

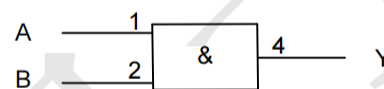
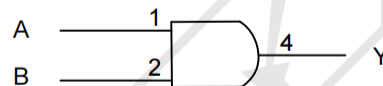
DESCRIPTION

The MC74VHC1G08 is a high-speed si-gate CMOS device which provides the 2-input AND function.

FEATURES

- * Operation Voltage Range: 2 ~ 5.5V
- * Low Power Current: $I_{CC}=40\mu A$ (Max.)
- * High speed: $t_{PD}=4.8ns$ (Typ.) @ $V_{CC}=5V$

LOGIC DIAGRAM

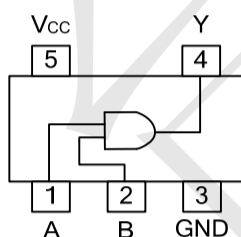


IEC logic symbol

Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
MC74VHC1G08DTT1G-TP	SOT23-5	Tape and Reel,3000
MC74VHC1G08DFT1G-TP	SOT353	Tape and Reel,3000

PIN CONFIGURATION



SOT23-5/
SOT353

FUNCTION TABLE

INPUTS		OUTPUT
A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	-0.5~7	V
Input Voltage	V _{IN}	-0.5~7	V
Output Voltage	V _{OUT}	-0.5~V _{CC} +0.5	V
Input Clamp Current	I _{IK}	-20	mA
Output Clamp Current	I _{OK}	±20	mA
Output Current	I _{OUT}	±25	mA
V _{CC} or GND Current	I _{CC}	±50	mA
Power Dissipation	P _D	250	mW
Storage Temperature	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	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}		2		5.5	V
Input Voltage	V _{IN}		0		5.5	V
Output Voltage	V _{OUT}		0		V _{CC}	V
Input Transition Rise or Fall Times	t _R , t _F	V _{CC} =3.3V±0.3V			100	ns/V
		V _{CC} =5.0V±0.5V			20	
Operating Temperature	T _{OPR}		-40		125	°C

STATIC CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V _{IH}	V _{CC} =2.0V	1.5			1.5			V
		V _{CC} =3.0V	2.1			2.1			V
		V _{CC} =5.5V	3.85			3.85			V
Low-Level Input Voltage	V _{IL}	V _{CC} =2.0V			0.5			0.5	V
		V _{CC} =3.0V			0.9			0.9	V
		V _{CC} =5.5V			1.65			1.65	V
High-Level Output Voltage	V _{OH}	V _{CC} =2.0V, I _{OH} =-50μA	1.9	2.0		1.9			V
		V _{CC} =3.0V, I _{OH} =-50μA	2.9	3.0		2.9			V
		V _{CC} =4.5V, I _{OH} =-50μA	4.4	4.5		4.4			V
		V _{CC} =3.0V, I _{OH} =-4mA	2.58			2.4			V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94			3.7			V
Low-Level Output Voltage	V _{OL}	V _{CC} =2.0V, I _{OL} =50μA			0.1			0.1	V
		V _{CC} =3.0V, I _{OL} =50μA			0.1			0.1	V
		V _{CC} =4.5V, I _{OL} =50μA			0.1			0.1	V
		V _{CC} =3.0V, I _{OL} =4mA			0.36			0.55	V
		V _{CC} =4.5V, I _{OL} =8mA			0.36			0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0~5.5V, V _{IN} =V _{CC} or GND			±0.1			±2	μA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0			1			40	μA

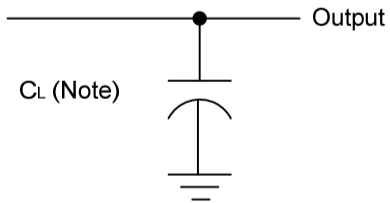
DYNAMIC CHARACTERISTICS (Input: t_r, t_f≤3ns; P_{RR}≤1MHz)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation delay time Input (A or B) to output(Y)	t _{PLH}	V _{CC} =3.3V±0.3V, C _L =15pF		6.7	9.8	1		12	ns
	t _{PHL}			6.7	9.8	1		12	ns
	t _{PLH}	V _{CC} =3.3V±0.3V, C _L =50pF		9.2	13.3	1		16	ns
	t _{PHL}			9.2	13.3	1		16	ns
Propagation delay time Input (A or B) to output(Y)	t _{PLH}	V _{CC} =5V±0.5V, C _L =15pF		4.8	6.9	1		8	ns
	t _{PHL}			4.8	6.9	1		8	ns
	t _{PLH}	V _{CC} =5V±0.5V, C _L =50pF		6.3	8.9	1		10.5	ns
	t _{PHL}			6.3	8.9	1		10.5	ns

