General-purpose CMOS Logic IC Series (BU4S,BU4000B Series)

High Voltage CMOS Logic ICs <Analog Switch>

BU4066BC,BU4066BCF,BU4066BCFV,BU4051BC,
BU4051BCF,BU4051BCFV,BU4052BC,BU4052BCF,BU4052BCFV,
BU4053BC,BU4053BCF,BU4053BCFV,BU4551B,BU4551BF,BU4551BFV

No.13050ECT05

●Description

BU4066BC series ICs each contain 4 independent switches capable of controlling either digital or analog signals.
BU4051BC / BU4052BC / BU4053BC / and BU4551B series ICs are analog selectable composite multiplexer/demultiplexer. BU4051BC series is configured with 8 channels, BU4052BC is configured with two 4 channels,BU4053BC series is configured with three 2 channels, BU4551B series is configured with four 2 channels, and switches applicable for each channel are turned on according to digital signals of control terminal. Even if the logic amplitude (VDD-VSS) of the control signal is small, signals of large amplitude (VDD-VEE) can be switched.

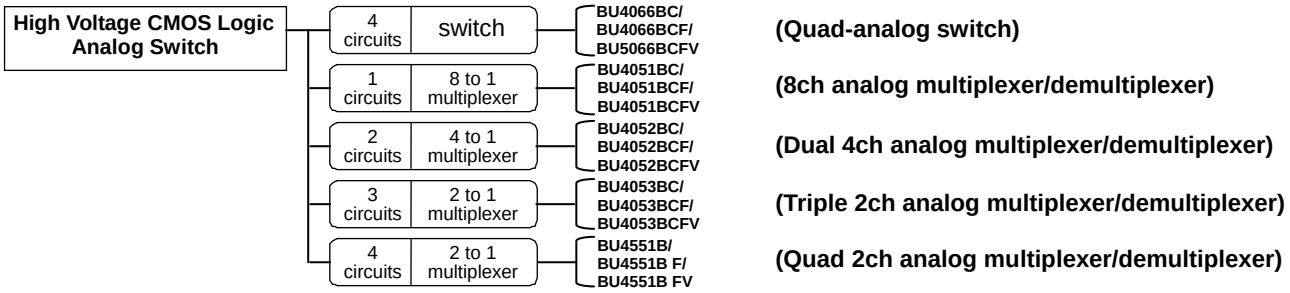
●Features

1) Low power consumption
2) Wide operating supply voltage (3[V]~18[V])
3) High input impedance
4) L-TTL2 input and LS-TTL1 can be driven directly.
5) Applicable channel switches can be turned “ON” and “OFF” by the digital control signal.
6) Small control voltage (VDD-VSS) can control signals of large amplitude (VDD-VEE).
7) Linearity with excellent transfer characteristics

●Use

This product is used as the switch and chopper modulation circuit of analog and digital signals.
Since ON resistance of each switch is low, the product can be connected to low impedance circuit.
The product can be used as ON/OFF switch and changeover switch of high-speed lines without degrading analog signals such as voice and images.

●Lineup



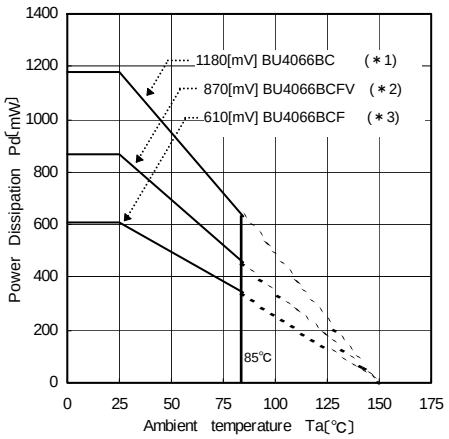
●Absolute Maximum Ratings

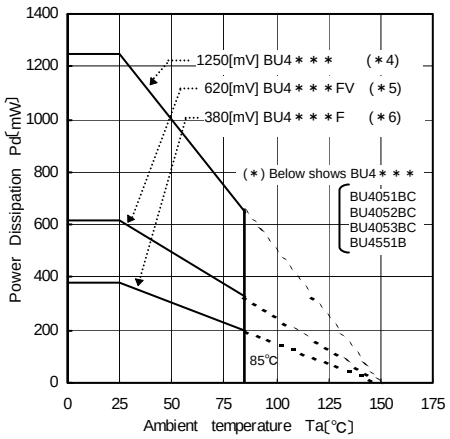
Parameter	Symbol	Limit					Unit
		BU4066BC	BU4051BC	BU4052BC	BU4053BC	BU4551B	
Power Supply Voltage	VDD	-0.5 to 20				-0.3 to 18	V
Supply current	Iin	±10					mA
Operating temperature	Topr	-40 to 85					℃
Storage temperature	Tstg	-55 to 150					℃
Input Voltage	VIN	-0.5 to VDD+0.5				-0.3 to VDD+0.3	V
Maximum junction temperature	Tjmax	150					℃

●Recommended Operating Conditions

Parameter	Symbol	Limit					Unit
		BU4066BC	BU4051BC	BU4052BC	BU4053BC	BU4551B	
Operating Power Supply	VDD	3 to 18				3 to 16	V
Input Voltage	VIN	0 to VDD					V

●Thermal Derating Curve

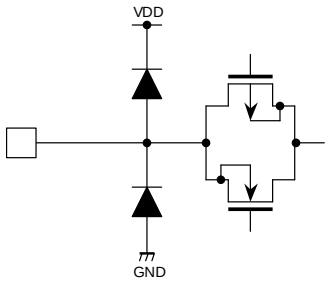




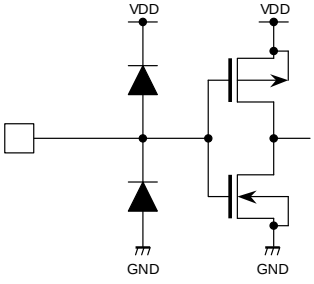
(*1)	9.5	mW/℃
(*2)	7.0	
(*3)	4.9	
(*4)	10.0	
(*5)	5.0	
(*6)	3.1	

When used at Ta=25[°C] or above, values of above are reduced per 1[°C]. Allowable loss is the value for mounting 70[mm] x 70[mm] x 1.6[mm] FR4 glass epoxy circuit board copper foil area is 3% or less).

●I/O Interface

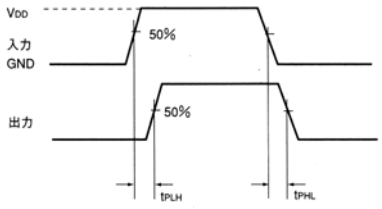


＜Analog switch input / output＞



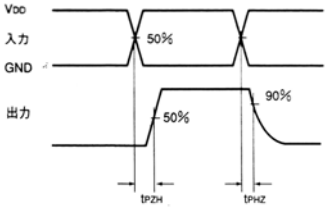
＜Input＞

●Description of output rising / falling wave



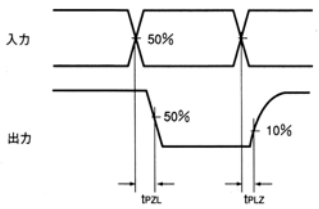
・tPLH: Time up to 50% of the rise time of input waveform ~ 50% of the rise time of output waveform

・tPHL: Time up to 50% of the fall time of input waveform ~ 50% of the fall time of output waveform



・tPZH: Time up to 50% of input ~ 50% of the rise time of output waveform

・tPHZ: Time up to 50% of input ~ 50% of the fall time of output waveform



・tPZH: Time up to 50% of input ~ 50% of the fall time of output waveform

・tPHZ: Time up to 10% of input ~ 10% of the rise time of output waveform

●Electrical Characteristics(BU4066BC)

DC Characteristics(Unless otherwise noted, VSS=0[V],Ta=25[℃])

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Input “H” voltage	VIH	3.5	-	-	V	5	-	-
		7.0	-	-		10		
		11.0	-	-		15		
Input “L” voltage	VIL	-	-	1.5	V	5	-	-
		-	-	3.0		10		
		-	-	3.75		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]	1
		-	500	950		5	VIN=2.5[V] RL=10[kΩ]	
			200	600		5	VIN=5[V] RL=10[kΩ]	
			120	500		10	VIN=5[V] RL=10[kΩ]	
		-	80	280		15	VIN=7.5[V] RL=10[kΩ]	
ON resistance defluxion	△RON	-	25	-	Ω	5	VI=VDD/2 RL=10[kΩ]	-
		-	10	-		10		
		-	5	-		15		
Channel-OFF Leakage current	IOFF	-	-	0.3	μA	15	VIN=15[V] VOUT=0[V]	-
		-	-	-0.3		15	VIN=0[V] VOUT=15[V]	
Static supply current	IDD	-	-	1.0	μA	5	VI=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[℃],CL=50[pF])

