General Description

The MC14052 is a dual single- pole quad- throw analog switch (2 ×SP4 T) suitable for use   in analog
or digital 4 : 1 multiplexer/ demultiplexer applications. Each switch features four independent

inputs/ outputs (nY0   , nY1 , nY2 and nY3)   and a common input/ output (nZ) . A digital enable input (E) and

two digital select inputs (S0   and S1) are common to both switches. When $\overline{E}$ is HIGH, the switches are turned off.
Inputs include clamp diodes.   This enables the use of current limiting resistors to interface

Features

- Wide analog input voltage range from - 5 V to + 5 V
- Low ON resistance:
  80 Ω (typical) at VCC - VEE = 4 . 5 V
  70 Ω (typical) at VCC - VEE = 6 . 0 V
  60 Ω (typical) at VCC - VEE = 9 . 0 V
- Logic level translation: to enable 5 V logic to communicate with ± 5 V analog   signals
- Typical " break before make" built- in
- Specified from -40°C to + 105°C
- Packaging information: SOP16

Application

- Analog multiplexing and demultiplexing
- Digital multiplexing and demultiplexing
- Signal gating

Ordering Information

| Product Model	Package Type	Marking	Packing	Packing Qty
MC14052BDR2G	SOP-16	14052	Tape	2500Pcs/Reel

Block DiagramAndPinDescription

2．1 Block Diagram
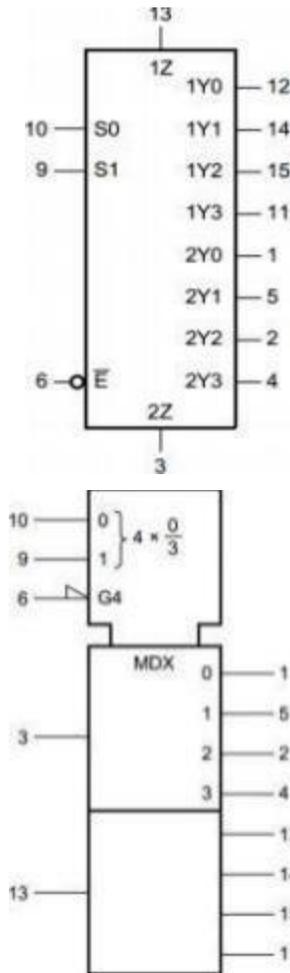

Figure 2 ． IEC logic symbol
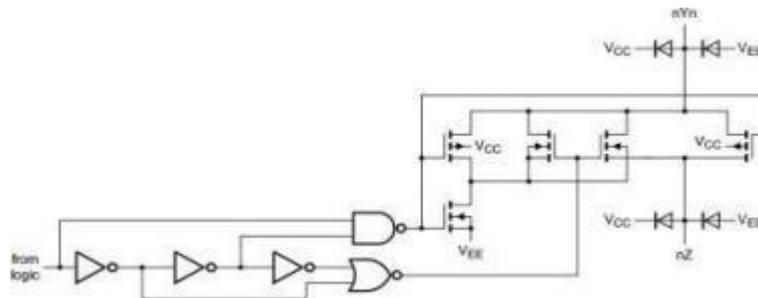
Figure 3 ． Schematic diagram（one switch)
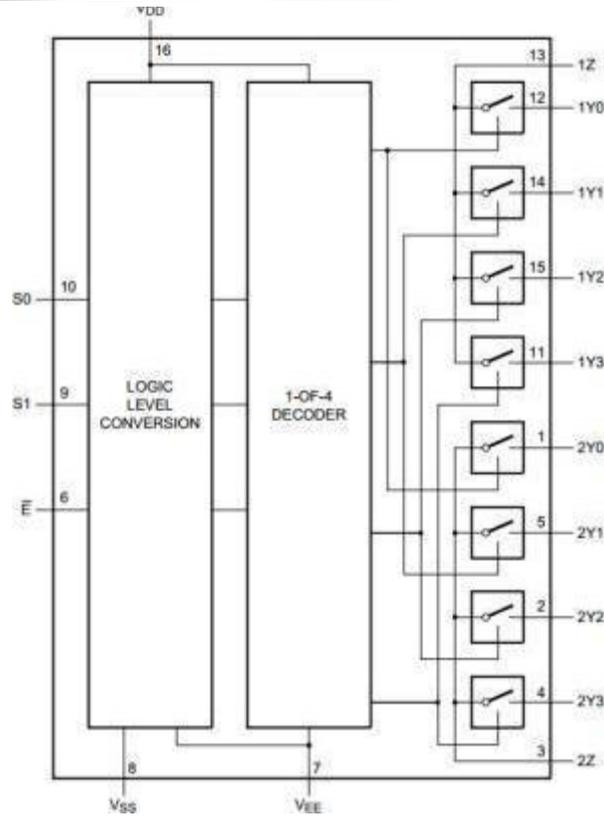
Figure 4 . Functional diagram

2.2 Pin Configurations
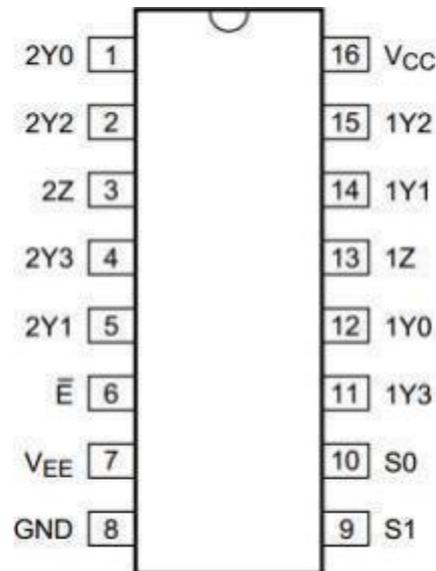
Pin Description

Pin No.	Pin Name	Description
1	2Y0	independent input or output
2	2Y2	independent input or output
3	2Z	common input or output
4	2Y3	independent input or output
5	2Y1	independent input or output
6	$\overline{E}$	enable input (active LOW)
7	V$_{EE}$	negative supply voltage
8	GND	ground supply voltage
9	S1	select logic input
10	S0	select logic input
11	1Y3	independent input or output
12	1Y0	independent input or output
13	1Z	common input or output
14	1Y1	independent input or output
15	1Y2	independent input or output
16	V$_{CC}$	positive supply voltage

Function Table

Input			Channel ON
$\overline{E}$	S1	S0	
L	L	L	nY0 and nZ
L	L	H	nY1 and nZ
L	H	L	nY2 and nZ
L	H	H	nY3 and nZ
H	X	X	none

Note: H= HIGH voltage level; L= LOW voltage level; X= don't care.

