STRUCTURE Silicon Monolithic Integrated Circuit

TYPE **BU52742GUL**

PRODUCT Bipolar latch type Hall effect IC

FEATURES 1) Two hall elements are on the inside
2) High speed operation

●ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

PARAMETERS	SYMBOL	LIMIT	UNIT
Power Supply Voltage	V_{DD}	−0.1～+4.5 ※1	V
Output Current	I_{OUT}	±1.0	mA
Power dissipation	Pd	460 ※2	mW
Operating Temperature Range	T_{opr}	−25～+85	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

※1. Not to exceed Pd
※2. Reduced by 4.60mW for each increase in Ta of 1℃ over 25℃
(mounted on 70mm×70mm×1.6mm Glass-epoxy PCB)

●OPERATING CONDITIONS (Ta=−25～+85℃)

PARAMETERS	SYMBOL	MIN	TYP	MAX	UNIT
Power Supply Voltage	V_{DD}	2.4	3.0	3.6	V

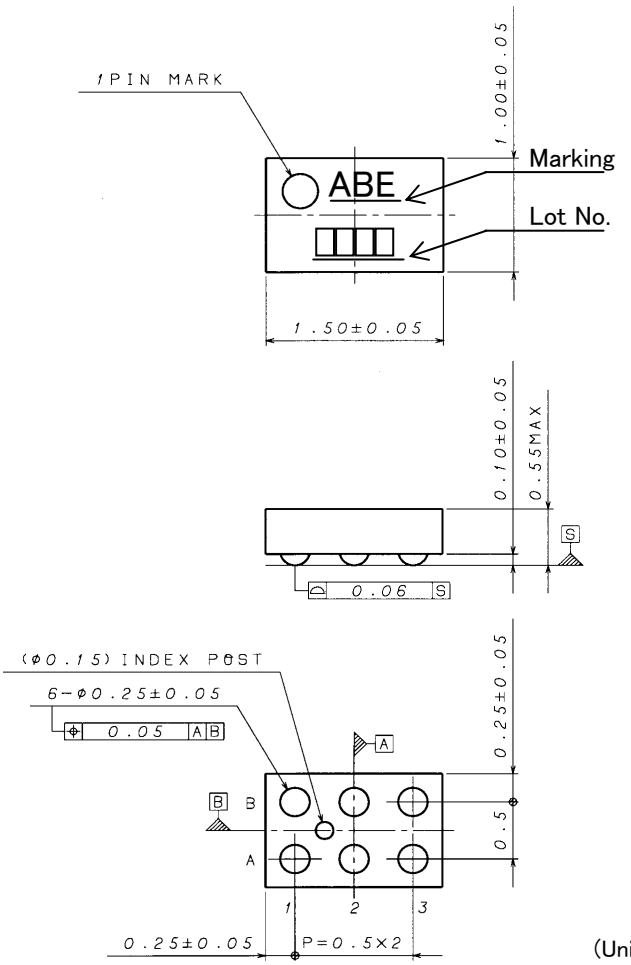
Radiation hardiness is not designed.

●MAGNETIC, ELECTRICAL CHARACTERISTICS (Unless otherwise specified, V_{DD}=3.0V, Ta=25℃)

PARAMETERS	SYMBOL	LIMIT			UNIT	CONDITIONS
		MIN	TYP	MAX		
Operate Point	B_{op}	5	10	15	mT	
Release Point	B_{rp}	−15	−10	−5	mT	
Frequency	f_{OP}	200	250	−	kHz	
Output High Voltage	V_{OH}	V_{DD} −0.4	−	−	V	$B<B_{rp}$ ※3 I_{OUT}=−1.0mA
Output Low Voltage	V_{OL}	−	−	0.4	V	$B_{op}<B$ ※3 I_{OUT}=+1.0mA
Supply Current	I_{DD}	−	7.5	10.0	mA	

※3. B＝Magnetic Flux Density
1mT＝10Gauss
Positive (“+”) polarity flux is defined as the magnetic flux from south pole which is direct toward to the branded face of the sensor.
After applying power supply, it takes one cycle of frequency ($1/f_{OP}$) to become definite output.

