STRUCTURE Silicon Monolithic Integrated Circuit

TYPE Quadrupple Analog Switch

PRODUCT SERIES **BU4066BC**
BU4066BCF
BU4066BCFV

FEATURES
- Wide operating power supply range(3[V]～18[V])
- High impedance input

○ ABSOLUTE MAXIMUM RATINGS (Ta=25[℃])

Parameter	Symbol		Limit	Unit
Power Supply Voltage	VDD		(VSS-0.5)～(VSS+20.0)	V
Power Dissipation	Pd	BU4066BC	1250(*1)(*4)	mW
		BU4066BCF	380(*2)(*4)	
		BU4066BCFV	620(*3)(*4)	
Supply current	Iin		±10	mA
Operating temperature	Topr		-40～+85	℃
Storage temperature	Tstg		-55～+150	℃
Input Voltage	Vin		(VSS-0.5)～(VDD+0.5)	V
Maximum junction temperature	Tjmax		150	℃

・This product is designed for protection against radioactive rays.
(*1) When used at Ta=25[℃] on above, value of above is reduced 9.5[mW] per 1[℃].
(*2) When used at Ta=25[℃] on above, value of above is reduced 4.9[mW] per 1[℃].
(*3) When used at Ta=25[℃] on above, value of above is reduced 7.0[mW] per 1[℃].
(*4) Power dissipation is the value for mounting 70[mm]×[70mm]×1.6[mm] FR4 glass epoxy circuit board (copper foil area is 3% or less).

○ OPERATING CONDITION (Ta=-40～+85[℃])

Parameter	Symbol	Limit	Unit
Power Supply Voltage	VDD	+3.0～+18.0	V
Input voltage	VIN	0～VDD	V

Status of this document
The Japanese version of this document is the official specification.
This translated version is intended only as a reference, to aid in understanding the official version.
If there are any differences between the original and translated versions of this document, the official Japanese language version takes priority.

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

Parameter		Symbol	Standard Value MIN	Standard Value TYP	Standard Value MAX	Unit	VDD[V]	Condition	
Input "H" voltage		VIH	3.5	–	–	V	5	–	
			7.0	–	–	V	10		
			11.0	–	–	V	15		
Input "L" voltage		VIL	–	–	1.5	V	5	–	
			–	–	3.0	V	10		
			–	–	3.75	V	15		
Input "H" current		IIH	–	–	0.3	μA	15	VIH=15[V]	
Input "L" current		IIL	–	–	-0.3	μA	15	VIL=0[V]	
ON resistance		RON	–	150	600	Ω	5	VIN=0.25[V]	RL=10[KΩ]
			–	500	950	Ω	5	VIN=2.5[V]	
			–	200	600	Ω	5	VIN=5[V]	
			–	120	500	Ω	10	VIN=5[V]	
			–	80	280	Ω	15	VIN=7.5[V]	
ON resistance defluxion		ΔRON	–	25	–	Ω	5	VIN=2.5[V]	
			–	10	–	Ω	10	VIN=5[V]	
			–	5	–	Ω	15	VIN=7.5[V]	
Channel-OFF Leakage current		IOFF	–	–	0.3	μA	15	VIN=15[V],VOUT=0[V]	
			–	–	-0.3	μA	15	VIN=0[V],VOUT=15[V]	
Supply current		IDD	–	–	1.0	μA	5	VIN=GND,VDD	
			–	–	2.0	μA	10	VIN=GND,VDD	
			–	–	4.0	μA	15	VIN=GND,VDD	
Input capacitance	CONTROL	CC	–	8	–	pF	–	f=1[MHz]	
	SW I/O	CS	–	10	–	pF	–	f=1[MHz]	

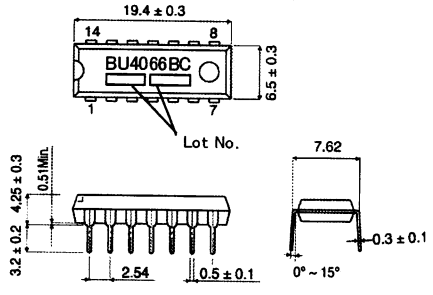
○ Switching Characteristics (unless otherwise noted, Ta=25[℃], VSS=0[V], CL=50[pF])

