STRUCTURE Silicon Monolithic Integrated Circuit

TYPE BU52003GUL

PRODUCT SERIES Hall effect Switch

FUNCTION
1) High sensitivity (B_{OP} TYP:−3.7mT)
2) Low supply current(TYP 6.5μA)
3) Small package(TYP 1.10×1.10×0.5mm)
4) CMOS output type

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETERS	SYMBOL	LIMIT	UNIT
Power Supply Voltage	V_{DD}	−0.1～4.5	V
Output Current	I_{OUT}	±1	mA
Operating Temperature Range	T_{opr}	−40～85	°C
Storage Temperature Range	T_{stg}	−40～125	°C

・Status of this document
The Japanese version of this document is the formal specification. A customer may use this translation version only for a reference to help reading the formal version. If there are any difference in translation version of this document, formal version takes priority.

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

PARAMETERS	SYMBOL	LIMIT			UNIT	CONDITIONS
		MIN	TYP	MAX		
Supply Voltage	V_{DD}	2.4	3.0	3.3	V	
Operate Point	B_{opN}	-5.5	-3.7	-	mT	
Release Point	B_{rpN}	-	-2.9	-0.8	mT	
Period	T_P	-	50	100	ms	
Output High Voltage	V_{OH}	VDD -0.4	-	-	V	B_{rpN}<B ※ I_{OUT}=-1.0mA
Output Low Voltage	V_{OL}	-	-	0.4	V	B<B_{opN} ※ I_{OUT}=+1.0mA
Supply Current	$I_{DD\ (AVG)}$	-	6.5	9	μA	Average

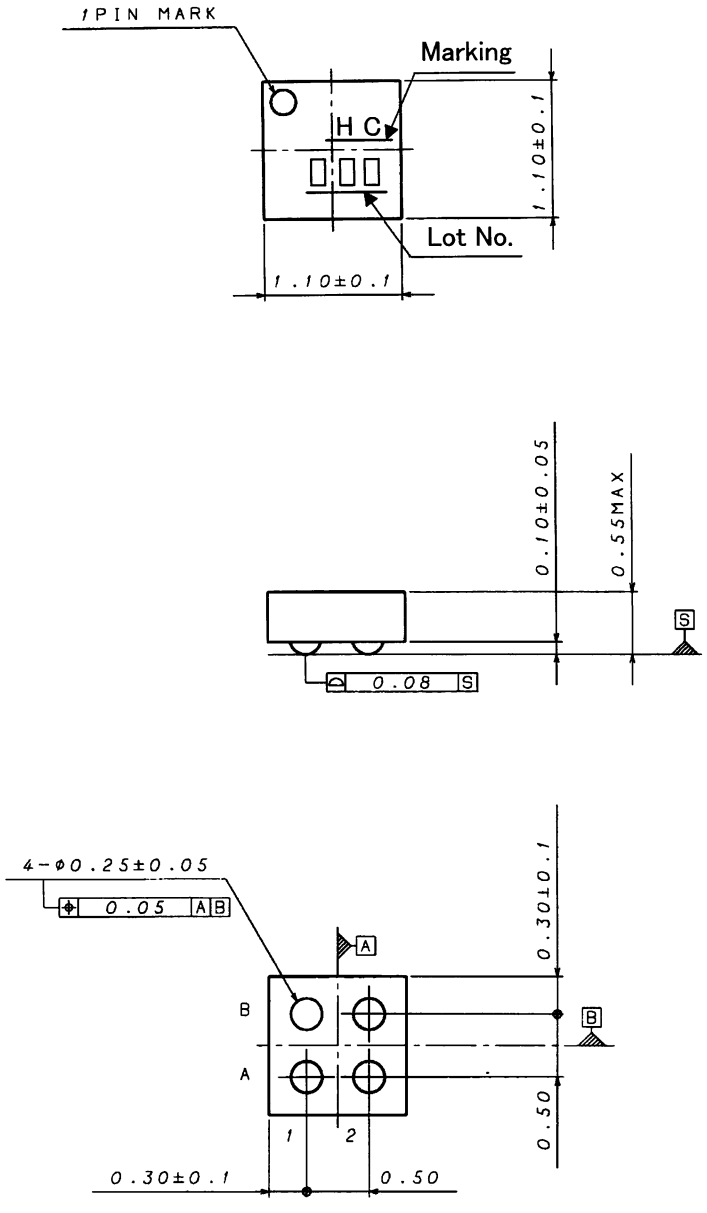
※B＝Magnetic Flux Density

1mT＝10Gauss

After applying power supply, it takes one cycle of period (Tp) to become definite output.

Radiation hardiness is not designed.

●PACKAGE OUTLINES

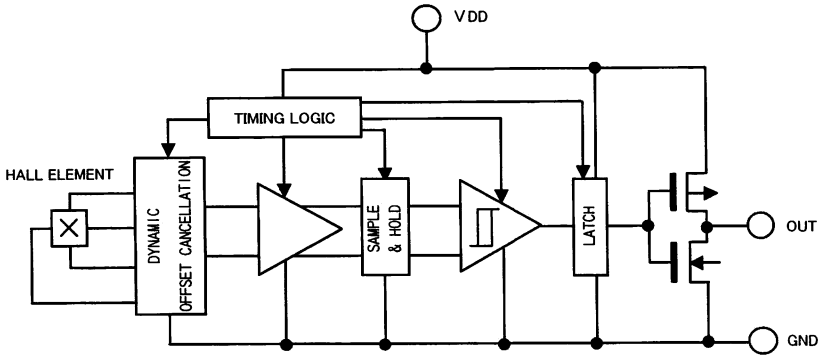


VCSP50L1 (UNIT:mm)

●PIN DESCRIPTION

PIN No.	NAME	FUNCTION	COMMENT
A1	VDD	POWER SUPPLY	
A2	GND	GROUND	
B1	OUT	OUTPUT	
B2	N.C.		OPEN or Short to GND.

●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.

8) Actions under strong light

A strong light like a halogen lamp may be caused malfunction. In our testing, fluorescence light and white LED causes quite little effects for the IC. But infrared light that causes strong effects for the IC, the IC should be shielded from the light like a sunray or halogen lamp.

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