

Features

- Wide supply voltage range from 0.8V to 2.7V
- $\pm 8\text{mA}$ Output Driver : $V_{CC}=1.8\text{V}$
- I_{OFF} Supports partial-Power-Down Mode
Operation and back drive protection
- Low static power consumption; $I_{CC}=10\mu\text{A}$ (Max.)
- ESD Protection Exceeds JESD 22
-2000-V Human-Body Model (A114-A)
-200-V Machine Model (A115-A)
-1000-V Charged-Device Model (C101)

General Description

is a single channel line driver with a three state output. When the output enable ($\overline{OE}$) input is at a high level, the output is disabled.

To ensure a high impedance state during power on or off, $\overline{OE}$ should be connected to V_{CC} through a pull-up resistor; The minimum value of the resistor is determined by the current absorption capacity of the driver.

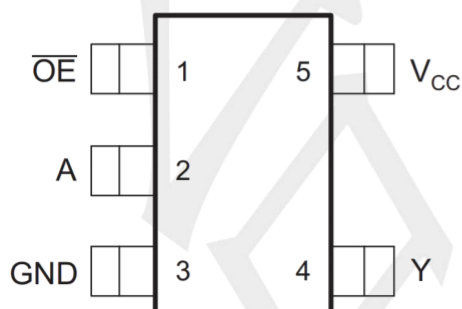
Applications

- AV Receiver
- Audio Dock: Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power: Telecom/Server AC/DC Supply: Single Controller: Analog and Digital
- Solid State Drive(SSD): Client and Enterprise
- Wireless Headset, Keyboard, and Mouse

Logic Diagram



Pin Configuratio (TOP VIEW)



SOT23-5

Function Table

INPUTS		OUTPUT Y
$\overline{OE}$	A	
L	H	L
L	L	H
H	X	Z

H: HIGH voltage level; L: LOW voltage level;
X=don't care; Z=high-impedance OFF-state.

Absolute Maximum Ratings

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +3.6	V
Input Voltage	V_{IN}		-0.5 ~ +3.6	V
Output Voltage	V_{OUT}	Enable mode	-0.5 ~ $V_{CC} + 0.5$	V
		Power-down mode	-0.5 ~ +3.6	V
V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}	$V_{OUT}=0 \sim V_{CC}$	±20	mA
Input Clamp Current	I_{IK}	$V_{IN} < 0$	-50	mA
Output Clamp Current	I_{OK}	$V_{OUT} < 0$	-50	mA
Storage Temperature Range	T_{STG}		-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Recommended Operating Conditions

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	0.8	--	2.7	V
Input Voltage	V_{IN}		0	--	3.6	V
Output Voltage	V_{OUT}	High or low state	0	--	V_{CC}	V
Operating Temperature	T_A		-40	--	+125	°C
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	$V_{CC}=0.8V \sim 1.6V$	--	--	20	ns/V
		$V_{CC}=1.65V \sim 1.95V$	--	--	10	ns/V
		$V_{CC}=2.3V \sim 2.7V$	--	--	3	ns/V

Electrical Characteristics (T_A=25°C ,unless otherwise specified)

PARAMETER		TEST CONDITIONS	V _{CC}	MIN	TYP	MAX	UNIT
V _{OH}		I _{OH} = -100 μA	0.8 V to 2.7 V	V _{CC} - 0.1	--	--	V
		I _{OH} = -0.7 mA	0.8 V	--	0.55	--	
		I _{OH} = -3 mA	1.1 V	0.8	--	--	
		I _{OH} = -5 mA	1.4 V	1	--	--	
		I _{OH} = -8 mA	1.65 V	1.2	--	--	
		I _{OH} = -9 mA	2.3 V	1.8	--	--	
V _{OL}		I _{OL} = 100 μA	0.8 V to 2.7 V	--	--	0.2	V
		I _{OL} = 0.7 mA	0.8 V	--	0.25	--	
		I _{OL} = 3 mA	1.1 V	--	--	0.3	
		I _{OL} = 5 mA	1.4 V	--	--	0.4	
		I _{OL} = 8 mA	1.65 V	--	--	0.45	
		I _{OL} = 9 mA	2.3 V	--	--	0.6	
I _I	A or $\overline{\text{OE}}$ input	V _I = V _{CC} or GND	0 to 2.7 V	--	--	±5	μA
I _{off}		V _I or V _O = 2.7 V	0	--	--	±10	μA
I _{OZ}		V _O = V _{CC} or GND	2.7 V	--	--	±10	μA
I _{CC}		V _I = V _{CC} or GND, I _O = 0	0.8 V to 2.7 V	--	--	10	μA
C _I		V _I = V _{CC} or GND	2.5 V	--	2.5	--	pF
C _O		V _O = V _{CC} or GND	2.5 V	--	5.5	--	pF