Electrical Parameter

Absolute Maximum Ratings

(Voltages are referenced to Vss (ground=0 V) , unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V$_{CC}$	-[1]	-0 5	+ 11	V
input clamping current	I$_{IK}$	$V_I < -0.5$ V or $V_I > V_{CC} + 0.5$ V	-	± 20	mA
switch clamping current	I$_{SK}$	$V_{SW} < -0.5$ V or $V_{SW} > V_{CC} + 0.5$ V	-	± 20	mA
switch current	I$_{SW}$	-0.5 V $< V_{SW} < V_{CC} + 0.5$ V	-	± 25	mA
supply current	I$_{EE}$	-	-	± 20	mA
supply current	I$_{CC}$	-	-	50	mA
ground current	I$_{GND}$	-	-	-50	mA
storage temperature	T$_{stg}$	-	-65	+ 150	℃
total power dissipation	P$_{tot}$	-[2]	-	500	mW
power dissipation	P	per switch	-	100	mW
Soldering temperature	T$_L$	10s		DIP	245	℃
				SOP	250	℃

Note:

[1] To avoid drawing V_{CC} current out of terminal nZ, when switch current flows into terminals nYn, the voltage drop across the bidirectional switch must not exceed 0 . 4 V. If the switch current flows into terminal nZ, no V_{CC} current will flow out of terminals nYn, and in this case there is no limit for the voltage drop across the switch, but the voltages at nYn and nZ may not exceed V_{CC} or V_{EE} .

[2] For DIP16 packages: above 70 ℃ the value of P_{tot} derates linearly with 12 mW/ K.

For SOP16 packages: above 7 0 ℃ the value of P_{tot} derates linearly with 8 mW/ K.

For (T) SSOP16 packages: above 60 ℃ the value of P_{tot} derates linearly with 5 . 5 mW/ K.

Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
MC14052						
supply voltage	V_{CC}	V_{CC} - GND	3.0	5.0	9.0	V
		V_{CC} - V_{EE}	3.0	5.0	9.0	V
input voltage	V_I	-	0	-	V_{CC}	V
switch voltage	V_{SW}	-	V_{EE}	-	V_{CC}	V
ambient temperature	T_{amb}	in free air	-40	-	+ 105	℃
input transition rise and fall rate	$\Delta t/\Delta V$	V_{CC} = 4 . 5 V	-	1.67	139	ns/ V
		V_{CC} = 6 . 0 V	-	-	83	ns/ V
		V_{CC} = 9 . 0 V	-	-	31	ns/ V

Electrical Characteristics

DC Characteristics 1

(Tamb = - 40°C~ 85°C, voltages are reference to GND (ground=0 V) , unless otherwise specified, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ. [1]	Max.	Unit
ON resistance (peak)	RON(peak)	Vis = VCC to VEE ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	100	225	Ω
			VCC = 6 .0 V; VEE = 0 V	-	90	200	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	70	165	Ω
ON resistance (rail)	RON(rail)	Vis = VEE ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	80	175	Ω
			VCC = 6 .0 V; VEE = 0 V	-	70	150	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	60	130	Ω
		Vis = VCC ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	90	200	Ω
			VCC = 6 .0 V; VEE = 0 V	-	80	175	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	65	150	Ω
ON resistance mismatch between channels	Δ RON	Vis = VCC to VEE	VCC = 4 . 5 V; VEE = 0 V	-	9	-	Ω
			VCC = 6 .0 V; VEE = 0 V	-	8	-	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	6	-	Ω
MC14052							
HIGH- level input voltage	VIH	VCC = 4 . 5 V		3. 15	2.4	-	V
		VCC = 6 . 0 V		4.2	3.2	-	V
		VCC = 9 . 0 V		6.3	4.7	-	V
LOW- level input voltage	VIL	VCC = 4 . 5 V		-	2.1	1.35	V
		VCC = 6 . 0 V		-	2.8	1.8	V
		VCC = 9 . 0 V		-	4.3	2.7	V
input leakage current	II	VEE = 0 V; VI = VCC or GND	VCC = 6 . 0 V	-	-	± 1.0	uA
			VCC = 9 . 0 V	-	-	± 2.0	uA
OFF- state leakage current	IS(OFF)	VCC= 9 . 0 V;	per channel	-	-	± 1.0	uA
		VEE= 0 V; VI= VIH or VIL ; |VSW | = VCC - VEE ; see Figure 7	all channels	-	-	± 2.0	uA
ON- state leakage current	IS(ON)	VI= VIH or VIL ; |VSW | = VCC- VEE ; VCC= 9 . 0 V;VEE= 0 V; see Figure 8		-	-	± 2.0	uA
supply current	ICC	VEE = 0 V; VI = VCC or GND; Vis = VEE or VCC ; Vos = VCC or VEE	VCC = 6 . 0 V	-	-	80.0	uA
			VCC = 9 . 0 V	-	-	160.0	uA
input capacitance	CI	-		-	3.5	-	pF
switch capacitance	CSW	independent pins nYn		-	5	-	pF
		common pins nZ		-	12	-	pF

Note:

[1] All typical values are measured at Tamb= 25 °C.

[2] VI= VIH or VIL ; for test circuit see Figure 5 .

[3] Vis is the input voltage at a nYn or nZ terminal, whichever is assigned as an input.

[4] Vos is the output voltage at a nYn or nZ terminal, whichever is assigned as an output.

