

STRUCTURE Silicon Monolithic Integrated Circuit

PRODUCT SERIES Low Voltage Detector IC

TYPE **BU49XXG Series**FEATURES

- Detection voltage lineup : 0.9V ~ 4.8V
- High precision detection voltage : ±1%

OABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Limit	Unit
Supply Voltage ^{※1}	VDD—GND	-0.3 to +7	V
Output Voltage ^{※1} CMOS Output	V _{OUT}	GND-0.3 to V _{DD} +0.3	V
Power Dissipation ^{※2}	P _d	540	mW
Operating Temperature ^{※1}	T _{opr}	-40 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +125	°C
Junction Temperature	T _{jmax}	125	°C

※1 Do not exceed P_d.※2 Mounted on 70mm × 70mm × 1.6mm Glass Epoxy PCB, P_d derated at 5.4mW/°C for tempearture above Ta=25°C

NOTE : The product described in this specification is a strategic product (and/or service) subject to COCOM regulations. It should not be exported without authorization from the appropriate government.

NOTE : This product is not designed for protection against radioactive rays.

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.

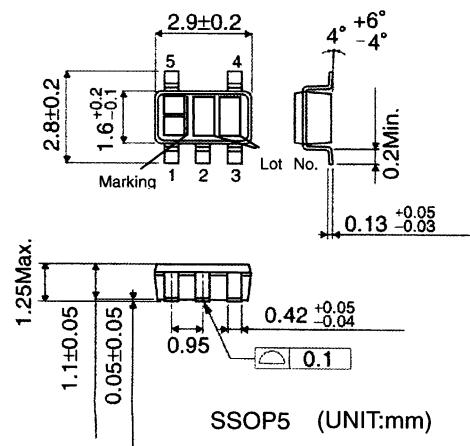
If there are any differences in translation version of this document, formal version takes priority.

ELECTRICAL CHARACTERISTICS (Unless Otherwise Specified $T_a = -25$ to 125°C)

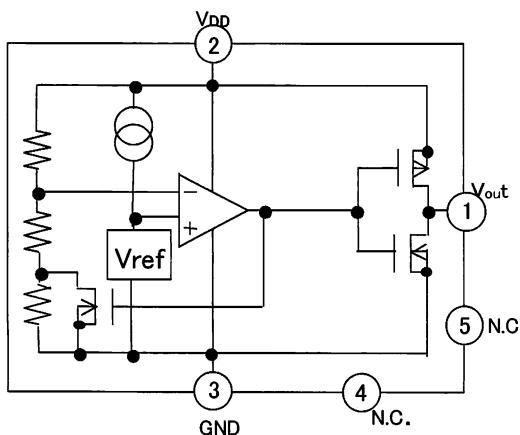
Parameter	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Detection Voltage	V_{DET}	$V_{DD} = H \rightarrow L$ $T_a = 25^\circ\text{C}$	$V_{DET(T)} \times 0.99$	$V_{DET(T)}$	$V_{DET(T)} \times 1.01$	V
Circuit Current when ON	IDD1	$V_{DD} = V_{DET} - 0.2\text{V}$, $V_{DET} = 0.9\text{-}1.3\text{V}$	-	0.15	0.88	μA
		$V_{DET} = 1.4\text{-}2.1\text{V}$	-	0.20	1.05	
		$V_{DET} = 2.2\text{-}2.7\text{V}$	-	0.25	1.23	
		$V_{DET} = 2.8\text{-}3.3\text{V}$	-	0.30	1.40	
		$V_{DET} = 3.4\text{-}4.2\text{V}$	-	0.35	1.58	
		$V_{DET} = 4.3\text{-}4.8\text{V}$	-	0.40	1.75	
Circuit Current when OFF	IDD2	$V_{DD} = V_{DET} + 2.0\text{V}$, $V_{DET} = 0.9\text{-}1.3\text{V}$	-	0.30	1.40	μA
		$V_{DET} = 1.4\text{-}2.1\text{V}$	-	0.35	1.58	
		$V_{DET} = 2.2\text{-}2.7\text{V}$	-	0.40	1.75	
		$V_{DET} = 2.8\text{-}3.3\text{V}$	-	0.45	1.93	
		$V_{DET} = 3.4\text{-}4.2\text{V}$	-	0.50	2.10	
		$V_{DET} = 4.3\text{-}4.8\text{V}$	-	0.55	2.28	
Operating Voltage Range	VOPL	$V_{OL} \leq 0.4\text{V}$ $T_a = 25^\circ\text{C} \sim 125^\circ\text{C}$	0.70	-	-	V
		$V_{OL} \leq 0.4\text{V}$ $T_a = -25^\circ\text{C} \sim 25^\circ\text{C}$	0.90	-	-	
'Low' Output Current (Nch)	IOL	$V_{DS} = 0.05\text{V}$, $V_{DD} = 0.85\text{V}$	20	100	-	μA
		$V_{DS} = 0.5\text{V}$, $V_{DD} = 1.5\text{V}$, $V_{DET} = 1.7\text{-}4.8\text{V}$	1.0	3.3	-	mA
		$V_{DS} = 0.5\text{V}$, $V_{DD} = 2.4\text{V}$, $V_{DET} = 2.7\text{-}4.8\text{V}$	3.6	6.5	-	
'High' Output Current (Pch)	IOH	$V_{DS} = 0.5\text{V}$, $V_{DD} = 4.8\text{V}$, $V_{DET} = 0.9\text{-}3.9\text{V}$	1.7	3.4	-	mA
		$V_{DS} = 0.5\text{V}$, $V_{DD} = 6.0\text{V}$, $V_{DET} = 4.0\text{-}4.8\text{V}$	2.0	4.0	-	
Detection Voltage Temperature Coefficient	$V_{DET} / \Delta T$	$T_a = -40^\circ\text{C} \sim 125^\circ\text{C}$ (Designed Guarantee)	-	± 30	-	ppm/ $^\circ\text{C}$
Hysteresis Voltage	ΔV_{DET}	$V_{DD} = L \rightarrow H \rightarrow L$ $T_a = -40^\circ\text{C} \sim 125^\circ\text{C}$	$V_{DET} \leq 1.0\text{V}$	$V_{DET} \times 0.03$	$V_{DET} \times 0.05$	$V_{DET} \times 0.08$
			$V_{DET} \geq 1.1\text{V}$	$V_{DET} \times 0.03$	$V_{DET} \times 0.05$	$V_{DET} \times 0.07$