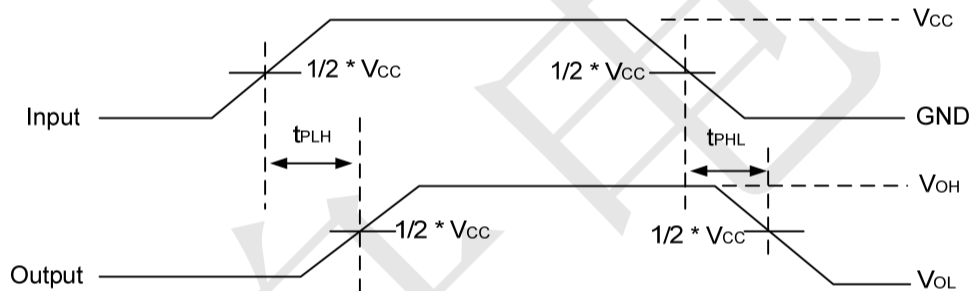
OPERATING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}	V _{CC} =5V, V _{IN} =V _{CC} or GND		4	10	pF
Power Dissipation Capacitance	C _{PD}	No load, V _{CC} =5V, f=1MHz		18		pF

TEST CIRCUIT AND WAVEFORMS

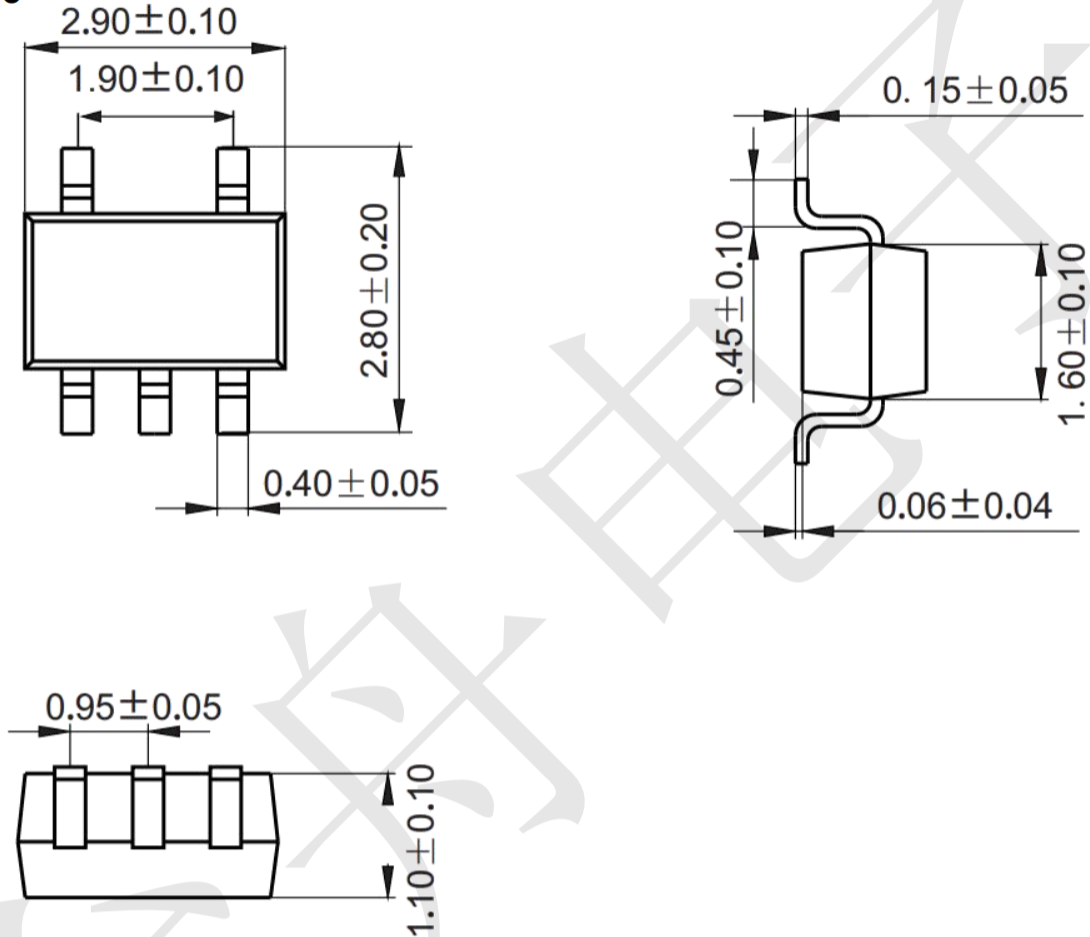


Note: C_L includes probe and jig capacitance.

