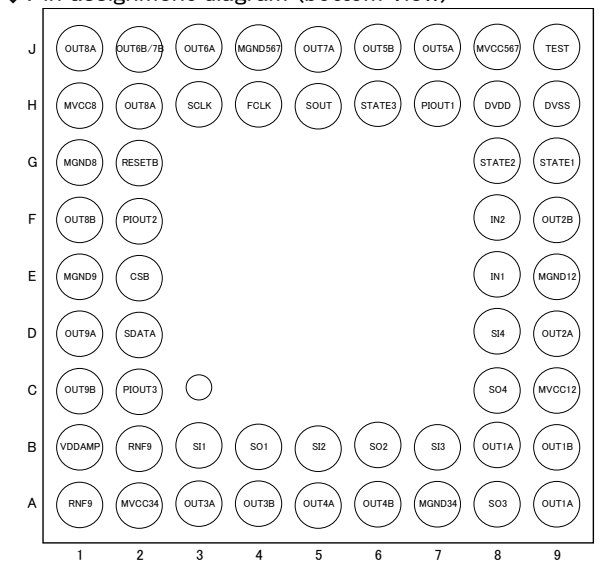
◇Pin functions

Land Matrix No.	Pin name	Power supply	Function
H8	DVDD	–	Digital power supply
H9	DVSS	–	ground
G2	RESETB	DVDD	RESETB logic input
H4	FCLK	DVDD	FCLK logic input
E2	CSB	DVDD	CSB logic input
H3	SCLK	DVDD	SCLK logic input
D2	SDATA	DVDD	SDATA logic input
H5	SOUT	DVDD	SOUT logic output
E8	IN1	DVDD	IN1 logic input
F8	IN2	DVDD	IN2 logic input
G9	STATE1	DVDD	STATE1 logic input/output
G8	STATE2	DVDD	STATE2 logic input/output
H6	STATE3	DVDD	STATE3 logic input/output
J9	TEST	DVDD	TEST logic input
H7	PIOUT1	DVDD	PI driving output 1
F2	PIOUT2	DVDD	PI driving output 2
C2	PIOUT3	DVDD	PI driving output 3
B3	SI1	DVDD	Waveforming input1
B4	SO1	DVDD	Waveforming output1
B5	SI2	DVDD	Waveforming input2
B6	SO2	DVDD	Waveforming output2
B7	SI3	DVDD	Waveforming input3
A8	SO3	DVDD	Waveforming output3
D8	SI4	DVDD	Waveforming input4
C8	SO4	DVDD	Waveforming output4
C9	MVCC12	–	1ch, 2ch Driver power supply
E9	MGND12	–	1ch, 2ch Driver ground
A9, B8	OUT1A	MVCC12	1ch Driver A output
B9	OUT1B	MVCC12	1ch Driver B output
D9	OUT2A	MVCC12	2ch Driver A output
F9	OUT2B	MVCC12	2ch Driver B output
A2	MVCC34	–	3ch, 4ch Driver power supply
A7	MGND34	–	3ch, 4ch Driver ground
A3	OUT3A	MVCC34	3ch Driver A output
A4	OUT3B	MVCC34	3ch Driver B output
A5	OUT4A	MVCC34	4ch Driver A output
A6	OUT4B	MVCC34	4ch Driver B output
J8	MVCC567	–	5ch, 6ch, 7ch Driver power supply
J4	MGND567	–	5ch, 6ch, 7ch Driver ground
J7	OUT5A	MVCC567	5ch Driver A output
J6	OUT5B	MVCC567	5ch Driver B output
J3	OUT6A	MVCC567	6ch Driver A output
J2	OUT6B/7B	MVCC567	6ch, 7ch Driver B output
J5	OUT7A	MVCC567	7ch Driver A output
H1	MVCC8	–	8ch Driver power supply
G1	MGND8	–	8ch Driver ground
H2, J1	OUT8A	MVCC8	8ch Driver A output
F1	OUT8B	MVCC8	8ch Driver B output
B1	VDDAMP	–	9ch Power supply of current driver control
A1, B2	RNF9	–	9ch Driver power supply
E1	MGND9	–	9ch Driver ground
D1	OUT9A	RNF9	9ch Driver A output
C1	OUT9B	RNF9	9ch Driver B output

◇Outline dimensions/Marking figure



◇Pin assignment diagram (bottom view)



(*)It is not possible to use corner pin only.(Corner pins are A1, A9, and J1.) Please short A1-B2, A9-B8, J1-H2 or use B2, B8, H2 only.

◇Cautions on use

(1)Absolute maximum ratings

If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you expect that any voltage or temperature could be exceeding the absolute maximum ratings, take physical safety measures such as fuses to prevent any conditions exceeding the absolute maximum ratings from being applied to the LSI.

(2)GND potential

Maintain the GND pin at the minimum voltage even under any operating conditions.

Actually check to be sure that none of the pins have voltage lower than that of GND pin, including transient phenomena.

(3)Thermal design

With consideration given to the permissible dissipation under actual use conditions, perform thermal design so that adequate margins will be provided.

(4)Short circuit between pins and malfunctions

To mount the LSI on a board, pay utmost attention to the orientation and displacement of the LSI. Faulty mounting to apply a voltage to the LSI may cause damage to the LSI. Furthermore, the LSI may also be damaged if any foreign matters enter between pins, between pin and power supply, or between pin and GND of the LSI.

(5)Operation in strong magnetic field

Make a thorough evaluation on use of the LSI in a strong magnetic field. Not doing so may malfunction the LSI.

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