General Description

The 74LVC1G08 provides one 2-input AND function.
Inputs can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V applications.
Schmitt trigger action at all inputs makes the circuit tolerant of slower input rise and fall time.
This device is fully specified for partial power-down applications using I_{OFF}.
The I_{OFF} circuitry disables the output, preventing the damaging backflow current through the device when it is powered down.

Features

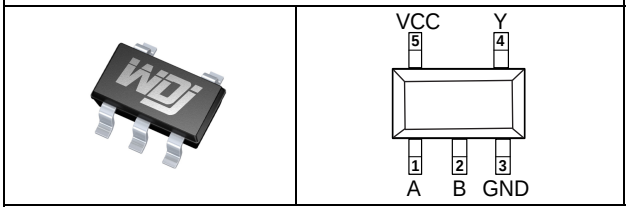
- Low input current.
- Low static power consumption.Icc=0.1uA.
- High output drive.VCC=4.5V.
- Wide operating voltage range.1.65V-5.5V
- Packaging form:DBV/DCK

Applications

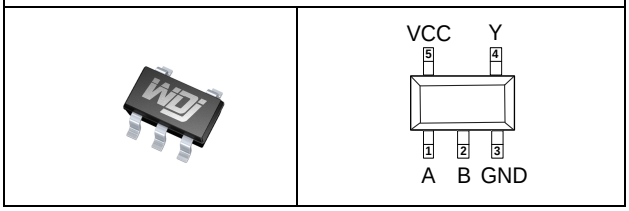
- Portable audio interface
- Blu-ray players and home theaters
- Solid state drives
- Digital TV
- Wireless headphones, smart watches, etc
- Smart wearable Devices

Pinning and Package

SOT23-5



SOT353



Pin Functions

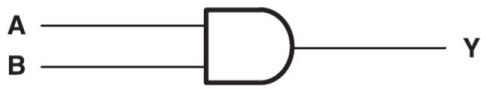
Symbol	Pin		Description
	SOT23-5	SOT353	
A	1	1	data input
B	2	2	data input
GND	3	3	ground
Y	4	4	data output
V_{CC}	5	5	supply voltage

Absolute Maximum Ratings

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5~6.5	V
Input Voltage	V_{IN}		-0.5~6.5	V
Output Voltage	V_{OUT}	Output in the high or low state	-0.5~V_{CC}+0.5	V
		Output in the power-off state	-0.5~6.5	V
Continuous V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}		±50	mA
Input Clamp Current	I_{IK}	V_{IN}		
Output Clamp Current	I_{OK}	V_{OUT}		
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 and output voltage ratings may be exceeded if the input and output current ratings are observed.

Functional Block Diagram



Device Functional Modes

INPUT		OUTPUT
A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

Recommended Operating Conditions

			MIN	MAX	UNIT
V_{CC}	Supply voltage	Operating	1.65	5.5	V
		Data retention only	1.5		
V_{IH}	High-level input voltage	V_{CC} = 1.65 V to 1.95 V	0.65 × V_{CC}		V
		V_{CC} = 2.3 V to 2.7 V	1.7		
		V_{CC} = 3 V to 3.6 V	2		
		V_{CC} = 4.5 V to 5.5 V	0.7 × V_{CC}		
V_{IL}	Low-level input voltage	V_{CC} = 1.65 V to 1.95 V		0.35 × V_{CC}	V
		V_{CC} = 2.3 V to 2.7 V		0.7	
		V_{CC} = 3 V to 3.6 V		0.8	
		V_{CC} = 4.5 V to 5.5 V		0.3 × V_{CC}	
V_I	Input voltage		0	5.5	V
V_O	Output voltage		0	V_{CC}	V
I_{OH}	High-level output current	V_{CC} = 1.65 V		–4	mA
		V_{CC} = 2.3 V		–8	
		V_{CC} = 3 V		–16	
				–24	
		V_{CC} = 4.5 V		–32	
I_{OL}	Low-level output current	V_{CC} = 1.65 V		4	mA
		V_{CC} = 2.3 V		8	
		V_{CC} = 3 V		16	
				24	
		V_{CC} = 4.5 V		32	

Electrical Characteristics

over recommended operating free-air temperature range (unless otherwise noted)