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Propagation delay time SWIN→OUT	tPLH tPHL	-	20	50	ns	5	RL=10[kΩ]	2・3
		-	12	40		10		
		-	10	30		15		
Propagation delay time CONT→OUT	tPHZ,tPLZ tPZH,tPZL	-	40	90	ns	5	Output“H”“L” →“Hi Z” RL=1[kΩ]	4・5 6・7
		-	35	80		10		
		-	30	70		15		
Propagation delay time CONT→OUT	tPHZ,tPLZ tPZH,tPZL	-	60	140	ns	5	Output“Hi Z” →“H”“L” RL=1[kΩ]	
		-	20	50		10		
		-	15	40		15		
Feed through attenuation	FT	-	0.7	-	MHz	5	VSS=-5[V] RL=10[kΩ]	-
Sine wave distortion	D	-	0.1	-	%	5	VSS=-5[V] RL=10[kΩ]	-
Cross talk (CONT→OUT)	CTc	-	-	600	mVp-p	5	VSS=-5[V] RL=10[kΩ],f=1[MHz]	-
Cross talk(2) Between channels	CT	-	1	-	MHz	5	VSS=-5[V] RL=10[kΩ]	-

●Electrical Characteristics(BU4051BC)

DC Characteristics(Unless otherwise noted, VSS=0[V],Ta=25[℃])

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Input “H” voltage	VIH	3.5	-	-	V	5	-	-
		7.0	-	-		10		
		11.0	-	-		15		
Input “L” voltage	VIL	-	-	1.5	V	5	-	-
		-	-	3.0		10		
		-	-	4.0		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	-	-	950	Ω	5	-	8
		-	-	250		10		
		-	-	160		15		
ON resistance defluxion	△RON	-	10	-	Ω	5	-	-
		-	6	-		10		
		-	4	-		15		
Channel-OFF Leakage current	IOFF	-	-	0.3	μA	15	-	-
		-	-	-0.3		15		
Static supply current	IDD	-	-	5	μA	5	VI=VDD or GND	-
		-	-	10		10		
		-	-	15		15		

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

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Propagation delay time CHANNEL IN→OUT	tPLH tPHL	-	15	45	ns	5	-	9・10
		-	8	20		10		
		-	6	15		15		
Propagation delay time CONT→OUT	tPHZ,tPLZ tPZH,tPZL	-	170	550	ns	5	-	11・12 13・14 15・16 17・18
		-	90	240		10		
		-	70	160		15		
Propagation delay time INHIBIT→OUT	tPHZ,tPLZ tPZH,tPZL	-	150	450	ns	5	-	
		-	70	210		10		
		-	50	160		15		
Maximum propagation frequency	fMAX.	-	20	-	MHz	5	VEE=-5[V]	-
Feed through attenuation	FT	-	0.5	-	MHz	5	VEE=-5[V]	-
Sine wave distortion	D	-	0.02	-	%	5	VEE=-5[V]	-
Input capacitance (control input)	CC	-	5	-	pF	-	-	-
Input capacitance (switch input)	CS	-	10	-	pF	-	-	-

●Electrical Characteristics(BU4052BC)

DC Characteristics(Unless otherwise noted, VSS=0[V],Ta=25[℃])

Parameter	Symbol	Standard Value			Unit		Condition	Fig.No
		MIN	TYP	MAX		VDD[V]		
Input “H” voltage	VIH	3.5	-	-	V	5	-	-
		7.0	-	-		10		
		11.0	-	-		15		
Input “L” voltage	VIL	-	-	1.5	V	5	-	-
		-	-	3.0		10		
		-	-	4.0		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	-	-	950	Ω	5	-	19
		-	-	250		10		
		-	-	160		15		
ON resistance defluxion	△RON	-	10	-	Ω	5	-	-
		-	6	-		10		
		-	4	-		15		
Channel-OFF Leakage current	IOFF	-	-	0.3	μA	15	-	-
		-	-	-0.3		15		
Static supply current	IDD	-	-	5	μA	5	VI=VDD or GND	-
		-	-	10		10		
		-	-	15		15		

Switching Characteristics(Unless otherwise noted, Ta=25℃,CL=50pF)

Parameter	Symbol	Standard Value			Unit		Condition	Fig.No
		MIN	TYP	MAX		VDD[V]		
Propagation delay time SWITCH IN→OUT	tPLH tPHL	-	15	45	ns	5	-	20・21
		-	8	20		10		
		-	6	15		15		
Propagation delay time CONT→OUT	tPHZ,tPLZ tPZH,tPZL	-	170	550	ns	5	-	22・23 24・25 26・27 28・29
		-	90	240		10		
		-	70	160		15		
Propagation delay time INH→OUT	tPHZ,tPLZ tPZH,tPZL	-	150	450	ns	5	-	
		-	70	210		10		
		-	50	160		15		
Maximum propagation frequency	fMAX.	-	20	-	MHz	5	VEE=-5[V]	-
Feed through attenuation	FT	-	0.5	-	MHz	5	VEE=-5[V]	-
Sine wave distortion	D	-	0.02	-	%	5	VEE=-5[V]	-
Input capacitance (control input)	CC	-	5	-	pF	-	-	-
Input capacitance (switch input)	CS	-	10	-	pF	-	-	-

●Electrical Characteristics(BU4053BC)

DC Characteristics(Unless otherwise noted, VSS=0[V],Ta=25[℃])

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Input “H” voltage	VIH	3.5	-	-	V	5	-	-
		7.0	-	-		10		
		11.0	-	-		15		
Input “L” voltage	VIL	-	-	1.5	V	5	-	-
		-	-	3.0		10		
		-	-	4.0		15		
Input “H” current	IIH	-	-	0.3	μA	15	VIH=15[V]	-
Input “L” current	IIL	-	-	-0.3	μA	15	VIL=0[V]	-
RON resistance	RON	-	-	950	Ω	5	-	30
		-	-	250		10		
		-	-	160		15		
RON resistance defluxion	△RON	-	10	-	Ω	5	-	-
		-	6	-		10		
		-	4	-		15		
Channel-OFF Leakage current	IOFF	-	-	0.3	μA	15	-	-
		-	-	-0.3		15		
Static supply current	IDD	-	-	5	μA	5	VI=VDD or GND	-
		-	-	10		10		
		-	-	15		15		

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

Parameter	Symbol	Standard Value			Unit	Condition		Fig.No
		MIN	TYP	MAX		VDD[V]		
Propagation delay time SW IN→OUT	tPLH tPHL	-	15	45	ns	5	-	31・32
		-	8	20		10		
		-	6	15		15		
Propagation delay time CONT→OUT	tPHZ,tPLZ tPZH,tPZL	-	170	550	ns	5	-	33・34 35・36 37・38 39・40
		-	90	240		10		
		-	70	160		15		
Propagation delay time INH→OUT	tPHZ,tPLZ tPZH,tPZL	-	150	380	ns	5	-	
		-	70	200		10		
		-	50	160		15		
Maximum propagation frequency	fMAX.	-	20	-	MHz	5	VEE=-5[V]	-
Feed through attenuation	FT	-	0.7	-	MHz	5	VEE=-5[V]	-
Sine wave distortion	D	-	0.02	-	%	5	VEE=-5[V]	-
Input capacitance (control input)	CC	-	5	-	pF	-	-	-
Input capacitance (switch input)	CS	-	10	-	pF	-	-	-

●Electrical Characteristics(BU4551BC)

DC Characteristics(Unless otherwise noted, VSS=0[V],Ta=25[℃])

Parameter	Symbol	Standard Value			Unit		Condition	Fig.No
		MIN	TYP	MAX		VDD[V]		
Input “H” voltage	VIH	3.5	-	-	V	5	-	-
		7.0	-	-		10		
		11.0	-	-		15		
Input “L” voltage	VIL	-	-	1.5	V	5	-	-
		-	-	3.0		10		
		-	-	4.0		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	-	-	1100	Ω	5	-	41
		-	-	500		10		
		-	-	280		15		
ON resistance defluxion	△RON	-	25	-	Ω	5	-	-
		-	10	-		10		
		-	5	-		15		
Channel-OFF Leakage current	IOFF	-	-	0.3	μA	15	-	-
		-	-	-0.3		15		
Static supply current	IDD	-	-	5	μA	5	VI=VDD or GND	-
		-	-	10		10		
		-	-	15		15		

