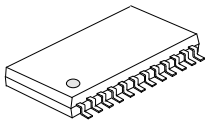
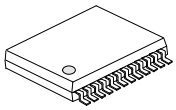
U74LVC827 **Advance** ***CMOS IC***

10-BIT BUFFER/DRIVER WITH 3-STATE OUTPUTS



SSOP-24



TSSOP-24

■ DESCRIPTION

The **U74LVC827** device is a 10-bit buffer/bus driveris designed for 1.65Vto 3.6V V_{CC} operation.

■ FEATURES

* Operate from 1.65V to 3.6V
* Inputs accept voltages to 5.5V
* I_{off} supports partial-power-down mode
* Low power dissipation: I_{CC}=10μA(Max.)
* ±24mA output drive (V_{CC}=3.0V)

■ ORDERING INFORMATION

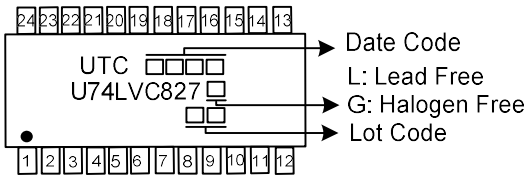
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC827G-R24-R	U74LVC827G-R24-R	SSOP-24	Tape Reel
U74LVC827G-P24-R	U74LVC827G-P24-R	TSSOP-24	Tape Reel

U74LVC827G-R24-R

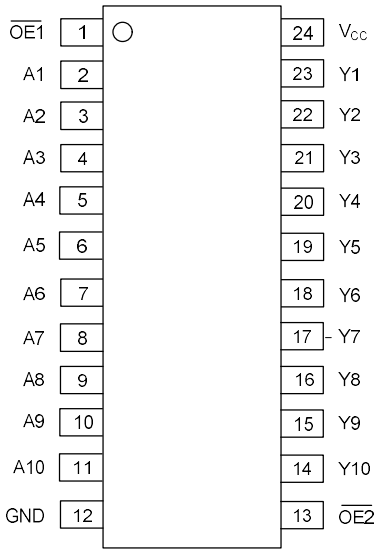
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) R24: SSOP-24, P24: TSSOP-24
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATION

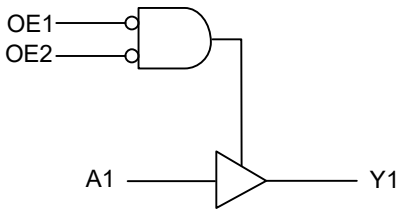


■ FUNCTION TABLE

INPUTS			OUTPUT
$\overline{OE1}$	$\overline{OE2}$	A	Y
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

H = High voltage level；L = Low voltage level；
X = Don't care；Z= high impedance OFF-state

■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified) (Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ 6.5	V
Input Voltage	V_{IN}		-0.5 ~ 6.5	V
Voltage Range Applied to Any Output In The High-Impedance Or Power-Off State (Note 2)	V_{OUT}		-0.5 ~ 6.5	V
Voltage Range Applied to Any Output In The High or Low State (Note 2, 3)	V_{OUT}		-0.5 ~ V_{CC}+0.5	V
Continuous Output Current	I_{OUT}		±50	mA
Continuous Current Through V_{CC} or GND			±100	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

Notes: 1. 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.
2. The input voltage and output negative Voltage ratings may be exceeded if the input and output current ratings are observed.
3. The output positive Voltage rating may be exceeded the output current rating is observed.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	1.65		3.6	V
		Data retention only	1.5			V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or Low State	0		V_{CC}	V
		3-state	0		5.5	V
Input Transition Rise or Fall Rate	Δt/Δv				10	ns/V
Operating Temperature	T_A		-40		+125	°C