DC Characteristics 2

(Tamb = - 40 °C～ 105 °C, voltages are reference to GND (ground=0 V) , unless otherwise specified, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ. [1]	Max.	Unit
ON resistance (peak)	RON(peak)	Vis = VCC to VEE ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	-	270	Ω
			VCC = 6 .0 V; VEE = 0 V	-	-	240	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	-	195	Ω
ON resistance (rail)	RON(rail)	Vis = VEE ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	-	210	Ω
			VCC = 6 .0 V; VEE = 0 V	-	-	180	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	-	160	Ω
		Vis = VCC ; ISW = 1000 uA	VCC = 4 . 5 V; VEE = 0 V	-	-	240	Ω
			VCC = 6 .0 V; VEE = 0 V	-	-	210	Ω
			VCC = 4 . 5 V; VEE = -4 .5 V	-	-	180	Ω
MC14052							
HIGH- level input voltage	VIH	VCC = 4 . 5 V		3. 15	-	-	V
		VCC = 6 . 0 V		4.2	-	-	V
		VCC = 9 . 0 V		6.3	-	-	V
LOW- level input voltage	VIL	VCC = 4 . 5 V		-	-	1.35	V
		VCC = 6 . 0 V		-	-	1.8	V
		VCC = 9 . 0 V		-	-	2.7	V
input leakage current	II	VEE = 0 V; VI = VCC or GND	VCC = 6 . 0 V	-	-	± 1.0	uA
			VCC = 9 . 0 V	-	-	± 2.0	uA
OFF- state leakage current	IS(OFF)	VCC= 9 . 0 V; VEE= 0 V; VI= VIH or VIL ; |VSW | = VCC - VEE ; see Figure 7	per channel	-	-	± 1.0	uA
			all channels	-	-	± 2.0	uA
ON- state leakage current	IS(ON)	VI= VIH or VIL ; | VSW | = VCC- VEE ; VCC= 9 . 0 V;VEE= 0 V; see Figure 8		-	-	± 2.0	uA
supply current	ICC	VEE = 0 V; VI = VCC or GND; Vis = VEE or VCC ; Vos = VCC or VEE	VCC = 6 . 0 V	-	-	160.0	

Note:

[1]   All typical values are measured at T_{amb}= 25°C.

[2] V_I= V_{IH} or V_{IL} ; for test circuit see Figure 5 .

[3] V_{is} is the input voltage at a nYn or nZ terminal, whichever is assigned as an input.

[4] V_{os} is the output voltage at a nYn or nZ terminal, whichever is assigned as an output

AC Characteristics 1

(T_{amb}= -40°C~+ 85°C; GND = 0 V; t_r = t_f = 6 ns; C_L = 50 pF; unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ. [1]	Max.	Unit
		MC14052					
propagation delay	t_{pd}	V_{is} to V_{os} ; R_L= ∞ Ω; see Figure 9 [2]	V_{CC} = 4 . 5 V;		5	15	ns
			V_{EE} = 0 V	-			
			V_{CC} = 6 .0 V;		4	13	ns
			V_{EE} = 0 V	-			
			V_{CC} = 4 . 5 V;		4	10	ns
			V_{EE} = -4 .5 V	-			
turn- on time	t_{on}	E, Sn to V_{os} ; R_L= ∞ Ω; see Figure 10 [3]	V_{CC} = 4. 5 V;		38	81	ns
			V_{EE} = 0 V	-			
			V_{CC} = 5.0 V; V_{EE} =0V; C_L= 15pF		28	-	ns
				-			
			V_{CC} = 6.0 V;		30	69	ns
			V_{EE} = 0 V	-			
			V_{CC} = 4 . 5 V;		26	58	ns
			V_{EE} = -4 .5 V	-			
turn- off time	t_{off}	E, Sn to V_{os} ; R_L = 1 kΩ; see Figure 10 [4]	V_{CC} = 4. 5 V;		27	63	ns
			V_{EE} = 0 V	-			
			V_{CC} = 5.0 V; V_{EE} =0V; C_L= 15pF		21	-	ns
				-			
			V_{CC} = 6.0 V;		22	54	ns
			V_{EE} = 0 V	-			
			V_{CC} = 4 . 5 V;		22	48	ns
			V_{EE} = -4 .5 V	-			
power dissipation capacitance	C_{PD}	per switch; V_I = GND to V_{CC} [5]			57	-	pF
				-			
			V_{CC} = 4 . 5 V;		28	60	ns
			V_{EE} = -4 .5 V	-			

Note:

[1] All typical values are measured at T_{amb}= 25°C.

[2] t_{pd} is the same as t_{PHL} and t_{PLH} .

[3] t_{on} is the same as t_{PZH} and t_{PZL} .

[4] t_{off} is the same as t_{PHZ} and t_{PLZ} .

[5] C_{PD} is used to determine the dynamic power dissipation (P_D in uW) .

  $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma \{(C_L + C_{SW}) \times V_{CC}^2 \times f_O \}$ where:

  f_i = input frequency in MHz;

  f_O = output frequency in MHz;

  N = number of inputs switching;

  $\Sigma \{(C_L + C_{SW}) \times V_{CC}^2 \times f_O \}$ = sum of outputs;

  C_L = output load capacitance in pF;

C_{SW} = switch capacitance in pF;

V_{CC} = supply voltage in V.

[6] For test circuit see Figure 1 1 .

[7] V_{is} is the input voltage at a nYn or nZ terminal, whichever is assigned as an input.

[8] V_{os} is the output voltage at a nYn or nZ terminal, whichever is assigned as an output.

AC Characteristics 2

(T_{amb}= -4 0 ° C~+ 1 0 5 ° C; GND = 0 V; t_r = t_f = 6 ns; C_L = 5 0 pF; unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ. [1]	Max.	Unit
		MC14052					
propagation delay	t_{pd}	V_{is} to V_{os} ; R_L= ∞ Ω; see Figure 9 [2]	V_{CC} = 4 . 5 V; V_{EE} = 0 V	-	-	18	ns
			V_{CC} = 6 .0 V; V_{EE} = 0 V	-	-	15	ns
			V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	-	12	ns
turn- on time	t_{on}	E, Sn to V_{os} ; R_L= ∞ Ω; see Figure 10 [3]	V_{CC} = 4. 5 V; V_{EE} = 0 V	-	-	98	ns
			V_{CC} = 6.0 V; V_{EE} = 0 V	-	-	83	ns
			V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	-	69	ns
turn- off time	t_{off}	E, Sn to V_{os} ; R_L = 1 kΩ; see Figure 10 [4]	V_{CC} = 4. 5 V; V_{EE} = 0 V	-	-	75	ns
			V_{CC} = 6.0 V; V_{EE} = 0 V	-	-	64	ns
			V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	-	57	ns

Note:

[1] All typical values are measured at T_{amb}= 2 5 ° C.

[2] t_{pd} is the same as t_{PHL} and t_{PLH} .

[3] t_{on} is the same as t_{PZH} and t_{PZL} .

[4] t_{off} is the same as t_{PHZ} and t_{PLZ} .

[5] For test circuit see Figure 1 1 .

[6] V_{is} is the input voltage at a nYn or nZ terminal, whichever is assigned as an input.

