

# Quad analog switch

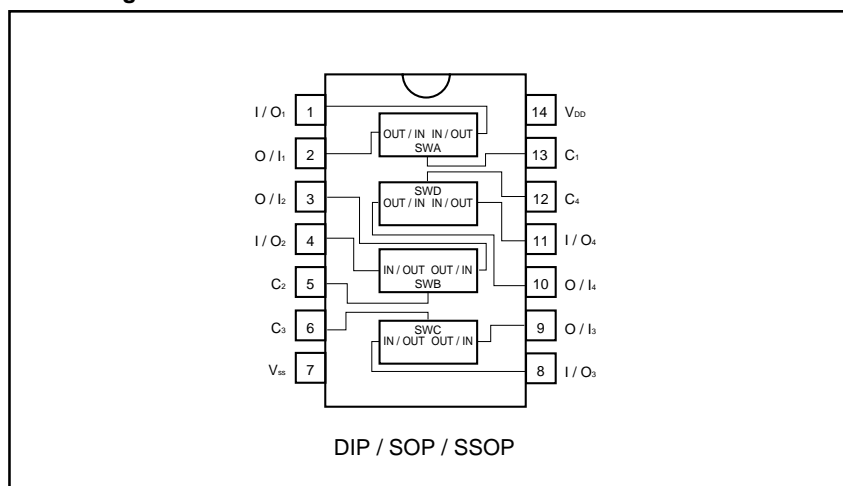
## BU4066BC / BU4066BCF / BU4066BCFV

The BU4066BC, BU4066BCF, and BU4066BCFV each consist of four independent switches capable of controlling either digital or analog signals. When Enable Input (CONT) is set to the "H" level, impedance is low (ON status) between switch input and output, and when Enable Input (CONT) is set to the "L" level, impedance is high (OFF status). As the BU4066BC has a good propagation characteristic, it can control large input voltage amplitudes. These switches can be used in analog and digital signal switching and in chopper modulator and demodulator circuits.

### ●Absolute maximum ratings (Ta=25°C)

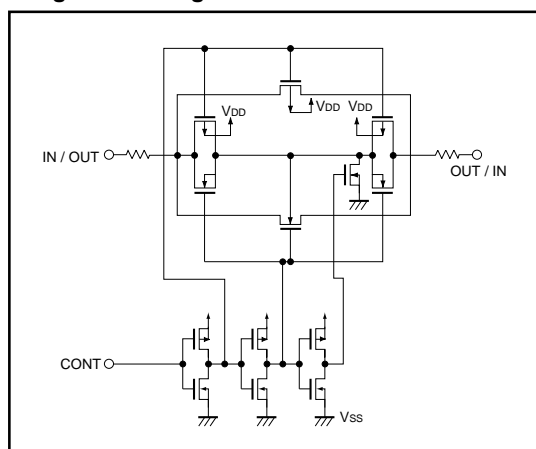
Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>DD</sub>	-0.3~+20	V
Power dissipation	P <sub>d</sub>	1000(DIP), 450(SOP) 350(SSOP)	mW
Operating temperature	T <sub>opr</sub>	-40~+85	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C
Input voltage	V <sub>IN</sub>	-0.5~V <sub>DD</sub> +0.5	V