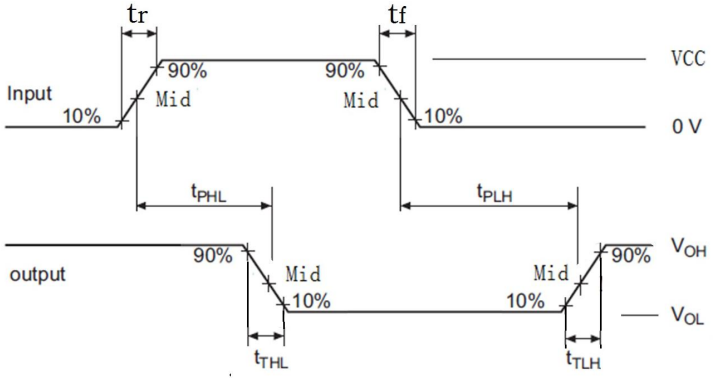
	PARAMETER		TEST CONDITIONS	Vcc	TYP	MAX	UNIT
HIGH-level output voltage	V_{OH}		I_{OH} =-100uA	1.65V~5.5V	1.64	-	V
			I_{OH} =-4 mA	1.65V	1.47	-	
			I_{OH} =-8 mA	2.3V	2.15	-	
			I_{OH} =-16 mA	3V	2.73	-	
			I_{OH} =-32 mA	4.5V	4.0		
LOW-level output voltage	V_{OL}		I_{OH} =100uA	1.65V~5.5V	0.01	-	V
			I_{OH} =4 mA	1.65V	0.11	-	
			I_{OH} =8 mA	2.3V	0.11	-	
			I_{OH} =16 mA	3V	0.2	-	
			I_{OH} =32 mA	4.5V	0.35	-	
input leakage current	I_I	A	V_I =5.5V or GND	0~5.5V	0.01	±5	uA
		B			0.01	±5	
power-off leakage current	I_{OFF}	V_I	V_I =5.5V	0	0.01	±10	uA
		V_O	V_O =5.5V	0	0.01	±10	
supply current	I_{CC}		V_I =5.5V, I_O =0	1.65V~5.5V	0.01	10	uA
			V_I =GND , I_O =0		0.01	10	
additional supply current	ΔI_{CC}		A=V_{CC} -0.6V	3V~5.5V	25	-	uA
			B=V_{CC} or GND				
			B=V_{CC} -0.6V A= V_{CC} or GND		25	-	uA

(1) All typical values are at V_{CC} = 3.3 V, T_A = 25°C.

Switching Characteristics

Ta=25℃ V_{CC}=5.0V, $t_r = t_f \leq 20ns$ Refer to test method

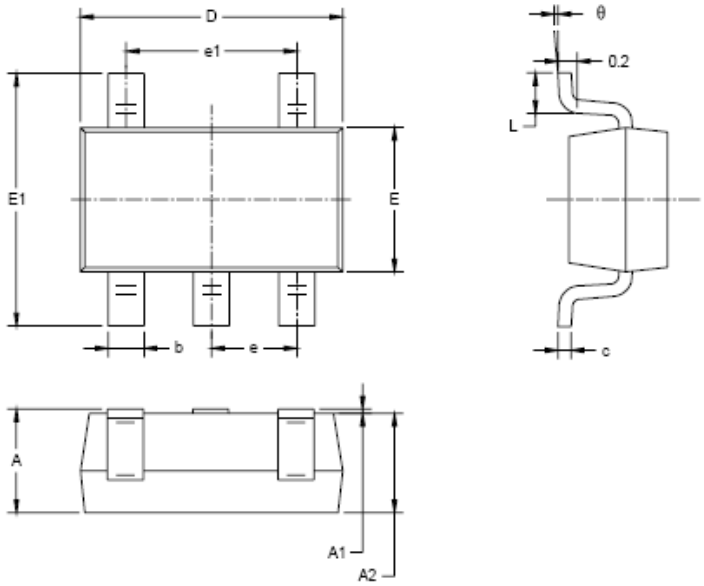
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
A、B to Y propagation delay	t_{PHL}	C_L=15pF	-	10	-	ns
	t_{PLH}	C_L=15pF	-	10	-	ns



Note: 1. The CL capacitor is an external patch capacitor (0603), which is connected close to the output pin, and the capacitance is close to the input level of the chip GND2 and Input: port, f=500kHz, D=50%; tr=tf≤20ns; 3. Output: Y-terminal output test.

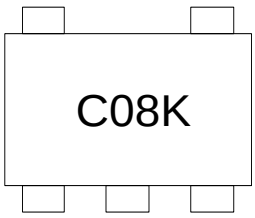
Package Outline

DBV(SOT23-5)

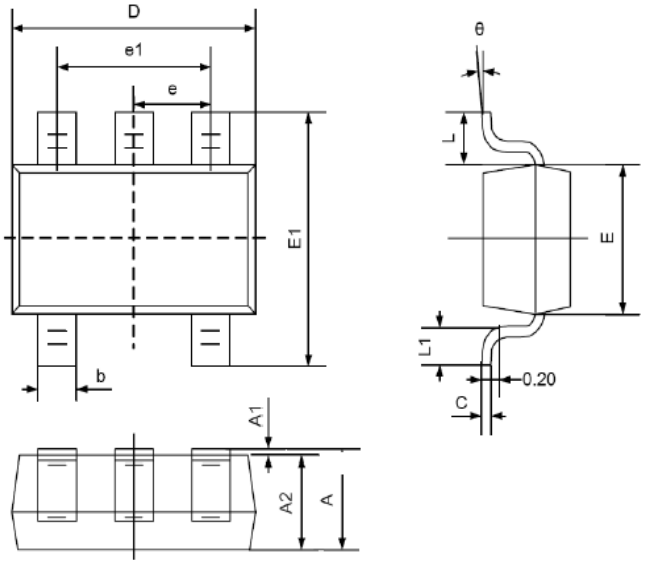


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Marking



DCK(SC70-5)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
C	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Marking