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

Parameter	Symbol	Standard Value			Unit		Condition	Fig.No
		MIN	TYP	MAX		VDD[V]		
Propagation delay time SW IN→OUT	tPLH tPHL	-	35	-	ns	5	-	42・43
		-	15	-		10		
		-	12	-		15		
Propagation delay time CONT→OUT	tPZH tPHZ	-	360	-	ns	5	-	44・45
		-	160	-		10		
		-	120	-		15		
Propagation delay time INH→OUT	tPZL tPLZ	-	360	-	ns	5	-	46・47
		-	160	-		10		
		-	120	-		15		
Maximum propagation frequency	fMAX.	-	15	-	MHz	-	VEE=-5[V]	-
Feed through attenuation	FT	-	0.7	-	MHz	-	VEE=-5[V]	-
Sine wave distortion	D	-	0.02	-	%	-	VEE=-5[V]	-
Input capacitance (control input)	CC	-	5	-	pF	-	-	-
Input capacitance (switch input)	CS	-	10	-	pF	-	-	-

●Reference Data(BU4066BC)

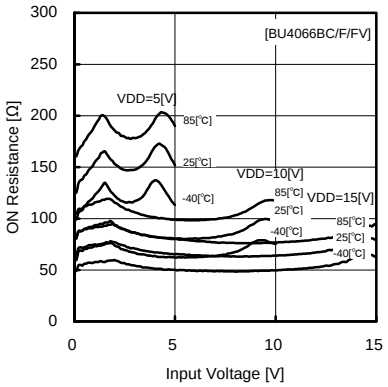


Fig.1 On resistance－input voltage

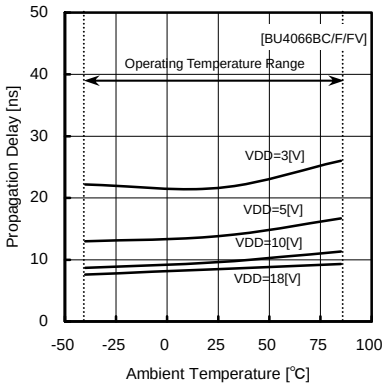


Fig.2 rising propagation delay (IN－OUT)

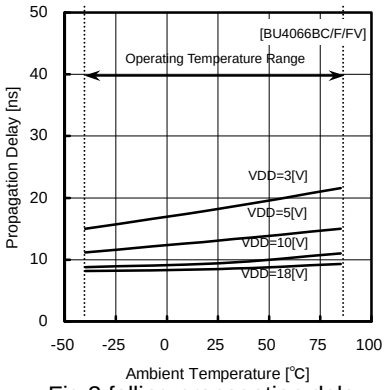


Fig.3 falling propagation delay (IN－OUT)

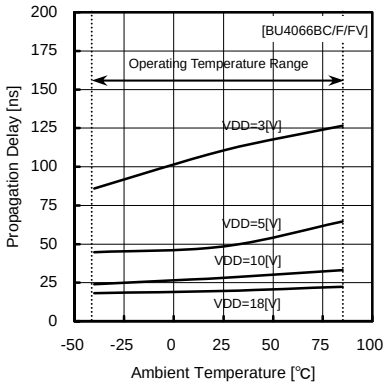


Fig.4 rising propagation delay （CONT－OUT ,tPZH）

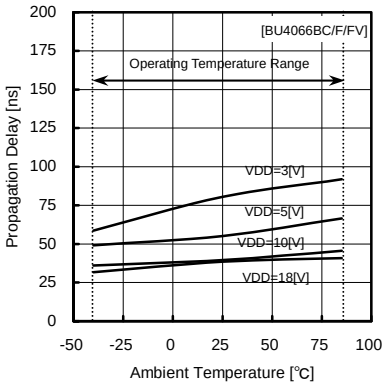


Fig.5 falling propagation delay （CONT－OUT ,tPHZ）

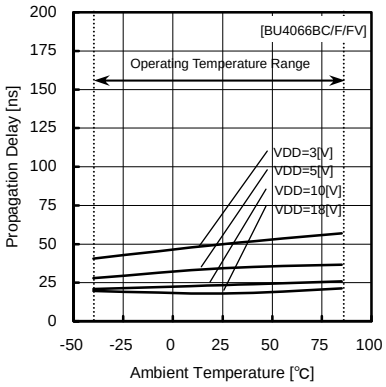


Fig.6 rising propagation delay （CONT－OUT ,tPLZ）

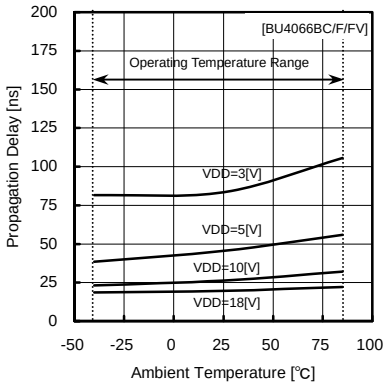


Fig.7 falling propagation delay （CONT－OUT ,tPZL）

●Reference Data(BU4051BC)

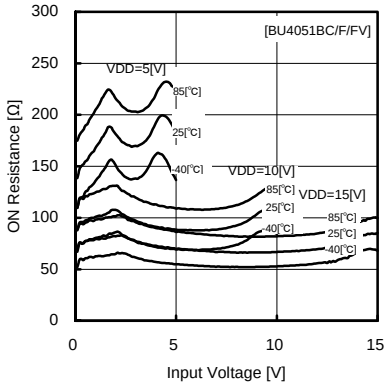


Fig.8 ON resistance－input voltage

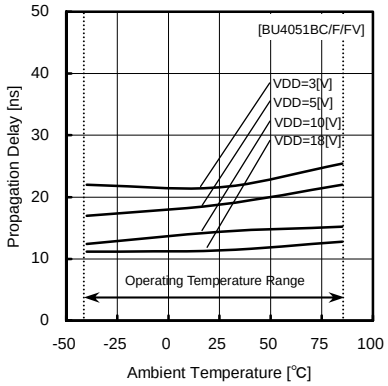


Fig.9 propagation delay time tPLH (IN－OUT)

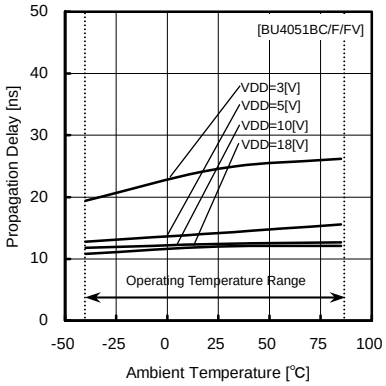


Fig.10 propagation delay time tPHL (IN－OUT)

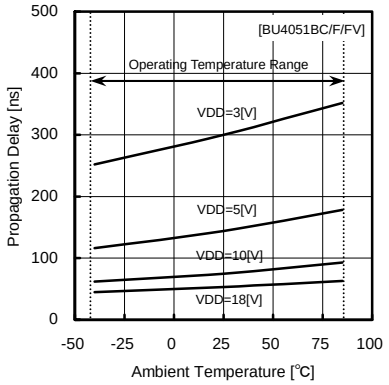


Fig.11 propagation delay time tPZH (CONT－OUT)

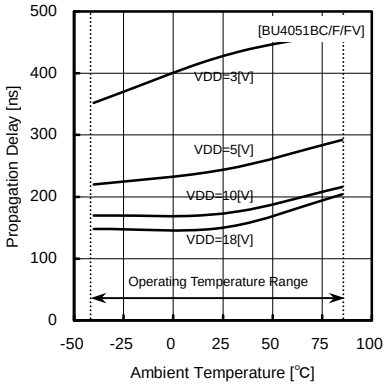


Fig.12 propagation delay time tPHZ (CONT－OUT)

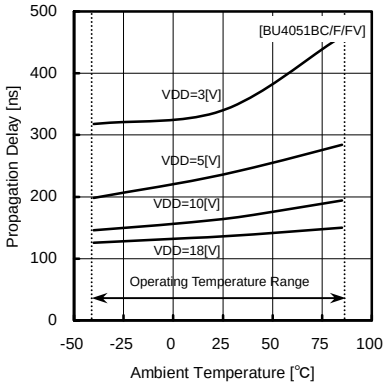


Fig.13 propagation delay time tPLZ (CONT－OUT)