Parameter	Symbol	Standard Value MIN	Standard Value TYP	Standard Value MAX	Unit	VDD[V]	Condition
Propagation delay time (SW IN → OUT)	tPLH tPHL	–	20	50	ns	5	RL=10[kΩ]
		–	12	40	ns	10	
		–	10	30	ns	15	
Propagation delay time (CONTROL → OUT)	tPHZ	–	40	90	ns	5	Output H→HighZ RL=1[kΩ]
		–	35	80	ns	10	
		–	30	70	ns	15	
Propagation delay time (CONTROL → OUT)	tPLZ	–	40	90	ns	5	Output L→HighZ RL=1[kΩ]
		–	35	80	ns	10	
		–	30	70	ns	15	
Propagation delay time (CONTROL → OUT)	tPZH	–	60	140	ns	5	Output HighZ→H RL=1[kΩ]
		–	20	50	ns	10	
		–	15	40	ns	15	
Propagation delay time (CONTROL → OUT)	tPZL	–	60	140	ns	5	Output HighZ→L RL=1[kΩ]
		–	20	50	ns	10	
		–	15	40	ns	15	
Sine wave distortion (*5)	D	–	0.1	–	%	5	VSS=-5[V] RL=10[kΩ]
Cross talk (2) Between channels (*6)	CT	–	1	–	MHz	5	VSS=-5[V] RL=10[kΩ]
Cross talk(CONTROL→OUT)	CTC	–	–	600	mV	5	VSS=-5[V] RL=10[kΩ] f=1[MHz]
Feed through attenuation (*7)	F.T	–	0.7	–	MHz	5	VSS=-5[V] RL=10[kΩ]

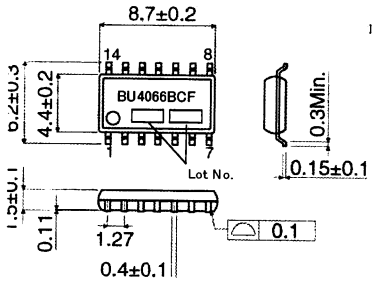
(*5) VIN:5Vp-p Sine wave
(*6) VIN:5Vp-p Sine wave, frequency where gain is 20log(VOUT(B)/VIN(A))=-50[dB]
(*7) VIN:5Vp-p Sine wave. frequency where gain is 20log(VOUT/VIN)=-50[dB]

*Maximum value is under design guarantee.

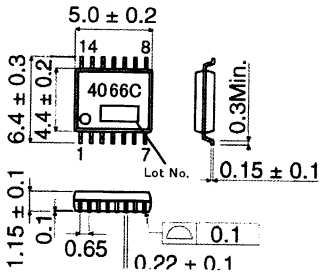
○ PHYSICAL DIMENSIONS



BU4066BC(DIP14)(UNIT:[mm])

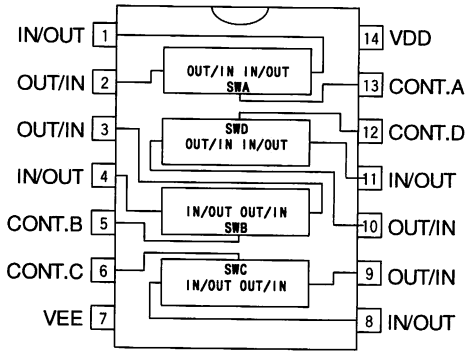


BU4066BCF(SOP14)(UNIT:[mm])



BU4066BCFV(SSOP-B14)(UNIT:[mm

○ BLOCK DIAGRAM



○ PIN DESCRIPTION

PIN No.	PIN NAME
1	IN/OUT
2	OUT/IN
3	OUT/IN
4	IN/OUT
5	CONT.B
6	CONT.C
7	VEE
8	IN/OUT
9	OUT/IN
10	OUT/IN
11	IN/OUT
12	CONT.D
13	CONT.A
14	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) Treatment about input of unused circuit
Redundancy current and oscillation may occur, so untreated input should be connected to VDD or VSS.
At connection, it is better to connect resistance (about 100kΩ).

(4) Power Dissipation
It 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.

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

(6) Electromagnetic fields
Use in strong electromagnetic fields may cause malfunctions. Be careful operating in electromagnetic fields.

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

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

(9) 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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