



Features

- Supply voltage: 1.5 ~ 5.5V
- ultra-low On Resistance: 1.5 Ω
- -3dB Bandwidth :700MHz
- Rail-to-Rail Signal Range
- Break-Before-Make Switching
- Low quiescent current over an Expanded Control Input Range
- Standard Products are Pb-free and halogen-free
- Packaging: SOP-16

Applications

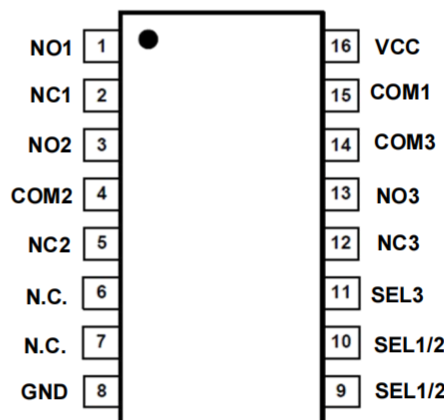
- Other electronics equipment
- Audio and Video Signal Routing
- LCD Monitor, TV and Set-Top Box
- Cell phones, PDA, Digital Camera and Notebook

General Description

The is a high performance, quad, Single Pole Double Throw (SPDT) analog switch that features ultra-low Ron of 0.5 Ω (typical) at 3.0V VCC. The operates over a wide VCC range of 2.3V to 4.5V and is designed for break-before-make operation. The select input is TTL-level compatible.

is also featured with smart circuitry to minimize VCC leakage current even when the control voltage is lower than VCC supply voltage. This feature suits mobile handset applications by allowing direct interface with baseband processor general-purpose IO with minimal battery consumption. In other word, there is no need of additional device to shift control level to be the same as that of VCC in real application.

PIN CONFIGURATIONS (Top view)