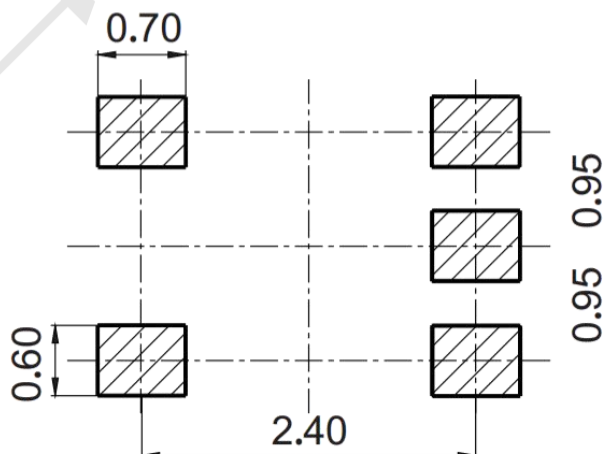


Package information (Unit: mm)

SOT23-5

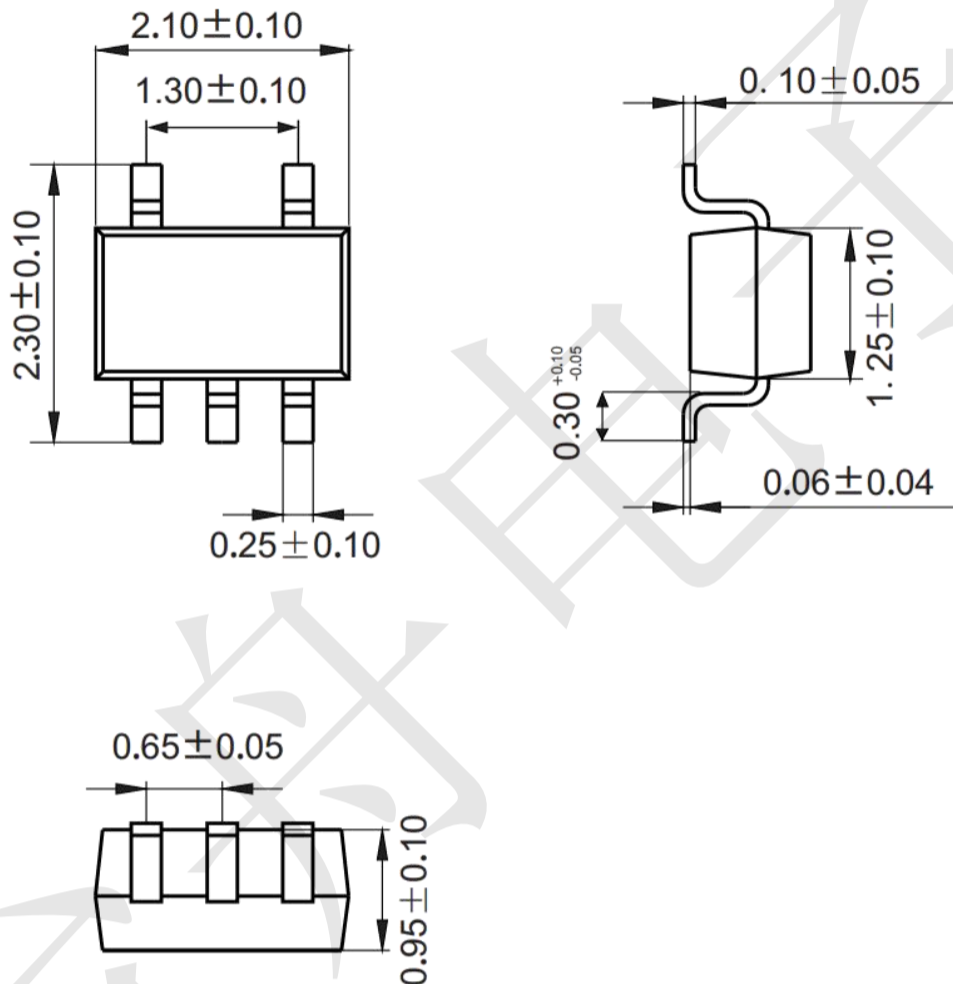


Mounting Pad Layout (Unit: mm)



Package information (Unit: mm)

SOT353



Mounting Pad Layout (Unit: mm)