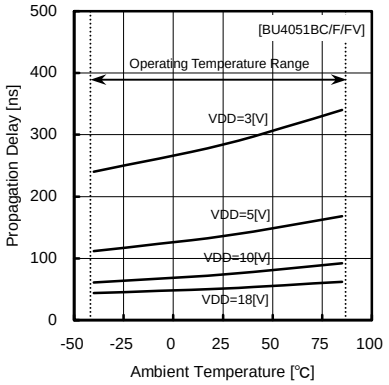


Fig.14 propagation delay time tPZL (CONT－OUT)

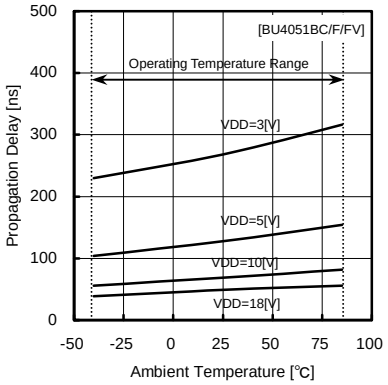


Fig.15 propagation delay time tPZH (INH－OUT)

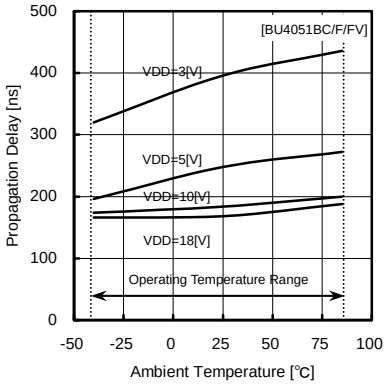


Fig.16 propagation delay time tPHZ (INH－OUT)

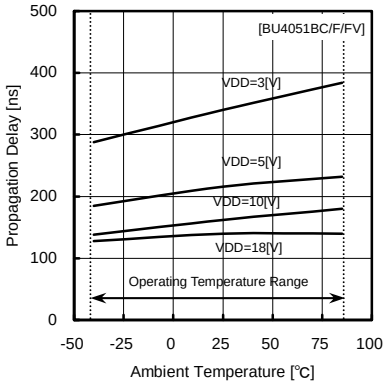


Fig.17 propagation delay time tPZL (INH－OUT)

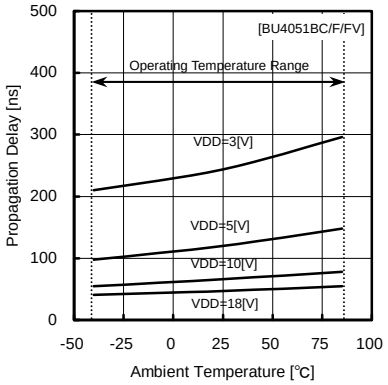


Fig.18 propagation delay time tPLZ (INH－OUT)

●Reference Data(BU4052BC)

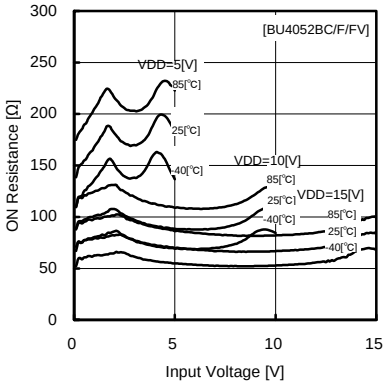


Fig.19 ON resistance－input voltage

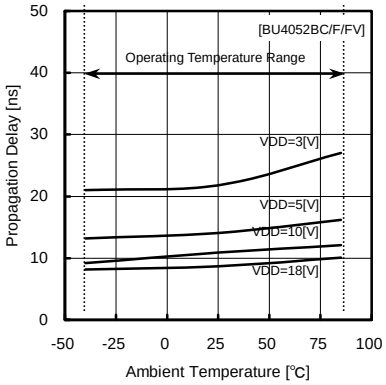


Fig.20 propagation delay time tPLH (IN－OUT)

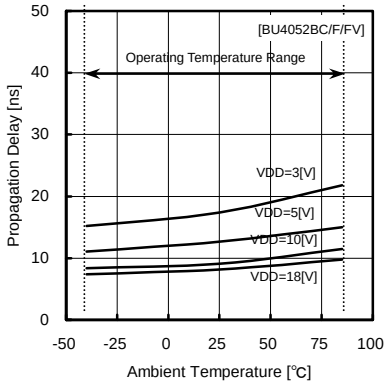


Fig.21 propagation delay time tPHL (IN－OUT)

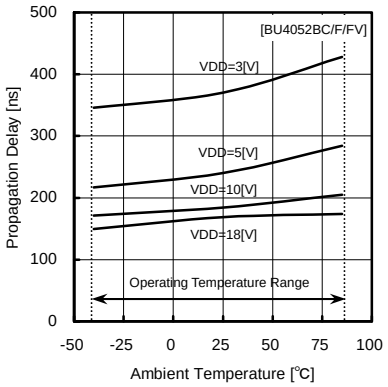


Fig.22 propagation delay time tPZH (CONT－OUT)

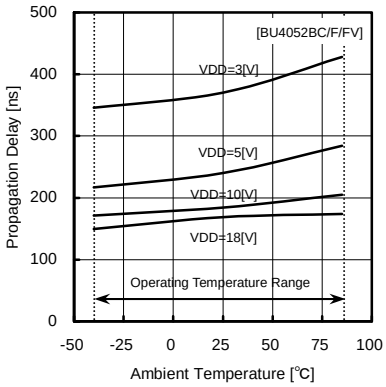


Fig.23 propagation delay time tPHZ (CONT－OUT)

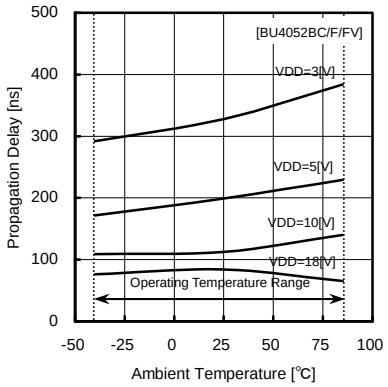


Fig.24 propagation delay time tPLZ (CONT－OUT)

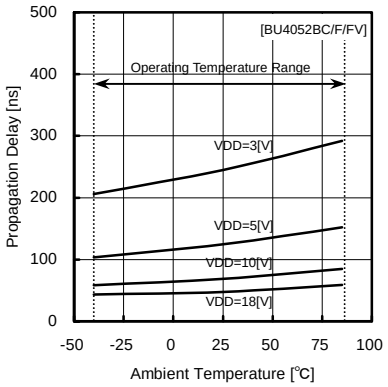


Fig.25 propagation delay time tPZL (CONT－OUT)

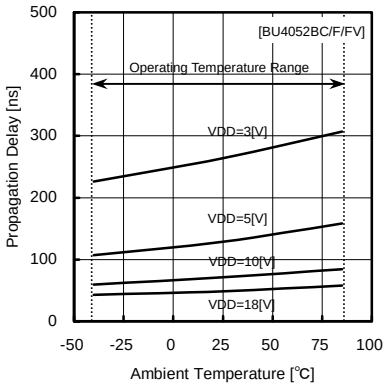


Fig.26 propagation delay time tPZH (INH－OUT)

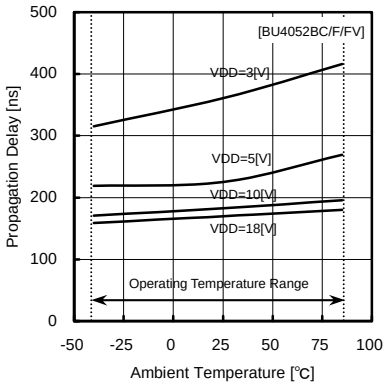


Fig.27 propagation delay time tPHZ (INH－OUT)

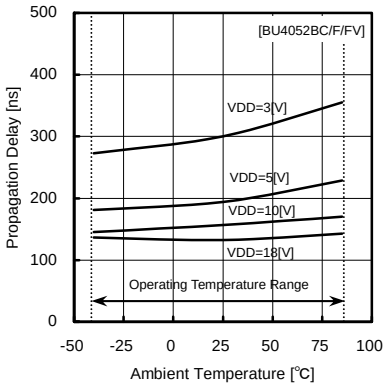


Fig.28 propagation delay time tPZL (INH－OUT)