[7] V_{os} is the output voltage at a nYn or nZ terminal, whichever is assigned as an output.

AC Characteristics 3

(T_{amb}= 25°C; GND = 0 V; C_L= 50 pF; recommended conditions and typical values.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
sine- wave distortion	d_{sin}	f_i = 1 kHz; R_L = 10 kΩ; see Figure 12	V_{is} = 4 .0 V (p-p) ; V_{CC} = 2 .25 V; V_{EE} = -2 .25 V	-	0.04	-	%
			V_{is} = 8 .0 V (p-p) ; V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	0.02	-	%
		f_i = 10 kHz; R_L = 10 kΩ; see Figure 12	V_{is} = 4 .0 V (p-p) ; V_{CC} = 2 .25 V; V_{EE} = -2 .25 V	-	0. 12	-	%
			V_{is} = 8 .0 V (p-p) ; V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	0.06	-	%
isolation (OFF- state)	$α_{iso}$	R_L= 600 Ω; f_i= 1 MHz; see Figure 13	V_{CC} = 2.25 V; [1] V_{EE} = -2 .25 V	-	-50	-	d_B
			V_{CC} = 4.5 V; [1] V_{EE} = -4 .5 V	-	-50	-	d_B
crosstalk	Xtalk	between two switches/ multiplexers; R_L= 600 Ω; f_i= 1 MHz; see Figure 14	V_{CC} = 2.25 V; [1] V_{EE} = -2 .25 V	-	-60	-	d_B
			V_{CC} = 4.5 V; [1] V_{EE} = -4 .5 V	-	-60	-	d_B
crosstalk voltage	V_{ct}	peak- to- peak value; between control and any switch; R_L= 600 Ω; f_i= 1MHz; $\overline{E}$ or Sn square wave between V_{CC} and GND; t_r= t_f= 6 ns; see Figure 1 5	V_{CC} = 4 .5 V; V_{EE} = 0 V	-	110	-	mV
			V_{CC} = 4 . 5 V; V_{EE} = -4 .5 V	-	220	-	mV
-3 dB frequency response	$f_{(-3 dB)}$	R_L = 50 Ω; see Figure 16	V_{CC} = 2.25 V; [2] V_{EE} = -2 .25 V	-	170	-	MHz
			V_{CC} = 4.5 V; [2] V_{EE} = -4 .5 V	-	180	-	MHz

Note：

[1] Adjust input voltage V_{is} to 0 dBm level (0 dBm = 1 mW into 600 Ω) .

[2] Adjust input voltage V_{is} to 0 dBm level at V_{os} for 1 MHz (0 dBm = 1 mW into 50 Ω) .

[3] V_{is} is the input voltage at a nYn or nZ terminal, whichever is assigned as an input.

[4] V_{os} is the output voltage at a nYn or nZ terminal, whichever is assigned as an output.

Testing Circuit

DC Testing Circuit 1

$$V_{is} = 0\,V \text{ to } (V_{CC} - V_{EE})$$

$$R_{ON} = V_{SW}/I_{SW}$$
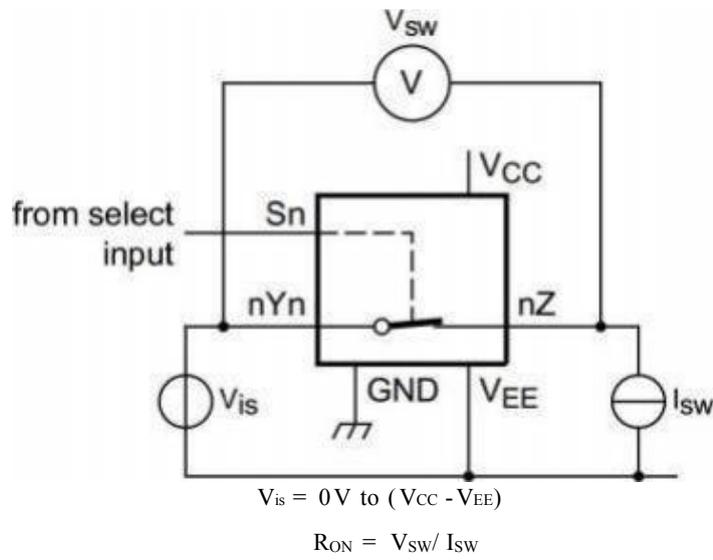
Figure 5 . Test circuit for measuring R_{ON}
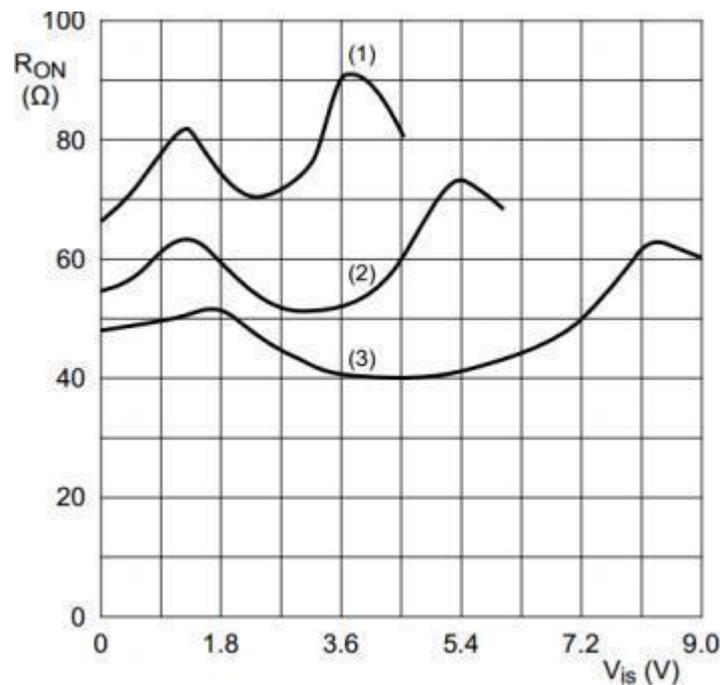
$V_{is} = 0\,V \text{ to } (V_{CC} - V_{EE})$

(1)$V_{CC} = 4.5\,V$

(2) $V_{CC} = 6\,V$

(3)$V_{CC} = 9\,V$

Figure 6 . Typical R_{ON} as a function of input voltage V_{is}

DC Testing Circuit 2
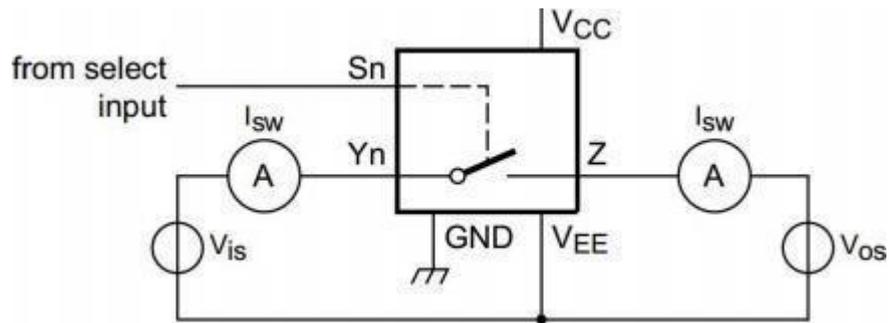
$V_{is} = V_{CC}$ and $V_{os}= V_{EE}$.