### ●Block diagram



## Standard ICs

## ●Logic circuit diagram



## ●Electrical characteristics

DC characteristics (unless otherwise noted, Ta=25°C, Vss=0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	V <sub>DD</sub> (V)	Conditions	Measurement circuit
Input high-level voltage	V <sub>IH</sub>	3.5	—	—	V	5	—	Fig. 1
		7.0	—	—		10		
		11.0	—	—		15		
Input low-level voltage	V <sub>IL</sub>	—	—	1.5	V	5	—	Fig. 1
		—	—	3.0		10		
		—	—	3.75		15		
Input high-level current	I <sub>IH</sub>	—	—	0.3	μA	15	V <sub>IH</sub> =15V	Fig. 1
Input low-level current	I <sub>IL</sub>	—	—	−0.3	μA	15	V <sub>IL</sub> =0V	Fig. 1
ON resistance	R <sub>ON</sub>	—	150	600	Ω	5	V <sub>IN</sub> =0.25V, R <sub>L</sub> =10kΩ	Fig. 1
		—	500	950		5	V <sub>IN</sub> =2.5V, R <sub>L</sub> =10kΩ	
		—	200	600		5	V <sub>IN</sub> =5V, R <sub>L</sub> =10kΩ	
		—	230	500		10	V <sub>IN</sub> =5V, R <sub>L</sub> =10kΩ	
		—	180	280		15	V <sub>IN</sub> =7.5V, R <sub>L</sub> =10kΩ	
ON resistance deflexion	ΔR <sub>ON</sub>	—	25	—	Ω	5	V <sub>I</sub> =V <sub>DD</sub> /2 R <sub>L</sub> =10kΩ	Fig. 1
		—	10	—		10		
		—	5	—		15		
OFF-channel leakage current	I <sub>OFF</sub>	—	—	0.3	μA	15	V <sub>IN</sub> =15V, V <sub>OUT</sub> =0V	Fig. 1
		—	—	−0.3		15	V <sub>IN</sub> =0V, V <sub>OUT</sub> =15V	
Static current dissipation	I <sub>DD</sub>	—	—	1.0	μA	5	V <sub>I</sub> =V <sub>DD</sub> or GND	—
		—	—	2.0		10		
		—	—	4.0		15		
Input capacitance (control input)	C <sub>C</sub>	—	8	—	pF	—	f=1MHz	—
Input capacitance (switch input)	C <sub>S</sub>	—	10	—	pF	—	f=1MHz	—

# BU4066BC / BU4066BCF / BU4066BCFV

## Standard ICs

Switching characteristics (unless otherwise noted, Ta=25°C, CL=50pF)

Parameter	Symbol	Min.	Typ.	Max.	Unit	VDD (V)	Conditions	Measurement circuit
Propagation delay time SW IN→OUT	tPLH	—	20	50	ns	5	RL=10kΩ	Fig.2
	tPHL	—	12	40		10		
		—	10	30		15		
Propagation delay time CONT→OUT	tPHZ	—	40	90	ns	5	Output "H", "L" → "High-Z" RL=1kΩ	Fig.2
	tPLZ	—	35	80		10		
		—	30	70		15		
Propagation delay time CONT→OUT	tPZH	—	60	140	ns	5	Output "High-Z"→ "H", "L" RL=1kΩ	Fig.2
	tPZL	—	20	50		10		
		—	15	40		15		
Feedthrough attenuation	FT	—	0.7	—	MHz	5	VSS=−5V, RL=10kΩ *1	Fig.2
Sine wave distortion	D	—	0.1	—	%	5	VSS=−5V, RL=10kΩ *2	Fig.2
Crosstalk (CONT→OUT)	CTC	—	—	600	mVp-p	5	VSS=−5V, RL=10kΩ f=1MHz	Fig.2
Crosstalk (2) between channels	CT	—	1	—	MHz	5	VSS=−5V, RL=10kΩ *1	Fig.2

\*1 VIN : 5Vp-p sine wave, frequency that enables  $\frac{V_{OUT}}{V_{IN}} - 50\text{dB}$  at channel off.

\*2 VIN : 5Vp-p sine wave.