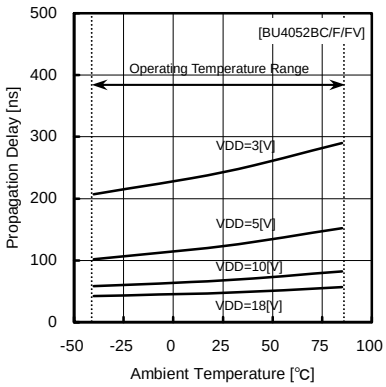


Fig.29 propagation delay time tPLZ (INH－OUT)

●Reference Data(BU4053BC)

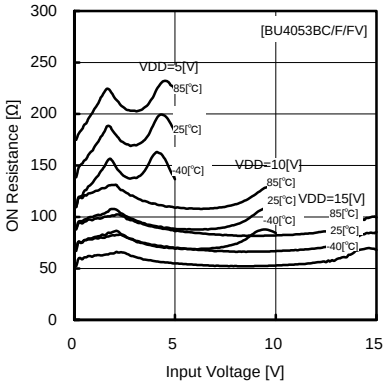


Fig.30 ON resistance－input voltage

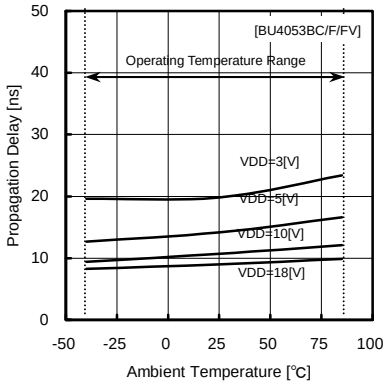


Fig.31 propagation delay time tPLH (IN－OUT)

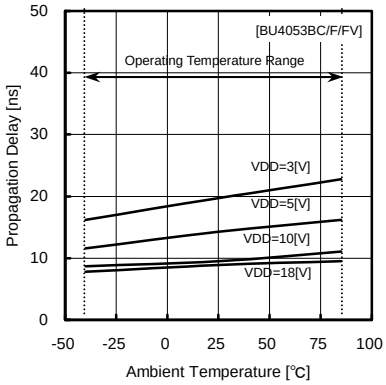


Fig.32 propagation delay time tPHL (IN－OUT)

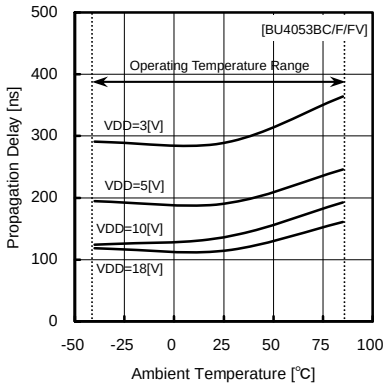


Fig.33 propagation delay time tPZH (CONT－OUT)

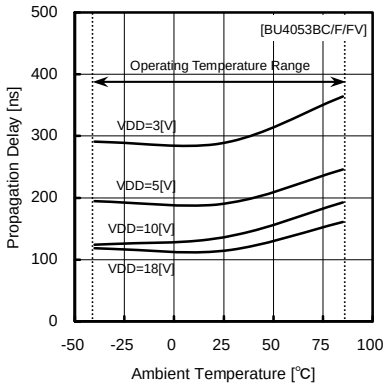


Fig.34 propagation delay time tPHZ (CONT－OUT)

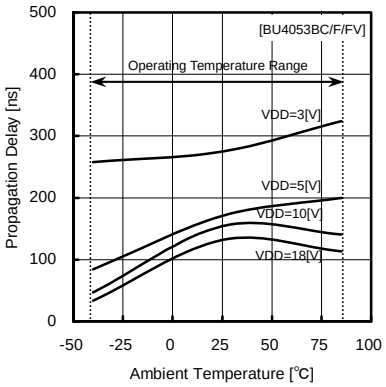


Fig.35 propagation delay time tPLZ (CONT－OUT)

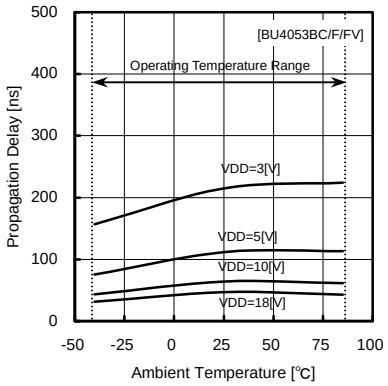


Fig.36 propagation delay time tPZL (CONT－OUT)

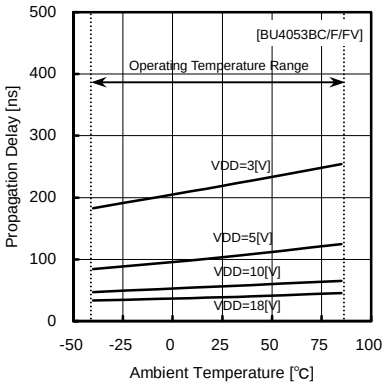


Fig.37 propagation delay time tPZH (INH－OUT)

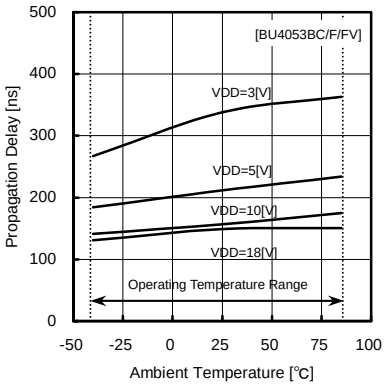


Fig.38 propagation delay time tPHZ (INH－OUT)

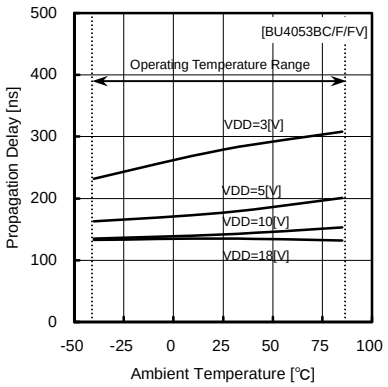


Fig.39 propagation delay time tPZL (INH－OUT)

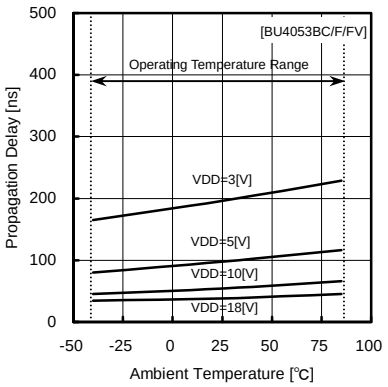


Fig.40 propagation delay time tPLZ (INH－OUT)

●**Reference Data(BU4551B)**

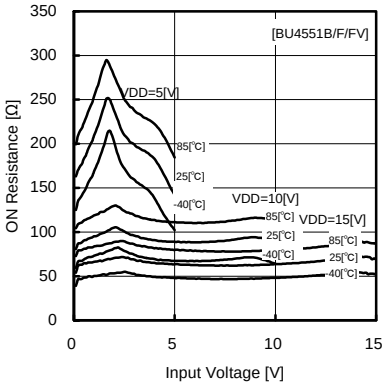


Fig.41 ON resistance－input voltage

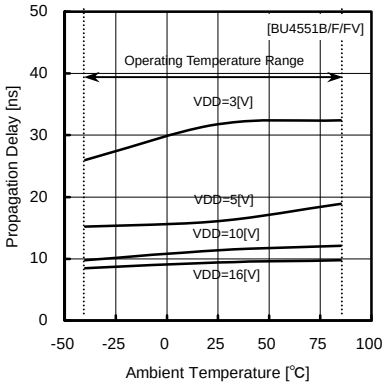


Fig.42 propagation delay time tPLH (IN－OUT)

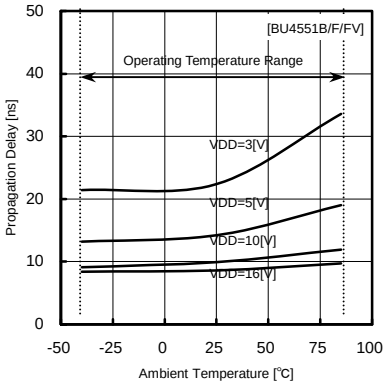


Fig.43 propagation delay time tPHL (IN－OUT)

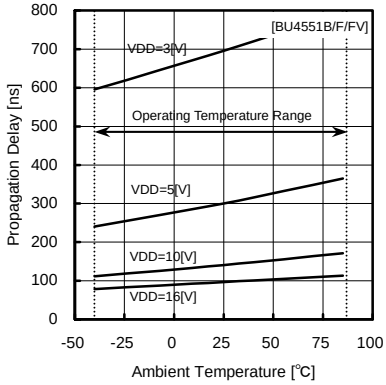


Fig.44 propagation delay time tPZH (CONT－OUT)