$V_{is} = V_{EE}$ and $V_{os}= V_{CC}$.

Figure 7 .   Test circuit for measuring OFF- state current
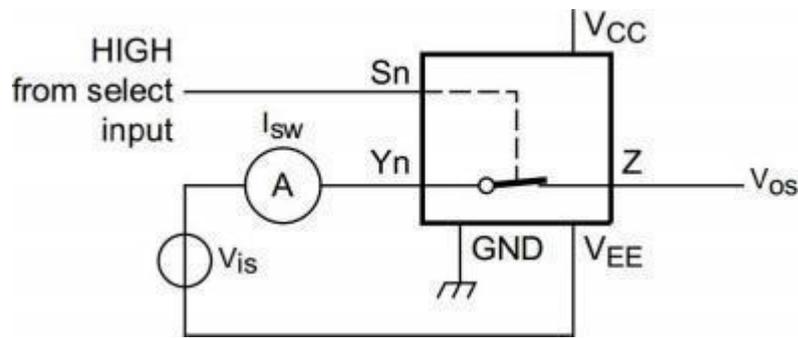
$V_{is}= V_{CC}$ and $V_{os}=$ open- circuit.

$V_{is}= V_{EE}$ and $V_{os}=$ open- circuit.

Figure 8 .   Test circuit for measuring ON- state current

AC Testing Waveforms
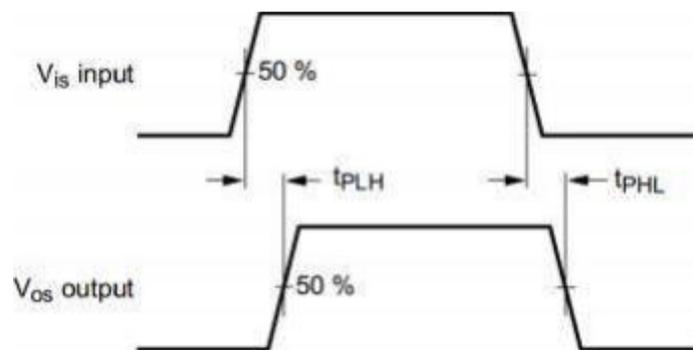
Figure 9 .   Input (V_{is}) to output (V_{os}) propagation delays

For MC14052: $V_M = 0.5 \times V_{CC}$.

For SN7 4HCT4052: $V_M = 1.3$ V.
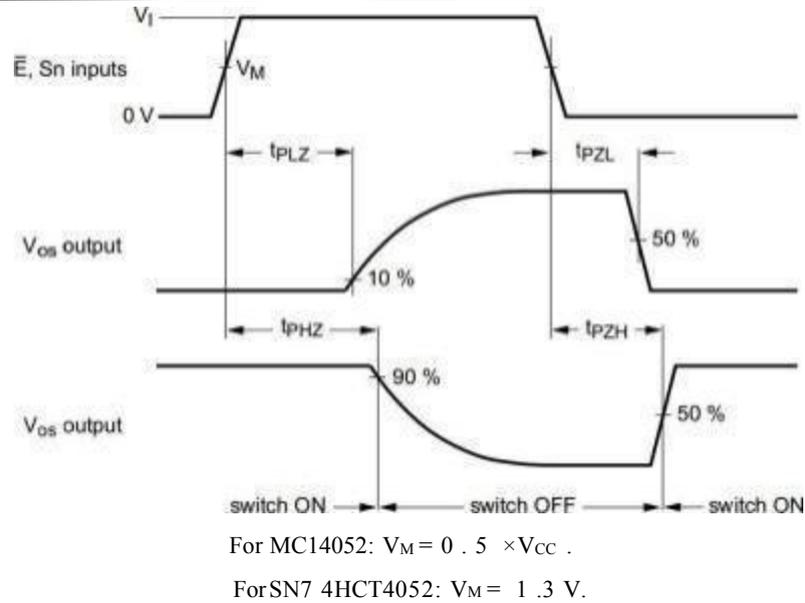
Figure 10 .   Turn-on and turn- off times

AC Testing Circuit 1
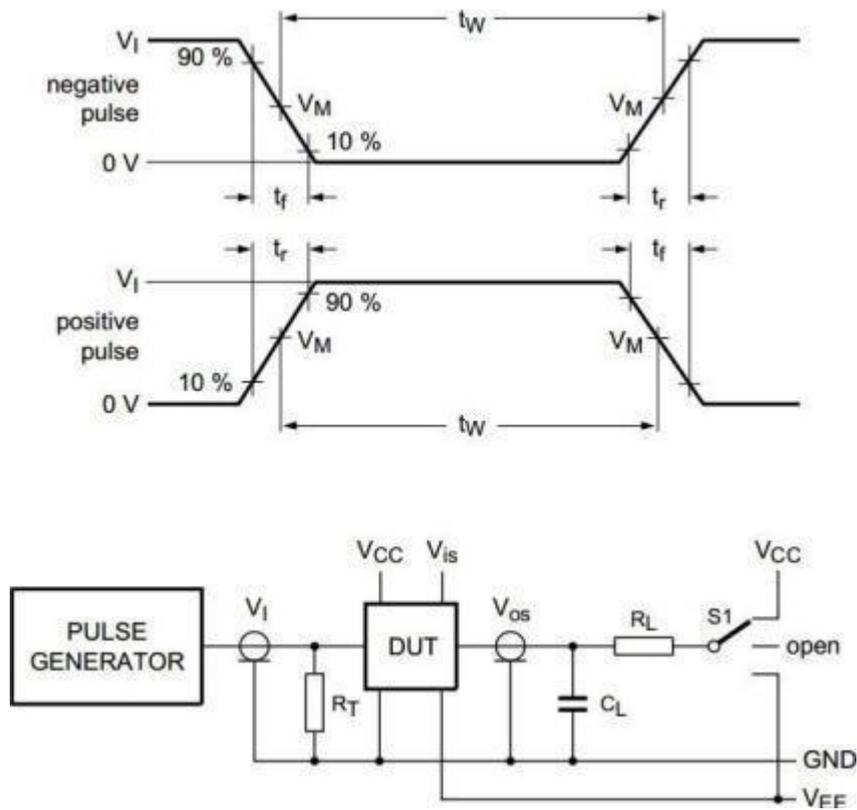
Figure 1 1 .   Test circuit for measuring switching times

Definitions for test circuit:

R_T =   termination resistance should be equal to the output impedance Z_O of the pulse generator.