## ●Measurement circuits

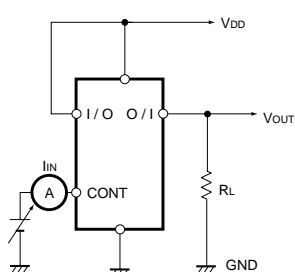


Fig.1 (a) Input voltage, current

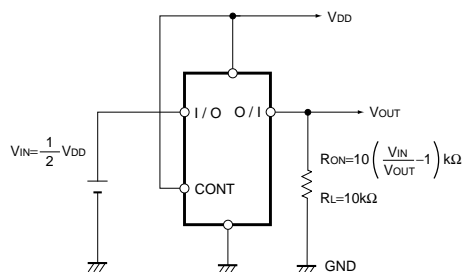


Fig.1 (b) On resistance

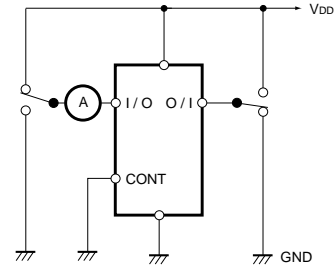


Fig.1 (c) Channel off leakage current

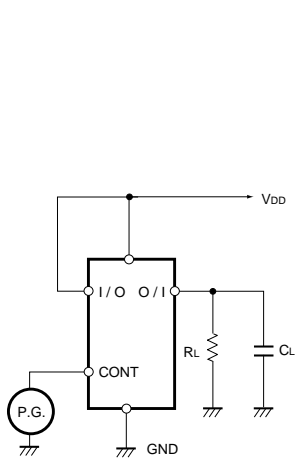


Fig.2 (a) Propagation delay time (IN to OUT)

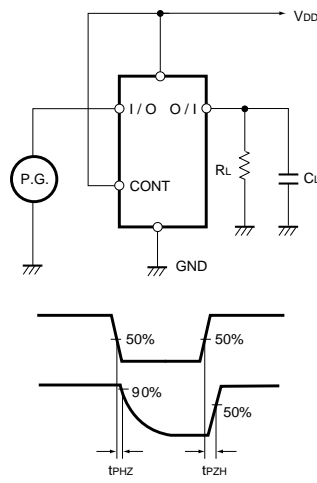


Fig.2 (b) Propagation delay time (CONT to OUT)

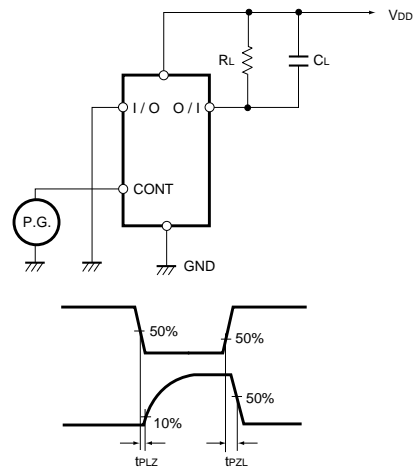


Fig.2 (c) Propagation delay time (CONT to OUT)