SWITCHING CHARACTERISTICS (TA = 25°C)

over recommended operating free-air temperature range, CL = 15 pF (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	VCC = 0.8 V	VCC = 1.2 V ± 0.1 V		VCC = 1.5 V ± 0.1 V		VCC = 1.8 V ± 0.15 V			VCC = 2.5 V ± 0.2 V		UNIT
			TYP	MIN	MAX	MIN	MAX	MIN	TYP	MAX	MIN	MAX	
t _{pd}	A	Y	4.5	0.6	3.3	0.7	2.2	0.6	1	1.7	0.4	1.4	ns
t _{en}	OE	Y	5.5	0.7	4.1	0.5	2.6	0.5	1.2	1.9	0.5	1.6	ns
t _{dis}	OE	Y	5	1.5	4.3	0.9	4.1	1.2	2.3	3.3	0.8	2.3	ns

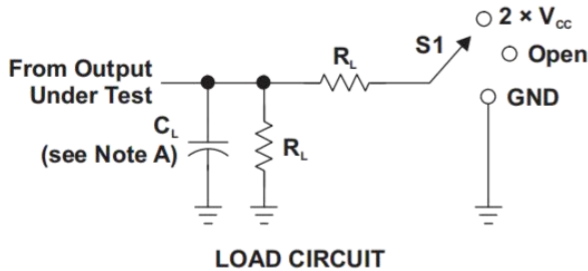
over recommended operating free-air temperature range, CL = 30 pF (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	VCC = 1.8 V ± 0.15 V			VCC = 2.5 V ± 0.2 V		UNIT
			MIN	TYP	MAX	MIN	MAX	
t _{pd}	A	Y	0.5	1.5	2.5	0.8	1.7	ns
t _{en}	OE	Y	0.7	1.6	2.6	0.6	1.9	ns
t _{dis}	OE	Y	2	2.4	3.1	0.8	1.7	ns

Operating Characteristics (TA = 25°C)

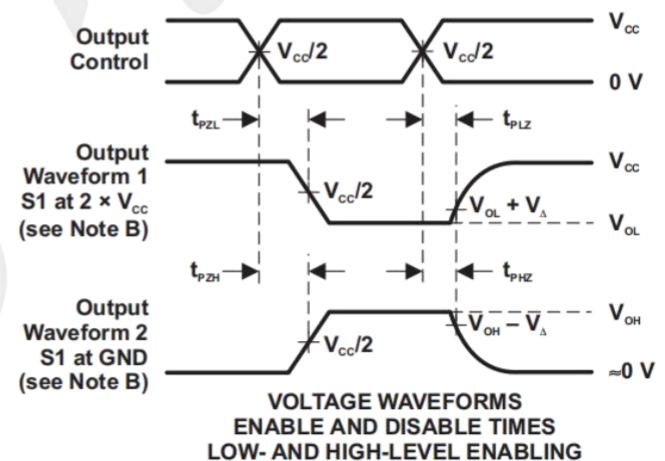
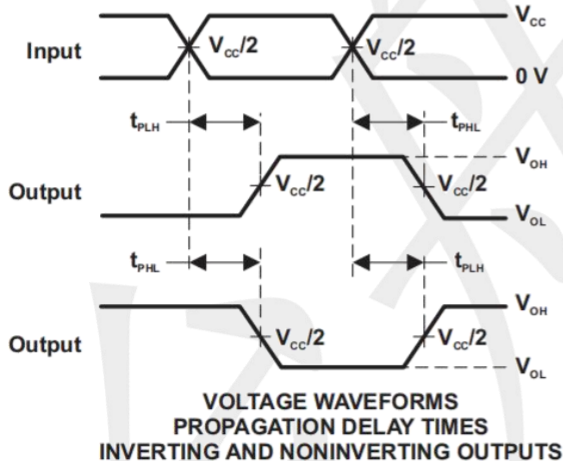
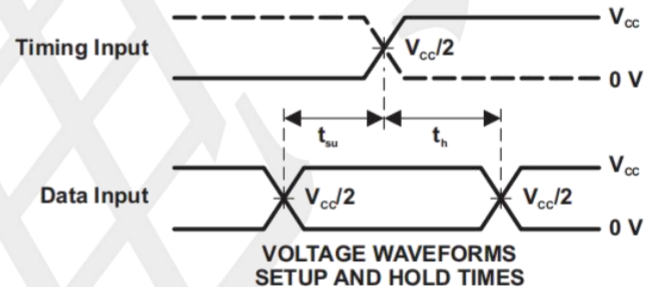
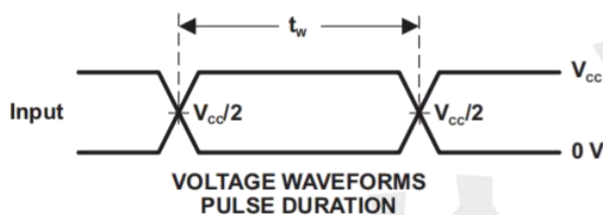
PARAMETER		TEST CONDITIONS	VCC = 0.8 V	VCC = 1.2 V	VCC = 1.5 V	VCC = 1.8 V	VCC = 2.5 V	UNIT
			TYP	TYP	TYP	TYP	TYP	
Power dissipation capacitance	Outputs enabled	f = 10 MHz	14	14	14	14	15	pF
	Outputs disabled		1	1	1	1	2	