C_L =   load capacitance including jig and probe capacitance.

R_L =   load resistance.

$S1$ =   Test selection switch.

4 .5 、 Test Data

Test	Input				Load		S1 position
	V_I	V_{is}	$t_r,\ t_f$		C_L	R_L	
			at f_{max}	other[1]			
$t_{PHL},\ t_{PLH}$	[2]	pulse	< 2ns	6ns	50pF	1kΩ	open
$t_{PZH},\ t_{PHZ}$	[2]	V_{CC}	< 2ns	6ns	50pF	1kΩ	V_{EE}
$t_{PZL},\ t_{PLZ}$	[2]	V_{EE}	< 2ns	6ns	50pF	1kΩ	V_{CC}

Note:

[1] $t_r = t_f =$ 6 ns; when measuring f_{max}, there is no constraint to t_r and t_f with 50 % duty factor.

[2] V_I values:

For MC14052: $V_I = V_{CC}$ .For

SN74HCT4052: $V_I = 3V$.

AC Testing Circuit 2
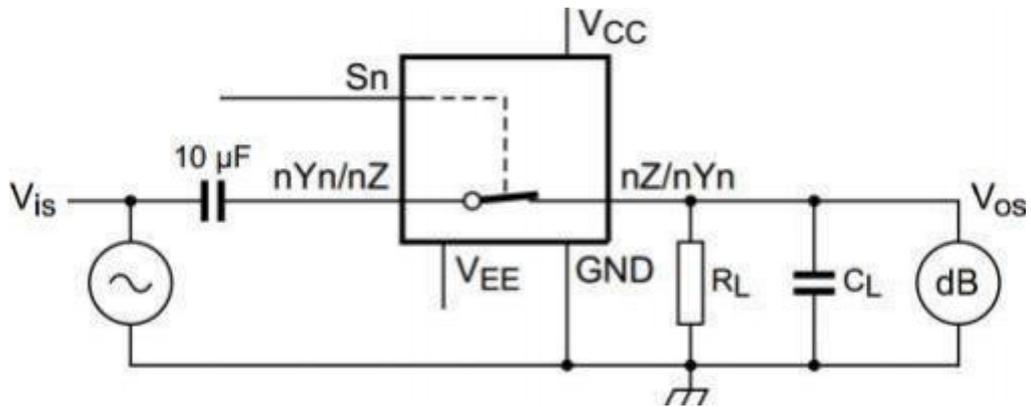
Figure 12 . Test circuit for measuring sine- wave distortion
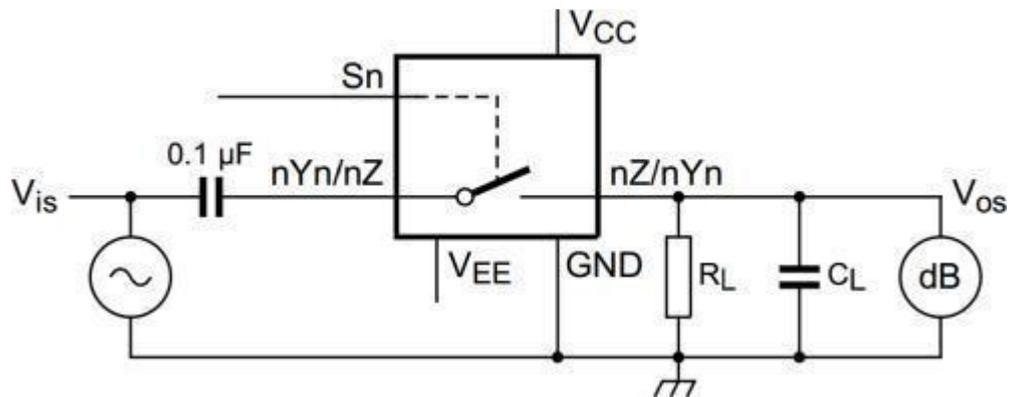
$V_{CC} = 4 . 5$ V; GND = 0 V; $V_{EE} = -4 .5$ V; $R_L = 600$ Ω; $R_S = 1$ kΩ .

a. Test circuit
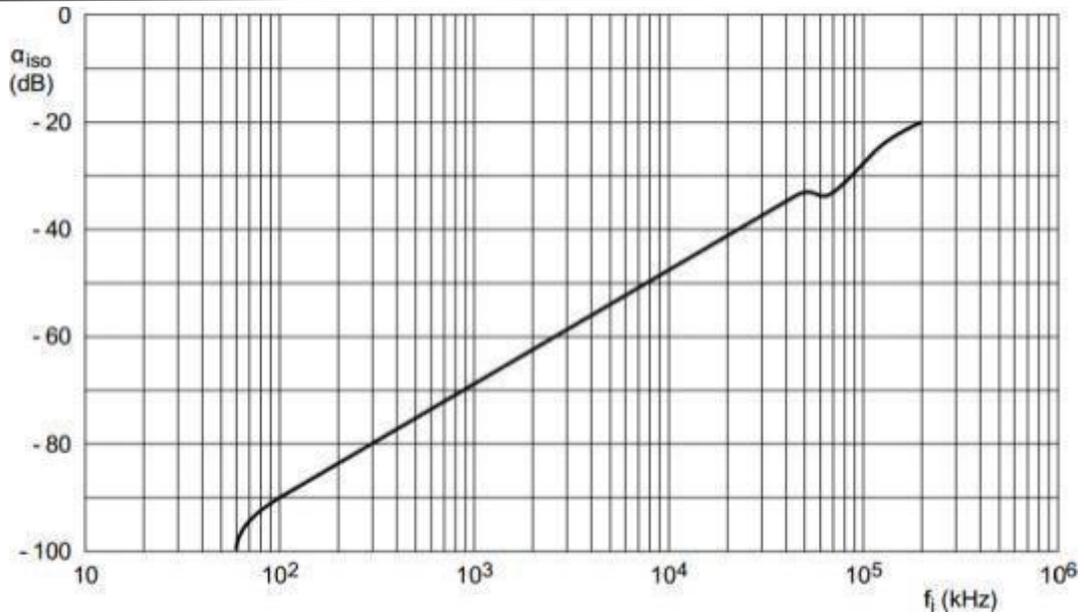
b. Isolation (OFF- state) as a function of frequency