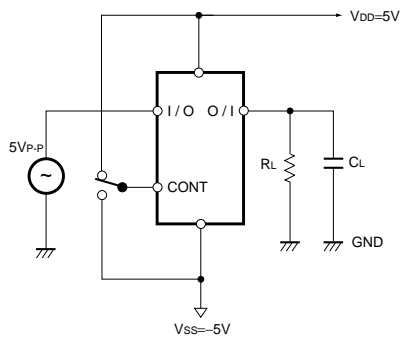


Fig.2 (d) Sine wave distortion, feedthrough attenuation

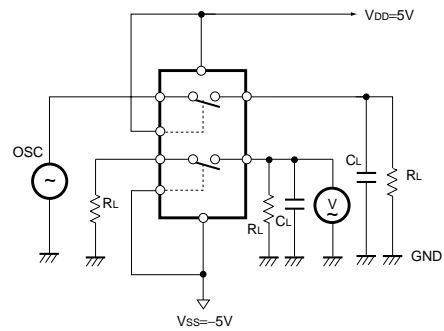


Fig.2 (e) Crosstalk

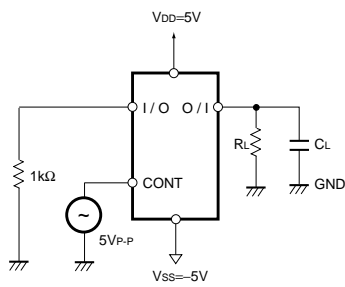


Fig.2 (f) Control IN→OUT crosstalk

Standard ICs

●Electrical characteristics curves

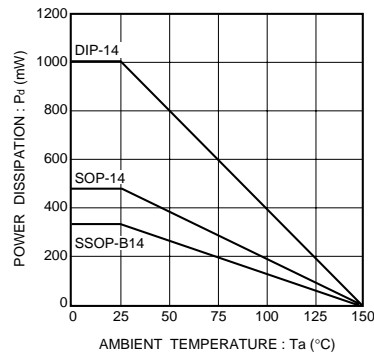
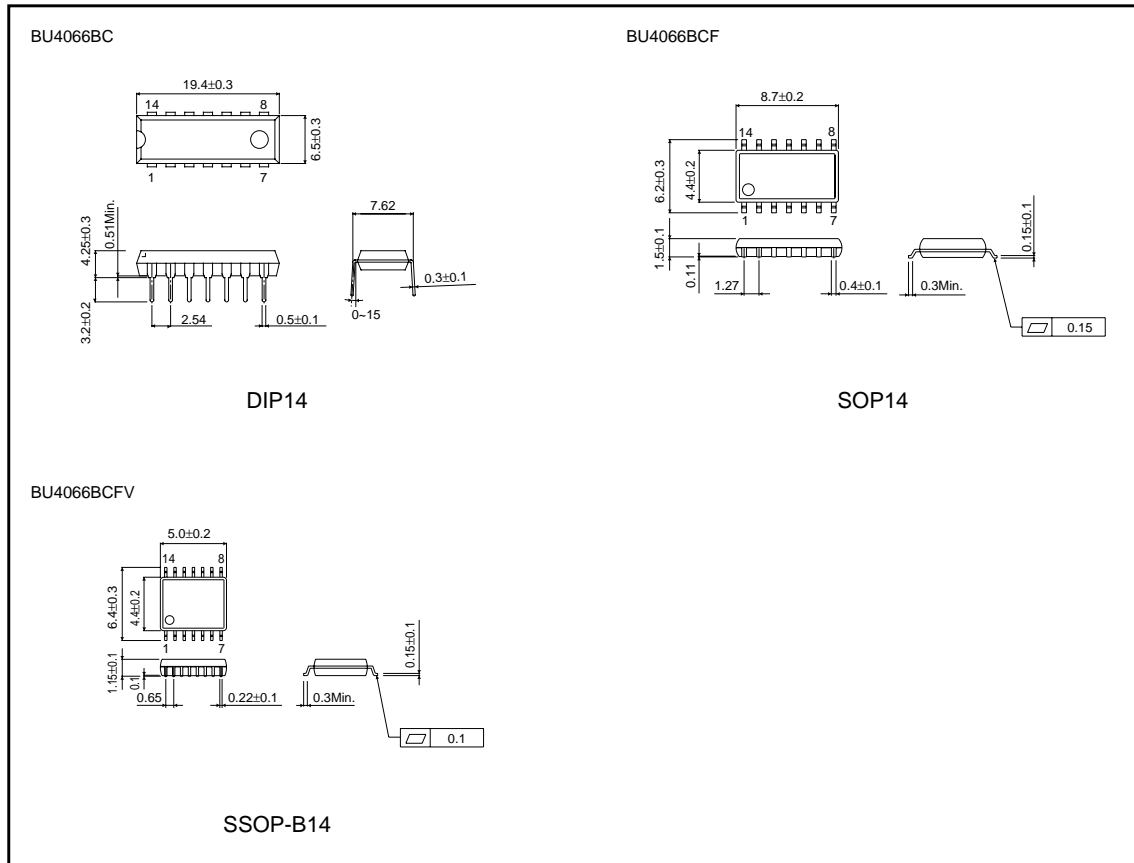


Fig.3 Power dissipation vs. ambient temperature

●External dimensions (Units : mm)



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