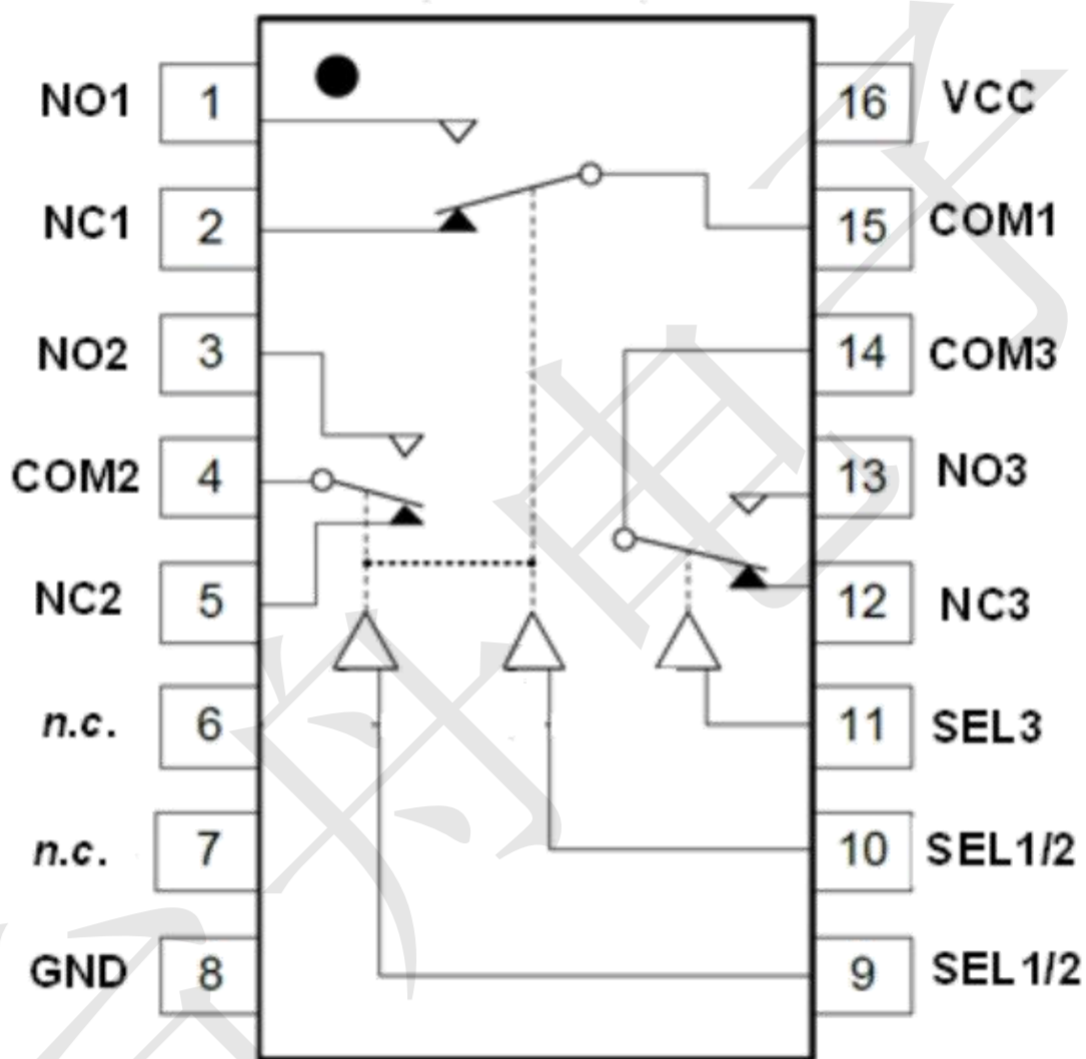


PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION	PIN NO.	PIN NAME	DESCRIPTION
1	NO1	Data Port (Normally open)	9	SEL1/2	Logic Input Control
2	NC1	Data Port (Normally closed)	10	SEL1/2	Logic Input Control
3	NO2	Data Port (Normally open)	11	SEL3	Logic Input Control
4	COM2	Common Data Port	12	NC3	Data Port (Normally closed)
5	NC2	Data Port (Normally closed)	13	NO3	Data Port (Normally open)
6	N.C.	No Internal Connection	14	COM3	Common Data Port
7	N.C.	No Internal Connection	15	COM1	Common Data Port
8	GND	Ground	16	VCC	Positive Power Supply



BLOCK DIAGRAM



Pin configuration (Top view)

Function Descriptions

SEL1/2, SEL3	Function
0	NC1 = COM1, NC2= COM2, NC3 = COM3
1	NO1 = COM1, NO2= COM2, NO3 = COM3



Absolute Maximum Ratings

(Unless otherwise specified) ⁽¹⁾

Parameter	Symbol	Value	Unit
Supply Voltage	V _{CC}	-0.3 ~ 6.5	V
Control Input Voltage	V _{IN}	-0.3 ~ 6.5	V
DC Input Voltage ⁽²⁾	V _{INPUT}	-0.3 ~ 6.5	V
Continuous Current NO_NC_COM_		±100	mA
Peak Current NO_NC_COM_ (pulsed at 1ms 50% duty cycle)		±200	mA
Peak Current NO_NC_COM_ (pulsed at 1ms 10% duty cycle)		±200	mA
Storage Temperature Range	T _{STG}	-65 ~ 150	°C
Junction Temperature under Bias	T _J	150	°C
Lead Temperature (Soldering, 10 seconds)	T _L	260	°C
Power Dissipation	P _D	250	mW

Recommend operating ratings

(Unless otherwise specified) ⁽³⁾

Parameter	Symbol	Value	Unit
Supply Voltage Operating	V _{CC}	1.5 ~ 5.5	V
Control Input Voltage	V _{IN}	0.0 ~ V _{CC}	V
Input Signal Voltage	V _{IS}	0.0 ~ V _{CC}	V
Operating Temperature	T _A	-40 ~ 85	°C
Input Raise and Fall Time(Control Input V _{CC} =2.3~3.6V)	t _r ,t _f	0 ~ 10	ns/V
Thermal Resistance	R _{θJA}	350	°C/W

Note:

1. “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied.
2. The input and output negative voltage ratings may be exceeded if the input and output diode current ratings are observed.
3. Control input must be held high or Low, it must not float.



DC Electronics Characteristics

(Ta=25°C, VCC=4.5V, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input logic high level	V _{IH}	VCC: 3.0 ~ 4.5	1.6	--	--	V
		VCC: 2.3 ~ 3.0	1.4	--	--	V
Input logic low level	V _{IL}	VCC: 3.0 ~ 4.5	--	--	0.6	V
		VCC: 2.3 ~ 3.0	--	--	0.4	V
Supply quiescent current	I _{CC}	I _{OUT} =0, V _{IN} =0 or V _{IN} =VCC	--	--	1.0	uA
Increase in I _{CC} per input	I _{CC} T	I _{OUT} =0, VCC=4.5 V _{IN} >1.8 or V _{IN} <0.5	--	--	2.0	uA
Input leakage current	I _{IN}	V _{SEL} =VCC	--	--	±1.0	uA
Off state switch leakage current	I _{OFF}		--	--	±1.0	uA
On state switch leakage current	I _{ON}		--	--	±1.0	uA
On-Resistance	R _{ON}	VCC=4.5V, V _{IS} =0~4.5V, I _{ON} =100mA,	--	1.5	--	Ω
		VCC=3.0V, V _{IS} =0~3.0V, I _{OUT} =100mA,	--	1.8	--	Ω
On-Resistance Matching Between Channels	Δ R _{ON}	VCC=4.5V, V _{IS} =0.8V, I _{OUT} =100mA,	--	0.1	--	Ω
		VCC=3.0V, V _{IS} =0.8V, I _{OUT} =100mA,	--	0.14	--	Ω
On-Resistance Flatness	R _{FLAT(ON)}	VCC=4.5V, V _{IS} =0~4.5V, I _{OUT} =100mA,	--	--	0.5	Ω
		VCC=3.0V, V _{IS} =0~3.0V, I _{OUT} =100mA,	--	--	0.8	Ω