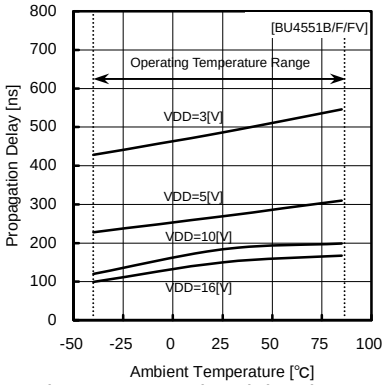


Fig.45 propagation delay time tPHZ (CONT－OUT)

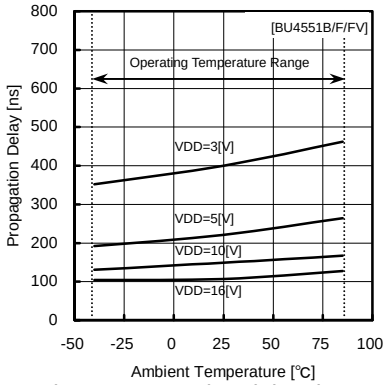


Fig.46 propagation delay time tPLZ (CONT－OUT)

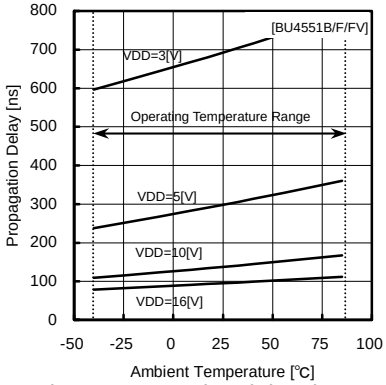
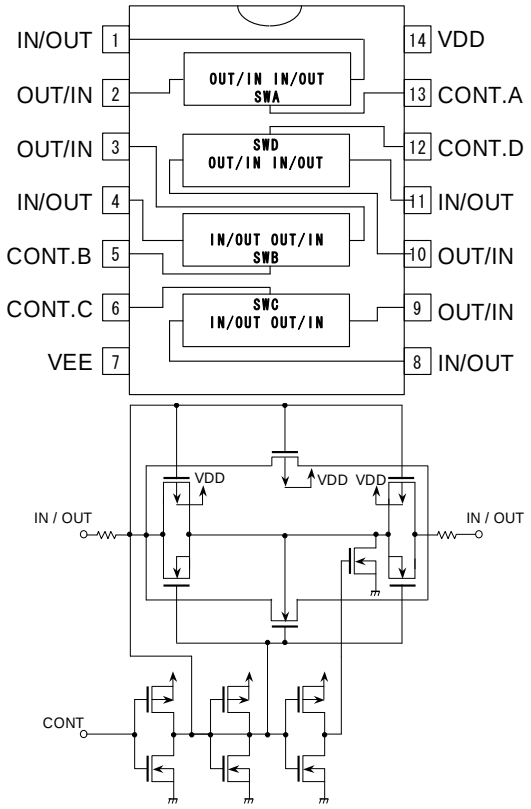


Fig.47 propagation delay time tPZL (CONT－OUT)

●Pin Configration・Pin Function・Block Diagram・Truth Table

1) BU4066BC Series



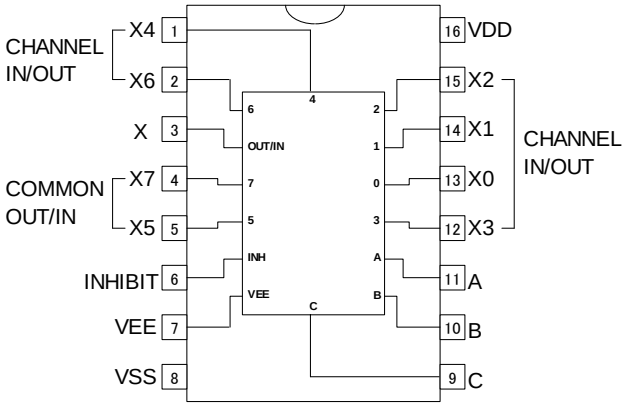
PIN FUNCTION

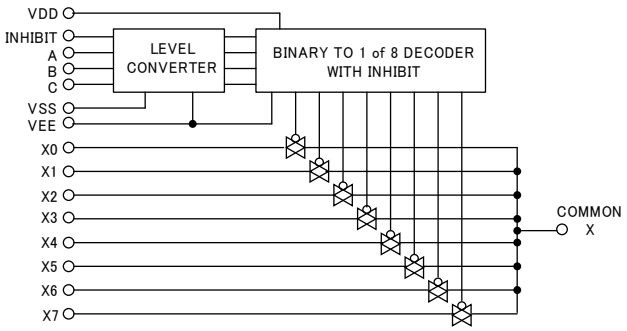
PIN No.	PIN NAME	I/O	PIN FUNCTION
1	IN/OUT	I/O	Analog Switch Input / Output
2	OUT/IN	I/O	Analog Switch Input / Output
3	OUT/IN	I/O	Analog Switch Input / Output
4	IN/OUT	I/O	Analog Switch Input / Output
5	CONT.B	I	Control Input
6	CONT.C	I	Control Input
7	VEE	-	Power Supply(-)
8	IN/OUT	I/O	Analog Switch Input / Output
9	OUT/IN	I/O	Analog Switch Input / Output
10	OUT/IN	I/O	Analog Switch Input / Output
11	IN/OUT	I/O	Analog Switch Input / Output
12	CONT.D	I	Control Input
13	CONT.A	I	Control Input
14	VDD	-	Power Supply(+)

TRUTH TABLE

CONTROL	ON SWITCH
A	A(1pin-2pin)
B	B(3pin-4pin)
C	C(8pin-9pin)
D	D(10pin-11pin)

2) BU4051BCSeries





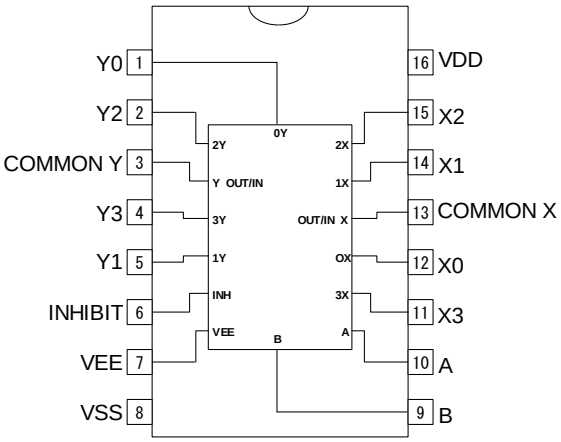
PIN FUNCTION

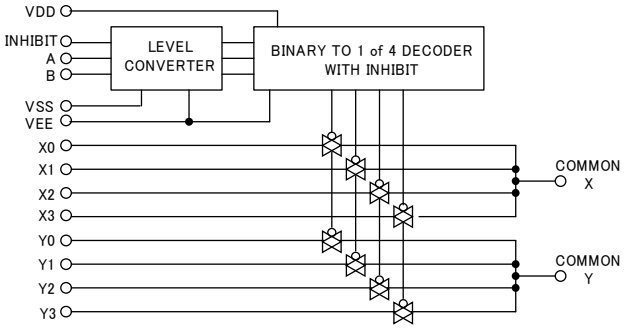
PIN No.	PIN NAME	I/O	PIN FUNCTION
1	X4	I/O	Analog Switch Input / Output
2	X6	I/O	Analog Switch Input / Output
3	X	I/O	Analog Switch Input / Output
4	X7	I/O	Analog Switch Input / Output
5	X5	I/O	Analog Switch Input / Output
6	INHIBIT	I	Control Input
7	VEE	-	Power Supply(-)
8	VSS	-	Power Supply(-)
9	C	I	Control Input
10	B	I	Control Input
11	A	I	Control Input
12	X3	I/O	Analog Switch Input / Output
13	X0	I/O	Analog Switch Input / Output
14	X1	I/O	Analog Switch Input / Output
15	X2	I/O	Analog Switch Input / Output
16	VDD	-	Power Supply(+)

TRUTH TABLE

INHIBIT	A	B	C	ON SWITCH
L	L	L	L	X0
L	H	L	L	X1
L	L	H	L	X2
L	H	H	L	X3
L	L	L	H	X4
L	H	L	H	X5
L	L	H	H	X6
L	H	H	H	X7
H	X	X	X	NONE

