

STRUCTURE Silicon Monolithic Integrated Circuit

TYPE Single Analog Switch

PRODUCT SERIES **BU4S66G2**

FEATURES

- Wide operating power supply range(3[V]~16[V])
- Compatible with function where 1ch of BU4066BC series is taken out.

○ ABSOLUTE MAXIMUM RATINGS (Ta=25[°C])

Parameter	Symbol	Limit	Unit
Power Supply Voltage	VDD	(VSS-0.3)~(VSS+18)	V
Power Dissipation	Pd	540(*1)(*2)	mW
Supply current	Iin	±10	mA
Operating temperature	Topr	-40~+85	°C
Storage temperature	Tstg	-55~+150	°C
Input Voltage	Vin	(VSS-0.3)~(VDD+0.3)	V
Maximum junction temperature	Tjmax	150	°C

• This product is designed for protection against radioactive rays.

(\*1) When used at Ta=25[°C] on above, value of above is reduced 4.32[mW] per 1[°C].

(\*2) Power dissipation is the value for mounting 70[mm]×70[mm]×1.6[mm] FR4 glass epoxy circuit board (copper foil area is 3% or less).

○ OPERATING CONDITION (Ta=-40~+85[°C])

Parameter	Symbol	Limit	Unit
Power Supply Voltage	VDD	+3.0~+16.0	V
Input voltage	VIN	0~VDD	V

○ ELECTRICAL CHARACTERISTICS (unless otherwise noted, VSS=VEE=0[V], Ta=25[°C])

Parameter	Symbol	Standard Value			Unit	VDD[V]	Condition
		MIN	TYP	MAX			
Control "H" Input voltage	VIH	3.5	—	—	V	5	Current between in and out =10[μA]
		7.0	—	—	V	10	
		11.0	—	—	V	15	
Control "L" Input voltage	VIL	—	—	5	V	5	Current between in and out =10[μA]
		—	—	3.0	V	10	
		—	—	4.0	V	15	
ON resistance	RON	—	290	950	Ω	5	0 ≤ VIN ≤ VDD RL=10[kΩ]
		—	120	250	Ω	10	
		—	85	160	Ω	15	
Channel-OFF Leakage current	IOFF	—	—	0.3	μA	15	VIN=15[V], VOUT=0[V] VIN=0[V], VOUT=15[V]
		—	—	-0.3		15	
Static supply current	IDD	—	—	1.0	μA	5	VIN=VDD or GND
		—	—	2.0		10	
		—	—	4.0		15	
Input capacitance (control input)	CC	—	8	—	pF	—	f=1[MHz]
Input capacitance (switch input)	CS	—	10	—	pF	—	f=1[MHz]

○ Switching Characteristics (unless otherwise noted, VSS=0[V], Ta=25[°C], CL=50[pF])

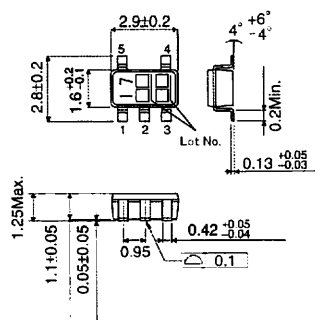
Parameter	Symbol	Standard Value			Unit	VDD[V]	Condition
		MIN	TYP	MAX			
Propagation delay time (I/O→O/I)	tPLH	—	15	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	8	—		10	
		—	5	—		15	
	tPHL	—	15	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	8	—		10	
		—	5	—		15	
Propagation delay time (CONTROL→O/I)	tPHZ	—	100	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	70	—		10	
		—	65	—		15	
	tPLZ	—	100	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	70	—		10	
		—	65	—		15	
	tPZH	—	80	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	35	—		10	
		—	25	—		15	
	tPZL	—	80	—	ns	5	RL=10[kΩ] CL=50[pF]
		—	35	—		10	
		—	25	—		15	
Maximum control frequency	fmax(C)	—	10	—	MHz	5	RL=1[kΩ] CL=50[pF]
		—	12	—		10	
		—	12	—		15	
Maximum propagation frequency (*3)	fmax(I-O)	—	30	—	MHz	5	VSS=-5[V], RL=1[kΩ] CL=50[pF]
Feed through attenuation (*4)	FT	—	600	—	kHz	5	VSS=-5[V], RL=1[kΩ]
Sine wave distortion (1kHz) (*5)	THD	—	0.05	—	%	5	VSS=-5[V], RL=10[kΩ] CL=50[pF]
Cross talk (CONTROL→O/I)	CTc	—	200	—	mV	5	RIN=1[kΩ]
		—	400	—		10	ROUT=10[kΩ]
		—	600	—		15	CL=15[pF]