$V_{DET(T)}$: Standard Detection Voltage (0.9V to 4.8V, 0.1V step)
Designed Guarantee.(Outgoing inspection is not done on all products.)

PHYSICAL DIMENSIONS, MARKING



OBLOCK DIAGRAM



OPIN NO. , PIN NAME

Pin Number	Pin Name
1	V _{OUT}
2	V _{DD}
3	GND
4	N.C.
5	N.C.

※ Please refer to technical note concerning application circuit, and etc.

STANDARD DETECTION VOLTAGE AND MARKING

Type	Standard Detection Voltage [V]	Marking	Type	Standard Detection Voltage [V]	Marking
BU4948	4.800	LH	BU4928	2.800	KM
BU4947	4.700	LG	BU4927	2.700	KL
BU4946	4.600	LF	BU4926	2.600	KK
BU4945	4.500	LE	BU4925	2.500	KJ
BU4944	4.400	LD	BU4924	2.400	KH
BU4943	4.300	LC	BU4923	2.300	KG
BU4942	4.200	LB	BU4922	2.200	KF
BU4941	4.100	LA	BU4921	2.100	KE
BU4940	4.000	KZ	BU4920	2.000	KD
BU4939	3.900	KY	BU4919	1.900	KC
BU4938	3.800	KX	BU4918	1.800	KB
BU4937	3.700	KW	BU4917	1.700	KA
BU4936	3.600	KV	BU4916	1.600	JZ
BU4935	3.500	KU	BU4915	1.500	JY
BU4934	3.400	KT	BU4914	1.400	JX
BU4933	3.300	KS	BU4913	1.300	JW
BU4932	3.200	KR	BU4912	1.200	JV
BU4931	3.100	KQ	BU4911	1.100	JU
BU4930	3.000	KP	BU4910	1.000	JT
BU4929	2.900	KN	BU4909	0.900	JS

NOTES FOR USE

1 . Absolute maximum range

Absolute Maximum Ratings are those values beyond which the life of a device may be destroyed. We cannot be defined the failure mode, such as short mode or open mode. Therefore a physical security countermeasure, like fuse, is to be given when a specific mode to be beyond absolute maximum ratings is considered.

2 . GND potential

GND terminal should be a lowest voltage potential every state.

Please make sure all pins which are over ground even if include transient feature.

3 . Electrical Characteristics

Be sure to check the electrical characteristics, that is one the tentative specification will be changed by temperature, supply voltage, and external circuit.

4 . Bypass Capacitor for Noise Rejection

Please put into the to reject noise between VDD pin and GND. If extremely big capacitor is used, transient response might be late. Please confirm sufficiently for the point.

5 . Short Circuit between Terminal and Soldering

Don't short-circuit between Output pin and VDD pin, Output pin and GND pin, or VDD pin and GND pin. When soldering the IC on circuit board, please be unusually cautious about the orientation and the position of the IC. When the orientation is mistaken the IC may be destroyed.

6 . Electromagnetic Field

Mal-function may happen when the device is used in the strong electromagnetic field.

7 . The VDD line impedance might cause oscillation because of the detection current.

8 . A VDD -GND capacitor (as close connection as possible) should be used in high VDD line impedance condition.

9. BU49XXG has extremely high impedance terminals. Small leak current due to the uncleanness of PCB surface might cause unexpected operations. Application values in these conditions should be selected carefully. assumed leak resistance.

10. Power on reset operation

Please note that the power on reset output varies with the Vcc rise up time.

Please verify the actual operation.

Appendix

Notes

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