3) BU4052BC Series





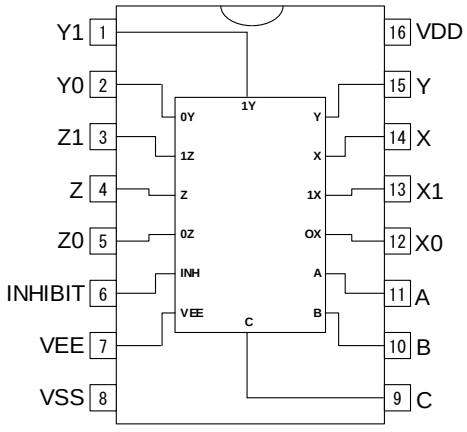
PIN FUNCTION

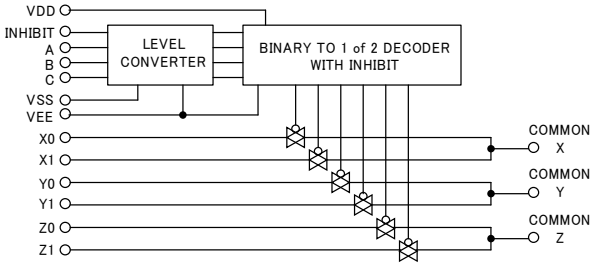
PIN No.	PIN NAME	I/O	PIN FUNCTION
1	Y0	I/O	Analog Switch Input / Output
2	Y2	I/O	Analog Switch Input / Output
3	COMMON Y	I/O	Analog Switch Input / Output
4	Y3	I/O	Analog Switch Input / Output
5	Y1	I/O	Analog Switch Input / Output
6	INHIBIT	I	Control Input
7	VEE	-	Power Supply(-)
8	VSS	-	Power Supply(-)
9	B	I	Control Input
10	A	I	Control Input
11	X3	I/O	Analog Switch Input / Output
12	X0	I/O	Analog Switch Input / Output
13	COMMON X	I/O	Analog Switch Input / Output
14	X1	I/O	Analog Switch Input / Output
15	X2	I/O	Analog Switch Input / Output
16	VDD	-	Power Supply(+)

TRUTH TABLE

INHIBIT	A	B	ON SWITCH
L	L	L	X0, Y0
L	H	L	X1, Y1
L	L	H	X2, Y2
L	H	H	X3, Y3
H	X	X	NONE

4) BU4053BC Series





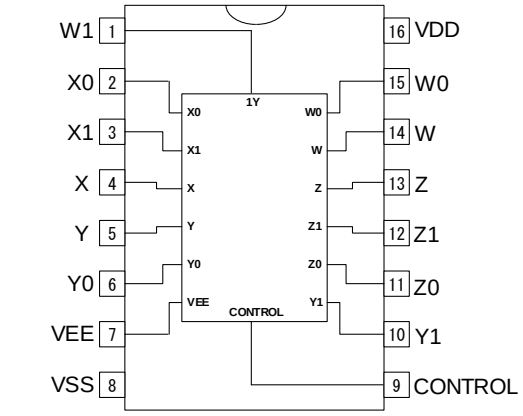
PIN FUNCTION

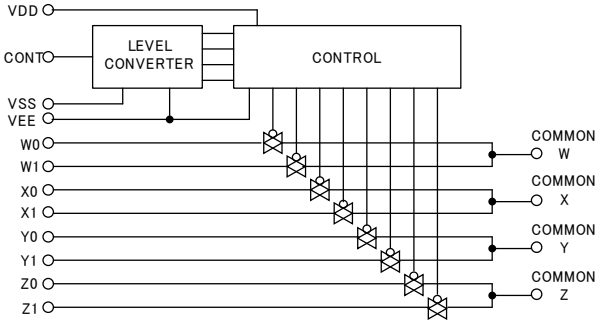
PIN No.	PIN NAME	I/O	PIN FUNCTION
1	Y1	I/O	Analog Switch Input / Output
2	Y0	I/O	Analog Switch Input / Output
3	Z1	I/O	Analog Switch Input / Output
4	Z	I/O	Analog Switch Input / Output
5	Z0	I/O	Analog Switch Input / Output
6	INHIBIT	I	Control Input
7	VEE	-	Power Supply(-)
8	VSS	-	Power Supply(-)
9	C	I	Control Input
10	B	I	Control Input
11	A	I	Control Input
12	X0	I/O	Analog Switch Input / Output
13	X1	I/O	Analog Switch Input / Output
14	X	I/O	Analog Switch Input / Output
15	Y	I/O	Analog Switch Input / Output
16	VDD	-	Power Supply(+)

TRUTH TABLE

INHIBIT	A	B	C	ON SWITCH
L	L	L	L	X0,Y0,Z0
L	H	L	L	X1,Y0,Z0
L	L	H	L	X0,Y1,Z0
L	H	H	L	X1,Y1,Z0
L	L	L	H	X0,Y0,Z1
L	H	L	H	X1,Y0,Z1
L	L	H	H	X0,Y1,Z1
L	H	H	H	X1,Y1,Z1
H	X	X	X	NONE

5) BU4551B Series





PIN FUNCTION

PIN No.	PIN NAME	I/O	PIN FUNCTION
1	W1	I/O	Analog Switch Input / Output
2	X0	I/O	Analog Switch Input / Output
3	X1	I/O	Analog Switch Input / Output
4	X	I/O	Analog Switch Input / Output
5	Y	I/O	Analog Switch Input / Output
6	Y0	I/O	Analog Switch Input / Output
7	VEE	-	Power Supply(-)
8	VSS	-	Power Supply(-)
9	CONTROL	I	Control Input
10	Y1	I/O	Analog Switch Input / Output
11	Z0	I/O	Analog Switch Input / Output
12	Z1	I/O	Analog Switch Input / Output
13	Z	I/O	Analog Switch Input / Output
14	W	I/O	Analog Switch Input / Output
15	W0	I/O	Analog Switch Input / Output
16	VDD	-	Power Supply(+)

TRUTH TABLE

CONTROL	ON SWITCH
0	W0,X0,Y0,Z0
1	W1,X1,Y1,Z1

●Notes for use

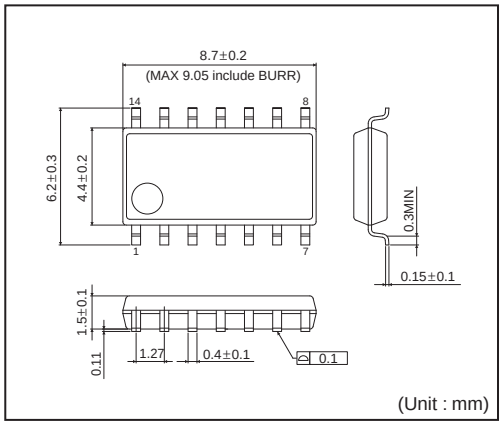
1. Absolute maximum ratings
   An excess in the absolute maximum ratings, such as supply voltage, temperature range of operating conditions, etc., can break down the devices, thus making impossible to identify breaking mode, such as short circuit or an open circuit. If any over rated values will expect to exceed the absolute maximum ratings, consider adding circuit protection devices, such as fuses.
2. Connecting the power supply connector backward
   Connecting of the power supply in reverse polarity can damage IC. Take precautions when connecting the power supply lines. An external direction diode can be added.
3. Power Supply lines
   Design PCB layout pattern to provide low impedance GND and supply lines. To obtain a low noise ground and supply line, separate the ground section and supply lines of the digital and analog blocks. Furthermore, for all power terminals to ICs, connect a capacitor between the power supply and the GND terminal. When applying electrolytic capacitors in the circuit, not that capacitance characteristic values are reduced at low temperatures.
4. GND voltage
   The potential of GND pin must be minimum potential in all operating conditions.
5. Thermal design
   Use a thermal design that allows for a sufficient margin in light of the power dissipation (Pd) in actual operating conditions.
6. Inter-pin shorts and mounting errors
   Use caution when positioning the IC for mounting on printed circuit boards. The IC may be damaged if there is any connection error or if pins are shorted together.
7. Actions in strong electromagnetic field
   Use caution when using the IC in the presence of a strong electromagnetic field as doing so may cause the IC to malfunction.
8. Testing on application boards
   When testing the IC on an application board, connecting a capacitor to a pin with low impedance subjects the IC to stress. Always discharge capacitors after each process or step. Always turn the IC's power supply off before connecting it to or remove it from a jig or fixture during the inspection process. Ground the IC during assembly steps as an antistatic measure. Use similar precaution when transporting or storing the IC.
9. Ground Wiring Pattern
   When using both small signal and large current GND patterns, it is recommended to isolate the two ground patterns, placing a signal ground point at the ground potential of application so that the pattern wiring resistance and voltage variations caused by large currents do not caused by large currents do not cause variations in the small signal ground voltage. Be careful not to change the GND wiring pattern of any external components, either.