(\*3) Must be sine wave of VIN = ±2.5Vp-p 1[kHz], Frequency where 20log(Vout/Vin)=-3[dB]

(\*4) Must be sine wave of VIN = ±2.5Vp-p 1[kHz], Frequency where 20log(Vout/Vin)=-50[dB]

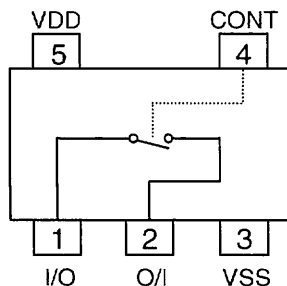
(\*5) Must be sine wave of VIN = ±2.5Vp-p 1[kHz]

○ PHYSICAL DIMENSIONS



BU4S66G2(SSOP5)(UNIT:[mm])

○ BLOCK DIAGRAM



○ PIN DESCRIPTION

PIN No.	PIN NAME
1	I/O
2	O/I
3	VSS
4	CONT
5	VDD

○ NOTES FOR USE

(1) Absolute maximum ratings

Exceeding the absolute maximum ratings, including applied voltage and operating temperature range, may damage or destroy the IC. Since the cause of the damage cannot be conclusively identified (as, for example, a short or open mode), be sure to take appropriate physical safety measures, such as incorporating fuses, whenever a special mode anticipated to exceed absolute maximum ratings is employed.

(2) External voltage at input terminal

$VDD+0.3[V]$ ,  $VSS-0.3[V]$  can be input led without characteristics deterioration and destruction. However the circuit operation is not guaranteed. Please use within recommended operating conditions.

(3) Power Dissipation

If the IC is used out of this power dissipation area, the faulty operation or reduction of current characteristics may occur due to the rise of IC temperature. Also, be sure to use this IC within a power dissipation range while also allowing enough margins.

(4) Mounting errors

Mounting errors, such as incorrect positioning or orientation, may destroy the device.

(5) Electromagnetic fields

Use in strong electromagnetic fields may cause malfunctions. Be careful operating in electromagnetic fields.

(6) Treatment of IC

Stress (camber, bend etc) may cause characteristic change due to piezo electric effect. Pay attention to stress.

(7) Latch up

Please pay attention to the deterioration and destruction by parasitic element action and latch up that occurs when excessive noise, surge on negative voltage is loaded at the normal operation.

(8) Test with set PCB

When you connect capacitor to low impedance terminal. You should discharge to avoid stress under IC. Also at attachment and detachment to jig in testing line, its power supply should be "OFF". Moreover for static electricity, please set ground to assembly line, and pong enough attention at conveyance on storage.

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Japan /  
(Internal Sales)

Tokyo	2-1-1, Yaesu, Chuo-ku, Tokyo 104-0082	TEL : +81(3)5203-0321	FAX : +81(3)5203-0300
Yokohama	2-4-8, Shin Yokohama, Kohoku-ku, Yokohama, Kanagawa 222-8575	TEL : +81(45)476-2131	FAX : +81(45)476-2128
Nagoya	Dainagayo Building 9F 3-28-12, Meieki, Nakamura-ku, Nagoya, Aichi 450-0002	TEL : +81(52)581-8521	FAX : +81(52)561-2173
Kyoto	579-32 Higashi Shiokouji-cho, Karasuma Nishi-iru, Shiokoujidori, Shimogyo-ku, Kyoto 600-8216	TEL : +81(75)311-2121	FAX : +81(75)314-6559

(Contact address for overseas customers in Japan)

Yokohama	TEL : +81(45)476-9270	FAX : +81(045)476-9271
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