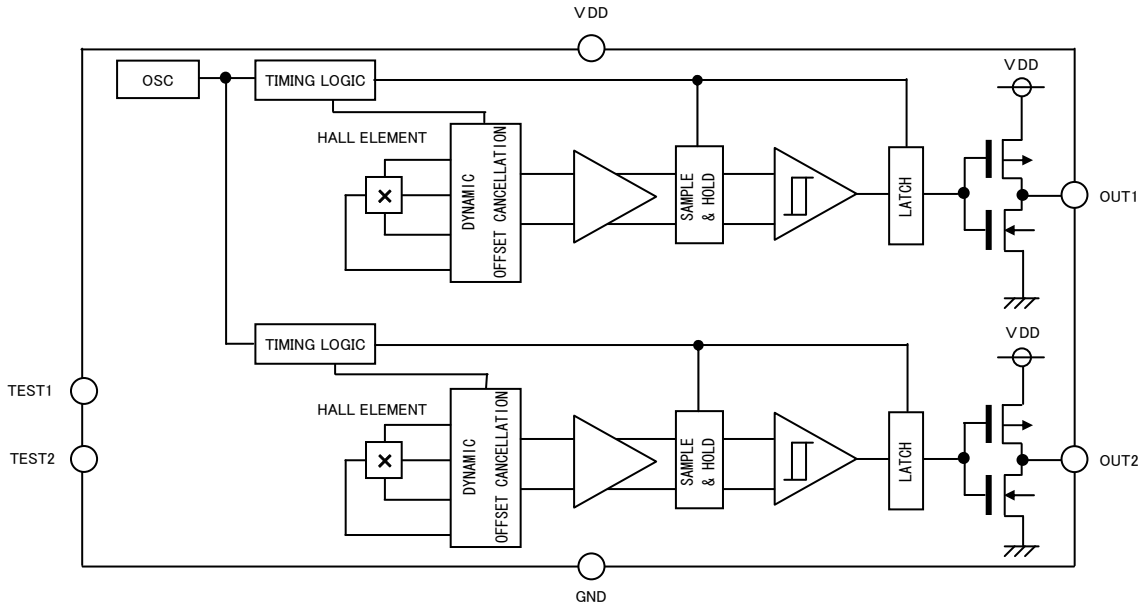
●PACKAGE OUTLINES



●PIN No.･PIN NAME

PIN No.	PIN NAME	FUNCTION	COMMENT
A1	OUT1	OUTPUT1	
A2	TEST1		OPEN.
A3	OUT2	OUTPUT2	
B1	VDD	POWER SUPPLY	
B2	TEST2		OPEN or Short to GND.
B3	GND	GROUND	

●BLOCK DIAGRAM



●CAUTIONS ON USE

1) Absolute Maximum Ratings

An excess in the absolute maximum ratings, such as supply voltage, temperature range of operating conditions, etc., can break down devices, thus making impossible to identify breaking mode such as a short circuit or an open circuit. If any special mode exceeding the absolute maximum ratings is assumed, consideration should be given to take physical safety measures including the use of fuses, etc.

2) GND voltage

Make setting of the potential of the GND terminal so that it will be maintained at the minimum in any operating state.

3) Thermal design

Perform thermal design in which there are adequate margins by taking into account the permissible dissipation (Pd) in actual states of use.

4) Pin short and mistake fitting

When mounting the IC on the PCB, pay attention to the orientation of the IC. If there is a placement mistake, the IC may be burned up.

5) Operation in strong electric field

Be noted that using ICs in the strong electric field can malfunction them.

6) Mutual impedance

Use short and wide wiring tracks for the power supply and ground to keep the mutual impedance as small as possible. Use a capacitor to keep ripple to a minimum.

7) Ground wiring pattern

If small-signal GND and large-current GND are provided, It will be recommended to separate the large-current GND pattern from the small-signal GND pattern and establish a single ground at the reference point of the set PCB so that resistance to the wiring pattern and voltage fluctuations due to a large current will cause no fluctuations in voltages of the small-signal GND. Pay attention not to cause fluctuations in the GND wiring pattern of external parts as well.

Notes

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