

**U74LVC2G17B****CMOS IC****DUAL SCHMITT-TRIGGER
BUFFER****DESCRIPTION**

The UTC **U74LVC2G17B** is a high-performance, low-power, low-voltage, Si-gate CMOS device which provides two independent buffers with Schmitt trigger action. It is capable of transforming slowly changed input signals into sharply defined, jitter-free output signals.

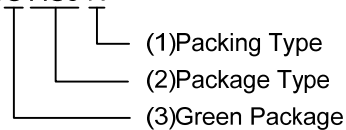
FEATURES

- * Operate From 1.65V to 5.5V
- * 5V tolerant input/output for interfacing with 5V logic
- * $\pm 24\text{mA}$ output drive ($V_{CC}=3.3\text{V}$)
- * CMOS low-power consumption and high noise immunity
- * I_{OFF} Supports Partial-Power-Down Mode Operation
- * Latch-up performance exceeds 100mA
- * Specified from -40°C to $+125^{\circ}\text{C}$

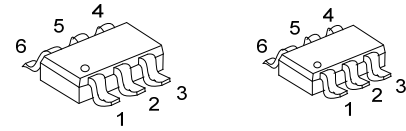
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC2G17BL-AG6-R	U74LVC2G17BG-AG6-R	SOT-26	Tape Reel
U74LVC2G17BL-AL6-R	U74LVC2G17BG-AL6-R	SOT-363	Tape Reel
U74LVC2G17BL-KAP-R	U74LVC2G17BG-KAP-R	X1DFN14510-6	Tape Reel
U74LVC2G17BL-K06-1010X2-R	U74LVC2G17BG-K06-1010X2-R	X2DFN1010-6	Tape Reel

U74LVC2G17BG-AG6-R



- (1) R: Tape Reel
(2) AG6: SOT-26, AL6: SOT-363,
KAP: X1DFN14510-6, K06-1010X2: X2DFN1010-6
(3) G: Halogen Free and Lead Free, L: Lead Free



SOT-26

SOT-363

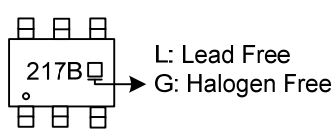
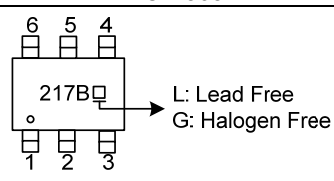
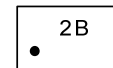
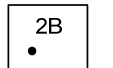


X1DFN14510-6

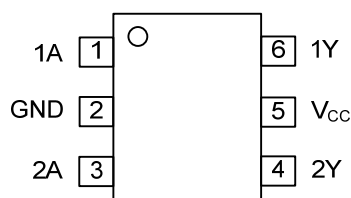


X2DFN1010-6

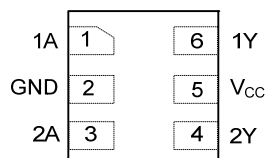
MARKING

SOT-26	SOT-363
	
X1DFN14510-6	X2DFN1010-6
	

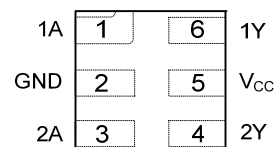
PIN CONFIGURATION



SOT-26 / SOT-363



X1DFN14510-6
(TOP VIEW)



X2DFN1010-6
(TOP VIEW)

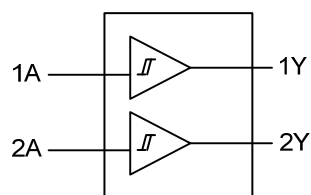
FUNCTION TABLE

INPUT(A)	OUTPUT(Y)
L	L
H	H

H=High Level

L=Low Level

LOGIC SYMBOL



■ ABSOLUTE MAXIMUM RATING (Unless otherwise specified) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ 6.5	V
Input Voltage (Note 2)	V_{IN}		-0.5 ~ 6.5	V
Output Voltage (Note 2,3)	V_{OUT}	Power-off state	-0.5 ~ 6.5	V
		High or low state	-0.5 ~ $V_{CC}+0.5$	V
Input Clamp Current	I_{IK}	$V_{IN}<0$	-50	mA
Output Clamp Current	I_{OK}	$V_{OUT}<0$	-50	mA
Output Current	I_{OUT}		±50	mA
V_{CC} or GND Current	I_{CC}		±100	mA
Junction Temperature	T_J		+150	°C
Storage Temperature	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 negative-voltage and output voltage ratings may be exceeded if the input and output current ratings are observed.

3. The value of V_{CC} is provided in the recommended operating conditions table.

■ RECOMMENDED OPERATING CONDITIONS (Unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	1.65		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V
Operating Temperature	T_A		-40		+125	°C