●Ordering part number

B	U		4	5	5	1	B		F	V	-		E	2

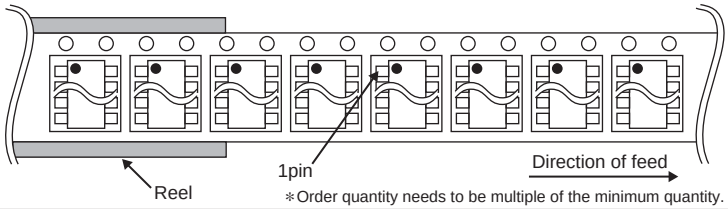
Part No.	Part No.		Package	Packaging and forming specification
	4066BC	4053BC	None: DIP14,DIP16	E2: Embossed tape and reel
	4051BC	4551B	F : SOP14, SOP16	None:Tray,Tube
	4052BC		FV : SSOP-B14	
			SSOP-B16	

SOP14



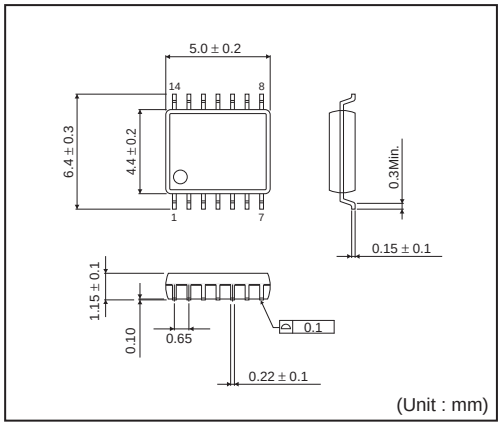
<Tape and Reel information>

Tape	Embossed carrier tape
Quantity	2500pcs
Direction of feed	E2 (The direction is the 1pin of product is at the upper left when you hold reel on the left hand and you pull out the tape on the right hand)



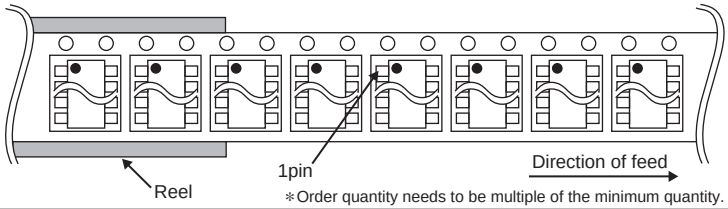
∗Order quantity needs to be multiple of the minimum quantity.

SSOP-B14



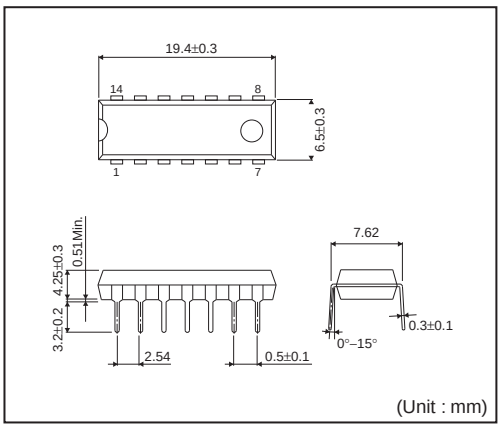
<Tape and Reel information>

Tape	Embossed carrier tape
Quantity	2500pcs
Direction of feed	E2 (The direction is the 1pin of product is at the upper left when you hold reel on the left hand and you pull out the tape on the right hand)



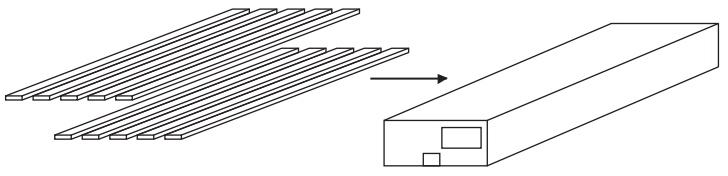
∗Order quantity needs to be multiple of the minimum quantity.

DIP14



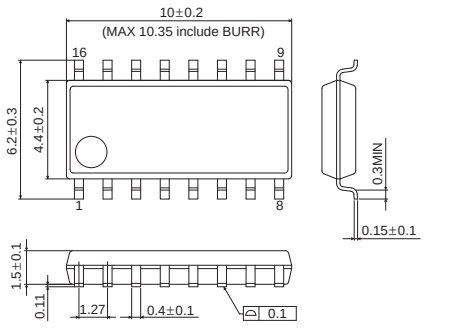
<Tape and Reel information>

Container	Tube
Quantity	1000pcs
Direction of feed	Direction of products is fixed in a container tube



∗Order quantity needs to be multiple of the minimum quantity.

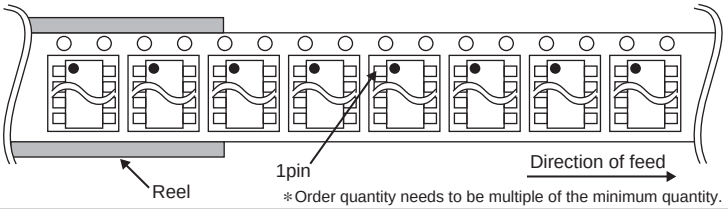
SOP16



(Unit : mm)

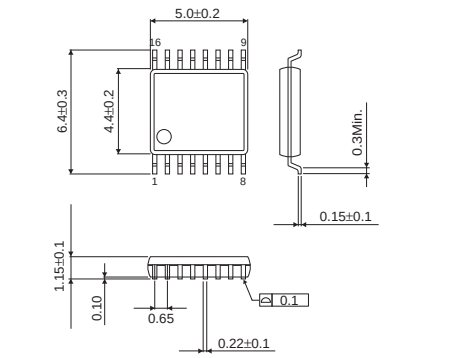
<Tape and Reel information>

Tape	Embossed carrier tape
Quantity	2500pcs
Direction of feed	E2 (The direction is the 1pin of product is at the upper left when you hold reel on the left hand and you pull out the tape on the right hand)



∗Order quantity needs to be multiple of the minimum quantity.

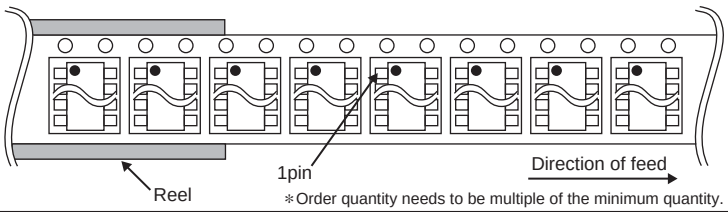
SSOP-B16



(Unit : mm)

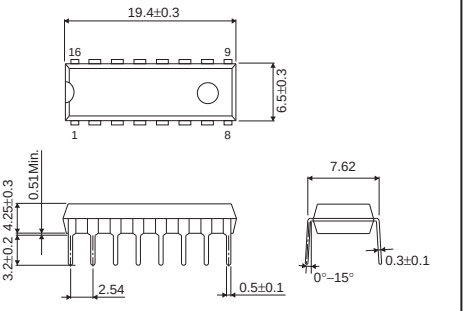
<Tape and Reel information>

Tape	Embossed carrier tape
Quantity	2500pcs
Direction of feed	E2 (The direction is the 1pin of product is at the upper left when you hold reel on the left hand and you pull out the tape on the right hand)



∗Order quantity needs to be multiple of the minimum quantity.

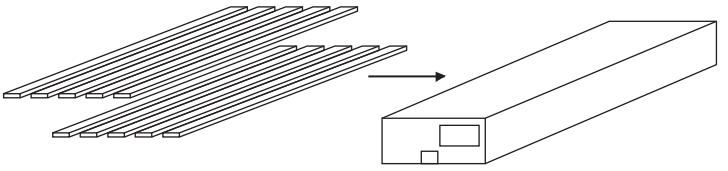
DIP16



(Unit : mm)

<Tape and Reel information>

Container	Tube
Quantity	1000pcs
Direction of feed	Direction of products is fixed in a container tube



∗Order quantity needs to be multiple of the minimum quantity.

Notes

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