PARAMETER MEASUREMENT INFORMATION



TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	$2 \times V_{CC}$
t_{PHZ}/t_{PZH}	GND

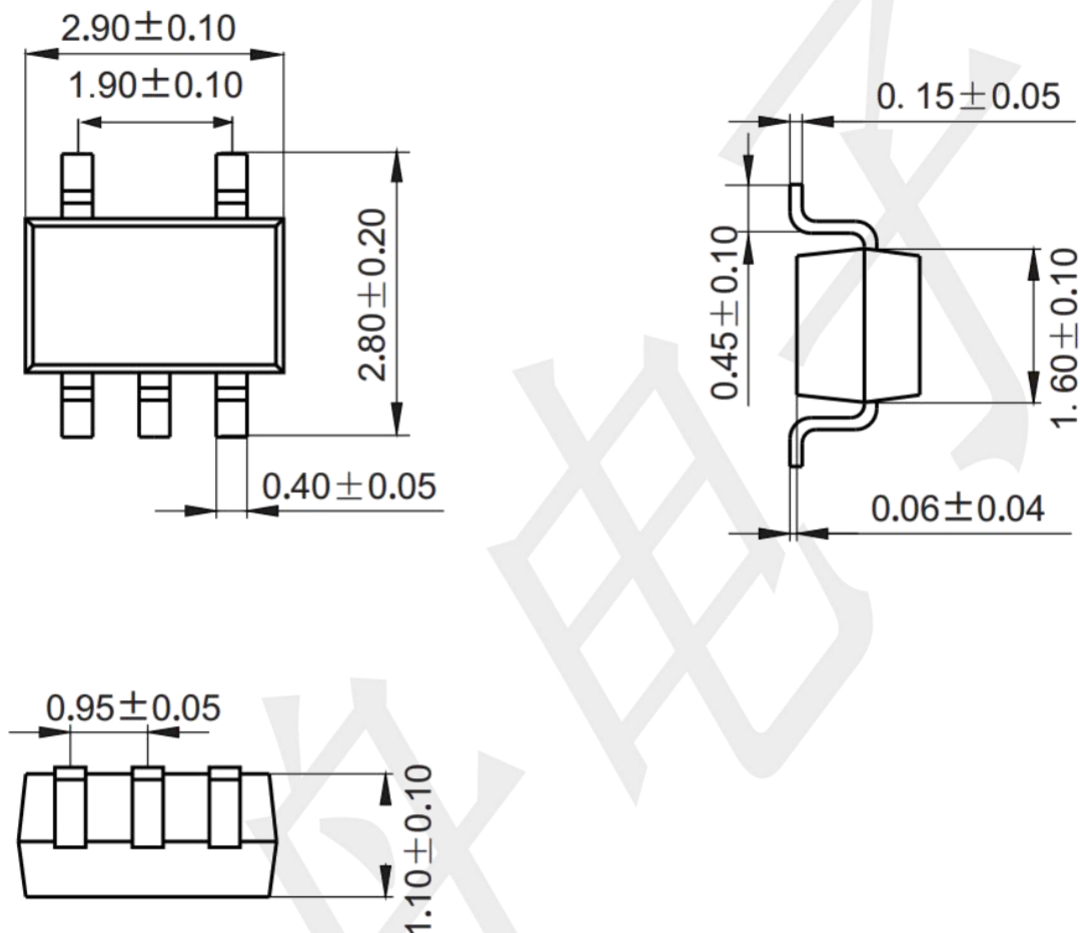
V_{CC}	C_L	R_L	V_A
0.8 V	15 pF	2 k Ω	0.1 V
1.2 V $\pm$ 0.1 V	15 pF	2 k Ω	0.1 V
1.5 V $\pm$ 0.1 V	15 pF	2 k Ω	0.1 V
1.8 V $\pm$ 0.15 V	15 pF	2 k Ω	0.15 V
2.5 V $\pm$ 0.2 V	15 pF	2 k Ω	0.15 V
1.8 V $\pm$ 0.15 V	30 pF	1 k Ω	0.15 V
2.5 V $\pm$ 0.2 V	30 pF	500 Ω	0.15 V



- NOTES:
- C_L includes probe and jig capacitance.
 - Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
 - All input pulses are supplied by generators having the following characteristics: PRR $\leq$ 10 MHz, $Z_o = 50 \Omega$, slew rate $\geq$ 1 V/ns.
 - The outputs are measured one at a time, with one transition per measurement.
 - t_{PLZ} and t_{PHZ} are the same as t_{dis} .
 - t_{PZL} and t_{PZH} are the same as t_{en} .
 - t_{PLH} and t_{PHL} are the same as t_{pd} .

Package information (Unit: mm)

SOT23-5



Mounting Pad Layout (unit: mm)