Figure 13 . Test circuit for measuring isolation (OFF- state)
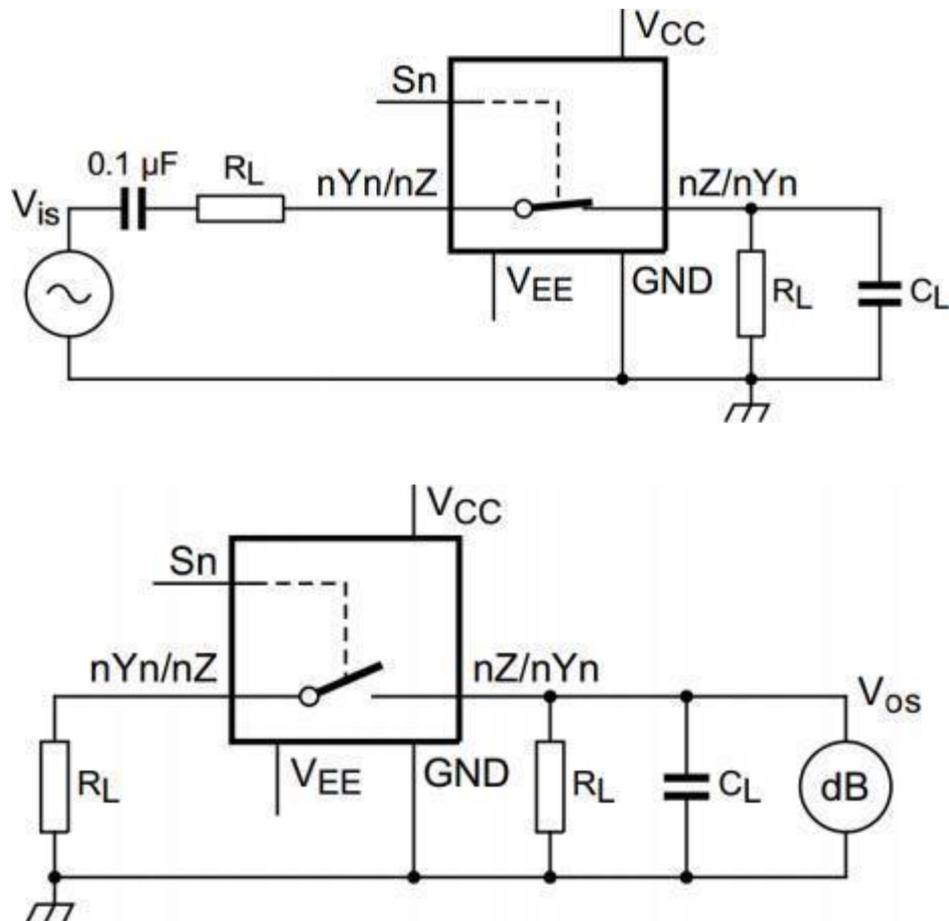
Figure 14 . Test circuits for measuring crosstalk between any two switches/ multiplexers
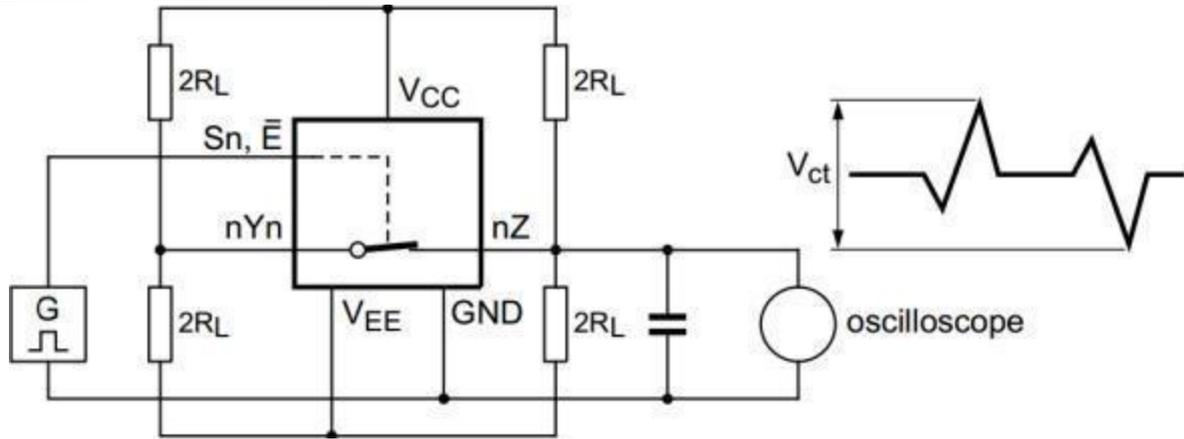
Figure   1 5   .   Test circuit for measuring crosstalk between control input and any switch
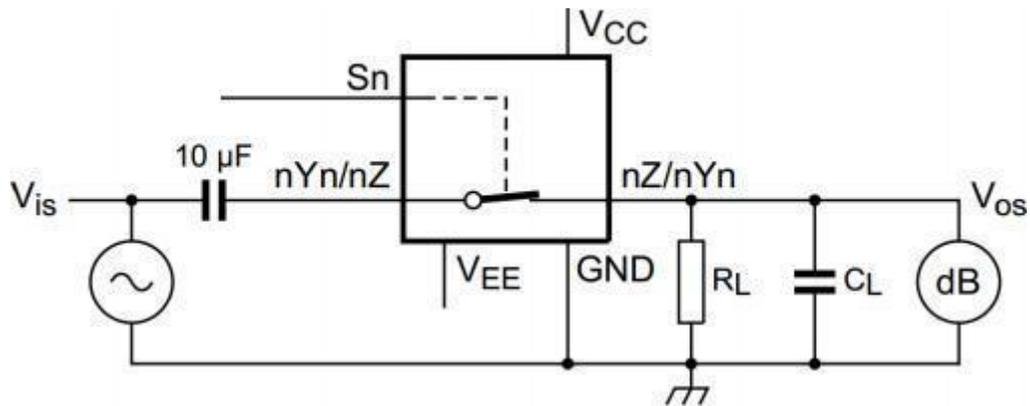
V_{CC} = 4. 5 V; GND = 0 V; V_{EE} = -4 .5 V; R_L = 50 Ω; R_S = 1 kΩ
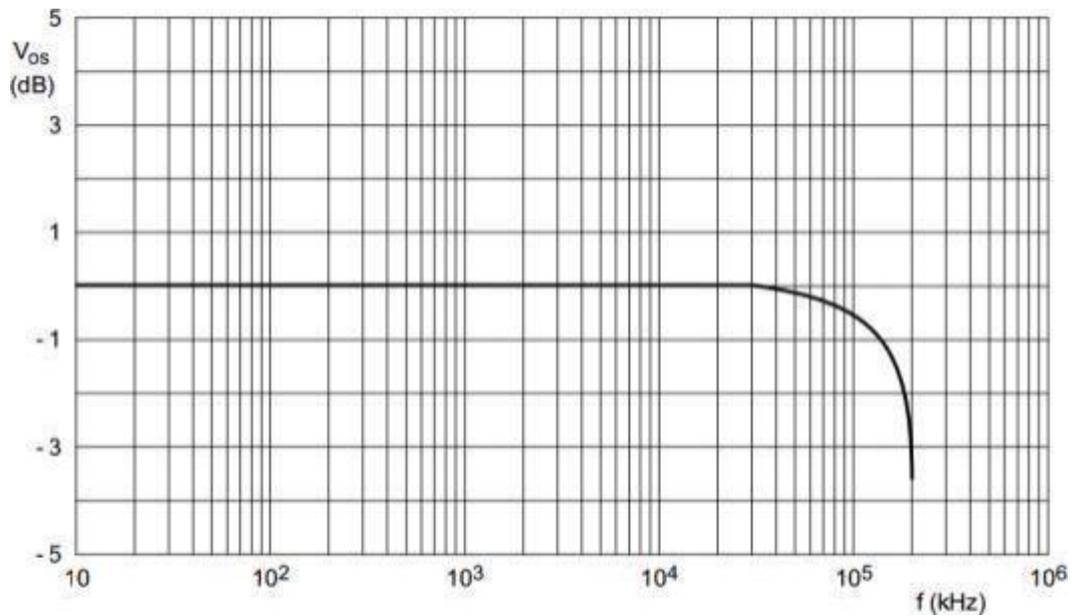
a. Test circuit