AC Electronics Characteristics

(Ta=25°C, VCC=4.5V, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Turn-On Time	T _{ON}	VCC=4.5V, V _{IS} =1.5V, C _L =35pF, R _L =50Ω	--	200	--	ns
Turn-Off Time	T _{OFF}	VCC=4.5V, V _{IS} =1.5V, C _L =35pF, R _L =50Ω	--	200	--	ns
Break-Before-Make time	T _{BBM}	Generate by design	--	100	--	ns
-3dB Bandwidth	BW	R _L =50Ω, C _L =0pF	--	700	--	MHz
Off isolation (Per Channel)	OIRR	F=100KHz, R _L =50Ω	--	-50	--	dB
Crosstalk (Channel to Channel)	Xtalk	F=100KHz, R _L =50Ω	--	-50	--	dB
Total Harmonic Distortion	THD	F=20Hz to 20KHz R _L =32Ω, V _{IS} =0.5Vp-p	--	-80	--	dB

Capacitance

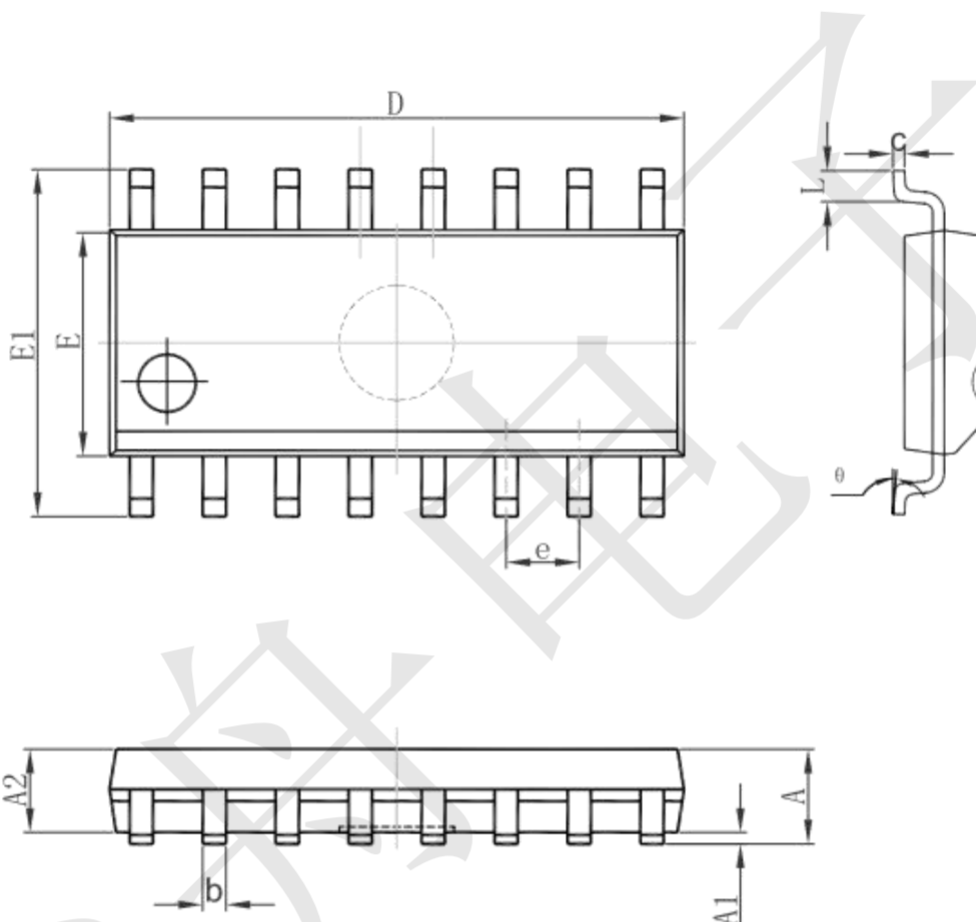
(Ta=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off capacitance	C _{OFF}	F=1MHz, VCC=3.3V	--	5	--	pF
On capacitance	C _{ON}	F=1MHz, VCC=3.3V	--	8	--	pF



Package information

SOP-16



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	9.800	10.200	0.386	0.402
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°