Note: All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

■ ELECTRICAL CHARACTERISTICS (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^{\circ}\text{C}$			$T_A=-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V_{T+}	$V_{CC}=1.65\text{V}$	0.7		1.5	0.7		1.7	V
		$V_{CC}=2.3\text{V}$	1.0		1.8	1.0		1.8	V
		$V_{CC}=3.0\text{V}$	1.3		2.2	1.3		2.4	V
		$V_{CC}=4.5\text{V}$	1.9		3.1	1.9		3.3	V
		$V_{CC}=5.5\text{V}$	2.2		3.7	2.2		3.8	V
Low-Level Input Voltage	V_{T-}	$V_{CC}=1.65\text{V}$	0.25		0.9	0.25		1.1	V
		$V_{CC}=2.3\text{V}$	0.4		1.15	0.4		1.35	V
		$V_{CC}=3.0\text{V}$	0.6		1.5	0.6		1.7	V
		$V_{CC}=4.5\text{V}$	1.0		2.0	1.0		2.2	V
		$V_{CC}=5.5\text{V}$	1.2		2.5	1.2		2.5	V
Hysteresis Voltage	ΔV_T	$V_{CC}=1.65\text{V}$	0.15		1.0	0.15		1.2	V
		$V_{CC}=2.3\text{V}$	0.25		1.1	0.25		1.3	V
		$V_{CC}=3.0\text{V}$	0.4		1.2	0.4		1.4	V
		$V_{CC}=4.5\text{V}$	0.6		1.5	0.6		1.7	V
		$V_{CC}=5.5\text{V}$	0.7		1.7	0.7		1.9	V
High-Level Output Voltage	V_{OH}	$V_{CC}=1.65\text{V}\sim 5.5\text{V}$, $I_{OH}=-100\mu\text{A}$	V_{CC} -0.1			V_{CC} -0.1			V
		$V_{CC}=1.65\text{V}$, $I_{OH}=-4\text{mA}$	1.2			0.95			V
		$V_{CC}=2.3\text{V}$, $I_{OH}=-8\text{mA}$	1.9			1.7			V
		$V_{CC}=3.0\text{V}$, $I_{OH}=-16\text{mA}$	2.2			1.9			V
		$V_{CC}=3.0\text{V}$, $I_{OH}=-24\text{mA}$	2.3			2.0			V
		$V_{CC}=4.5\text{V}$, $I_{OH}=-32\text{mA}$	3.8			3.4			V

■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65V~5.5V, I _{OL} =100μA			0.1			0.1	V
		V _{CC} =1.65V, I _{OL} =4mA			0.45			0.7	V
		V _{CC} =2.3V, I _{OL} =8mA			0.3			0.45	V
		V _{CC} =3.0V, I _{OL} =16mA			0.4			0.6	V
		V _{CC} =3.0V, I _{OL} =24mA			0.55			0.8	V
		V _{CC} =4.5V, I _{OL} =32mA			0.55			0.8	V
Input Leakage Current	I _{I(LEAK)}	V _{IN} =0 to 5.5V, V _{CC} =0~5.5V			±5			±10	μA
Power OFF Leakage Current	I _{OFF}	V _{IN} or V _{OUT} =5.5V, V _{CC} =0			±10			±10	μA
Quiescent Supply Current	I _{CC}	V _{IN} =V _{CC} or GND, I _{OUT} =0 V _{CC} =1.65V~5.5V			10			10	μA
Additional Quiescent Supply Current	ΔI _{CC}	One input at V _{CC} -0.6V Other inputs at V _{CC} or GND, I _{OUT} =0, V _{CC} =3V~5.5V			500			500	μA

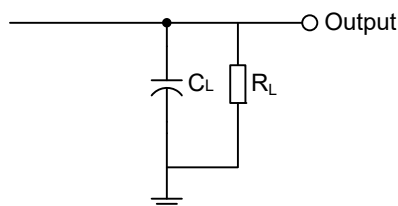
■ SWITCHING CHARACTERISTICS (see TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation delay nA to nY	t _{PLH} t _{PHL}	V _{CC} =1.8V±0.15V, C _L =30pF, R _L =1KΩ	1		13.3	1		15.1	ns
		V _{CC} =2.5V±0.2V, C _L =30pF, R _L =500Ω	1		10.7	1		11.5	ns
		V _{CC} =3.3V±0.3V, C _L =50pF, R _L =500Ω	1		7.4	1		9.1	ns
		V _{CC} =5V±0.5V, C _L =50pF, R _L =500Ω	1		6.3	1		8.4	ns

■ OPERATING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _I	V _{IN} =V _{CC} or GND, V _{CC} =3.3V		4		pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V, f=10MHz		21		pF

■ TEST CIRCUITS AND WAVEFORMS

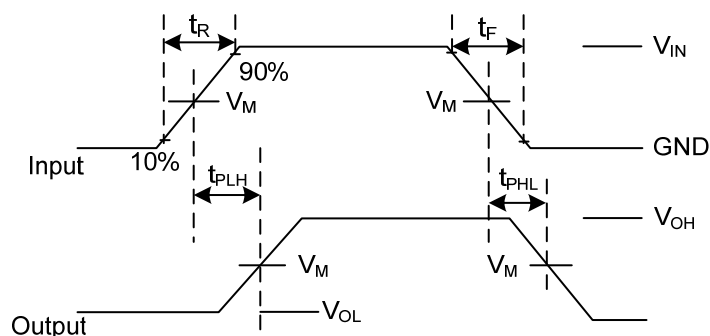


V_{CC}	V_{IN}	t_R, t_F	V_M	C_L	R_L
1.65V~1.95V	V_{CC}	$\leq 2\text{ns}$	$V_{CC}/2$	30pF	1k Ω
2.3V~2.7V	V_{CC}	$\leq 2\text{ns}$	$V_{CC}/2$	30pF	500 Ω
3.0V~3.6V	3V	$\leq 2.5\text{ns}$	1.5V	50pF	500 Ω
4.5V~5.5V	V_{CC}	$\leq 2.5\text{ns}$	$V_{CC}/2$	50pF	500 Ω

Definitions for test circuit:

R_L = Load resistance.

C_L = Load capacitance including jig and probe capacitance.



Notes: 1. V_{OL} and V_{OH} are typical output drop that occur with the output load.

2. t_{PLH} and t_{PHL} are the same as t_{PD} .

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