b.   Typical frequency response

Figure   16 .   Test circuit for frequency response

Package Information

SOP16
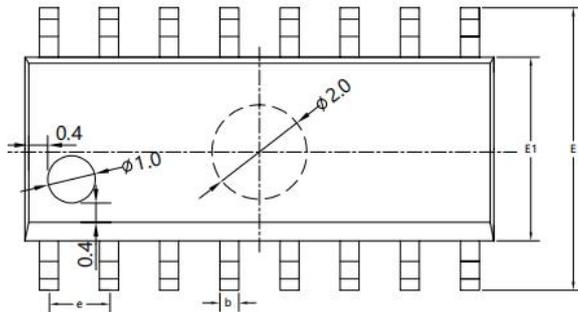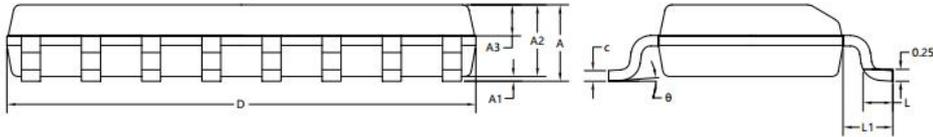
SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.50	1.60	1.70
A1	0.10	0.15	0.25
A2	1.40	1.45	1.50
A3	0.60	0.65	0.70
b	0.30	0.40	0.50
c	0.15	0.20	0.25
D	9.80	9.90	10.00
E	5.80	6.00	6.20
E1	3.85	3.90	3.95
e	1.27BSC		
L	0.50	0.60	0.70
L1	1.05BSC		
θ	0°	4°	8°

Statement：

✧ Shenzhen xinbole electronics co., ltd. reserves the right to change the product specifications, without notice! Before placing an order, the customer needs to confirm whether the information obtained is the latest version, and verify the integrity of the relevant information.

✧ Any semiconductor product is liable to fail or malfunction under certain conditions, and the buyer shall be responsible for complying with safety standards in the system design and whole machine manufacturing using Shenzhen xinbole electronics co., ltd products, and take appropriate security measures to avoid the potential risk of failure may result in personal injury or property losses of the situation occurred!

✧ This document is for referenceonly,and the actual use should be based on the application test results.

✧ Product performance is never ending, Shenzhen xinbole electronics co., ltd will be dedicated to provide customers with better performance, better quality of integrated circuit products.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Analogue Switch ICs *category:*

Click to view products by XBLW *manufacturer:*

Other Similar products are found below :

FSA3051TMX NLAS5223BLMNR2G NLX2G66DMUTCG TC74HC4066AFTEL 425541DB DG403DY 099044FB MAX4762ETB+
NLAS3799BMNR2G NLAS5123MNR2G ISL84684IR PI5A4157CEX PI5A4599BCEX NLAS4717EPFCT1G PI5A3167CCEX
SLAS3158MNR2G PI5A392AQE ADG714BCPZ-REEL7 DG333ALDW-T1-E3 ISL43113IB ISL43140IB ISL43140IBZ-T ISL43143IR
ISL43L120IR ISL43L121IR ISL43L122IR ISL43L220IR ISL43L410IR ISL43L420IR ISL43L710IR ISL43L711IR ISL43L712IR
ISL84053IA ISL84514IB ISL84516IB ISL84684IUZ-T LNLASB3157DFT2G NLAS324US NLASTV4599DFT2G TPW4053-SR
WAS4642Q-24/TR WAS4766C-9/TR WAS7227Q-10/TR WAS4646C-36/TR WAS4735Q-16/TR BL1532TQFN RS2233YS16
TMUX1248DCKR TMUX7236RUMR ADG836YRMZ-REEL