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP (Note1)	MAX	UNIT
High-level Input Voltage		V_{IH}	V_{CC}=1.65V~1.95V	V_{CCI}× 0.65			V
			V_{CC}=2.3V~2.7V	1.7			V
			V_{CC}=2.7V~3.6V	2			V
Low-lever Output Voltage		V_{IL}	V_{CCI}=1.65V~1.95V			V_{CCI}× 0.35	V
			V_{CCI}=2.3V~2.7V			0.7	V
			V_{CCI}=2.7V~3.6V			0.8	V
High-Level Output Voltage		V_{OH}	V_{CC}=1.65V~3.6V, I_{OH}=-100μA	V_{CCA}- 0.2			V
			V_{CC}=1.65V, I_{OH}=-4mA	1.2			V
			V_{CC}=2.3V, I_{OH}=-8mA	1.7			V
			V_{CC}=2.7V, I_{OH}=-12mA	2.2			V
			V_{CC}=3.0V, I_{OH}=-12mA	2.4			V
			V_{CC}=3.0V, I_{OH}=-24mA	2.2			V
Low-Level Output Voltage		V_{OL}	V_{CC}=1.65V~3.6V, I_{OL}=100μA			0.2	V
			V_{CC}=1.65V, I_{OH}=4mA			0.45	V
			V_{CC}=2.3V, I_{OH}=8mA			0.7	V
			V_{CC}=2.7V, I_{OH}=12mA			0.4	V
			V_{CC}=3.0V, I_{OH}=24mA			0.6	V
Input Current		I_I	V_{CC}=3.6V, V_{IN}=0~5.5V			±5	μA
Power OFF Leakage Current		I_{OFF}	V_{CC}=0V, V_{IN} or V_{OUT}=5.5V			±10	μA
Output OFF-state current		I_{OZ}	V_{CC}=3.6V, V_{OUT}=0~5.5V			±10	μA
Quiescent Supply Current		I_{CC}	V_{CC}=3.6V, V_I=V_{CC} or GND, I_O=0V			10	uA
			3.6V≤V_I≤5.5V, I_O=0V (Note 2)			10	
Additional Quiescent Supply Current Per Input Pin		ΔI_{CC}	V_{CC}=2.7V~3.6V, One input at V_{CC}-0.6V, Other inputs at V_{CC} or GND			500	uA
Input Capacitance	Control Inputs	C_{IN}	V_{CC}=3.3V, V_I=V_{CC} or GND		5		pF
	Data Inputs				4		pF
Output Capacitance		C_{OUT}	V_{CC}=3.3V, V_O=V_{CC} or GND		7		pF

Notes: 1. All typical values are at V_{CC}=3.3V, T_A=25°C.
2. This applies in the disabled state only.

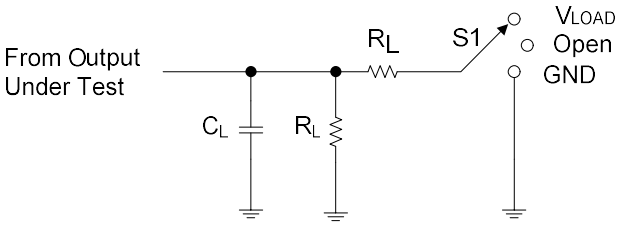
■ SWITCHING CHARACTERISTICS (T_A=-40 ~ +125°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A) to output (Y)	t_{PD}	V_{CC}=1.8V±0.15V	1.5		17.9	ns
		V_{CC}=2.5V±0.2V	1.0		9.3	ns
		V_{CC}=2.7V	1.5		9.0	ns
		V_{CC}=3.3V±0.3V	1.0		8.5	ns
Propagation delay from input (OE) to output (Y)	t_{EN}	V_{CC}=1.8V±0.15V	1.8		19.3	ns
		V_{CC}=2.5V±0.2V	1.5		10.6	ns
		V_{CC}=2.7V	1.5		11	ns
		V_{CC}=3.3V±0.3V	1.0		9.5	ns
Propagation delay from input ($\overline{OE}$) to output (Y)	t_{DIS}	V_{CC}=1.8V±0.15V	2.5		13	ns
		V_{CC}=2.5V±0.2V	1.0		7.4	ns
		V_{CC}=2.7V	1.5		9.5	ns
		V_{CC}=3.3V±0.3V	1.5		8.5	ns
Propagation delay	$t_{SK(O)}$	V_{CC}=1.8V±0.15V			1.0	ns
		V_{CC}=2.5V±0.2V			1.0	ns
		V_{CC}=2.7V			1.0	ns
		V_{CC}=3.3V±0.3V			1.5	ns

■ OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	V_{CC}=1.8V, f=10MHz		3		pF
		V_{CC}=2.5V, f=10MHz		4		pF
		V_{CC}=3.3V, f=10MHz		5		pF

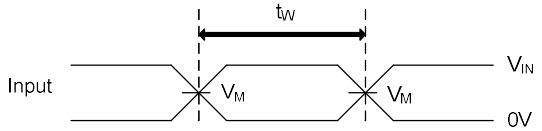
■ TEST CIRCUIT AND WAVEFORMS



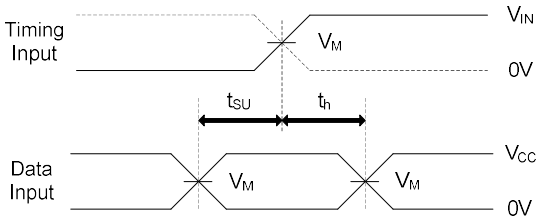
TEST	S1
t_{PLZ}/t_{PZL}	Open
t_{PLZ}/t_{PZL}	V_{LOAD}
t_{PHZ}/t_{PZH}	GND

LOAD CIRCUIT

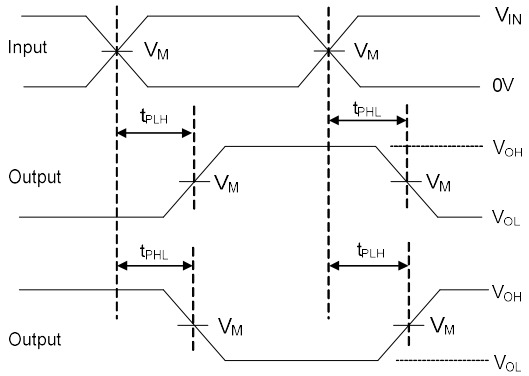
V_{CC}	C_L	tr/tf	VM	V_{LOAD}	CL	R_L	V_{TP}
1.8V±0.15V	V_{CC}	≤2ns	$V_{CC}/2$	$2\times V_{CC}$	30pF	1kΩ	0.15V
2.5V±0.2V	V_{CC}	≤2ns	$V_{CC}/2$	$2\times V_{CC}$	30pF	500Ω	0.15V
2.7V	2.7V	≤2.5ns	1.5V	6V	30pF	500Ω	0.3V
3.3V±0.3V	2.7V	≤2.5ns	1.5V	6V	30pF	500Ω	0.3V



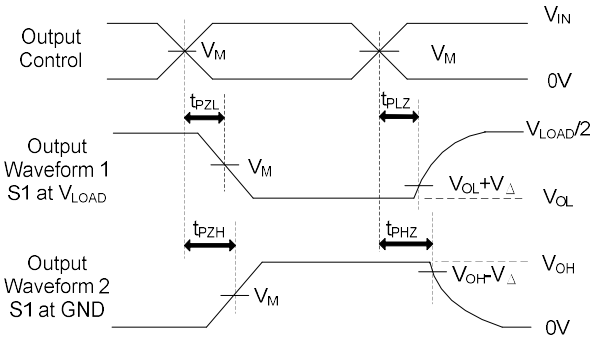
PULSE DURATION



SETUP AND HOLD TIMES



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Notes: 1. C_L includes probe and jig capacitance.
2. All input pulses are supplied by generators having the following characteristics: PRR ≤10MHz, Z_O = 50Ω.