

GENERAL DESCRIPTION

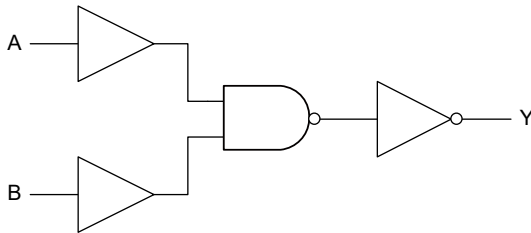
The 74AHC08Q is a quad 2-input AND gate with high-speed CMOS inputs. It has a wide supply voltage range from 2.0V to 5.5V. The over-voltage tolerant inputs are up to 5.5V. Due to this feature, the device can be used as a translator in mixed voltage environment.

This device is AEC-Q100 qualified (Automotive Electronics Council Standard Q100 Grade 1) and the use of this device is suitable for automotive applications.

FEATURES

- **AEC-Q100 Qualified for Automotive Applications**
Device Temperature Grade 1
 $T_A = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
- **Supply Voltage Range: 2.0V to 5.5V**
- **Over-Voltage Tolerant Inputs up to 5.5V**
- **CMOS Low Power Dissipation**
- **Balanced Propagation Delays**
- **All Inputs with Schmitt-Trigger Action**
- **-40°C to $+125^{\circ}\text{C}$ Operating Temperature Range**
- **Available in a Green TSSOP-14 Package**

LOGIC DIAGRAM



FUNCTION TABLE

INPUT		OUTPUT
nA	nB	nY
H	H	H
L	X	L
X	L	L

$$Y = A \cdot B \text{ or } Y = \overline{\overline{A} + \overline{B}}$$

H = High Voltage Level

L = Low Voltage Level

X = Don't Care

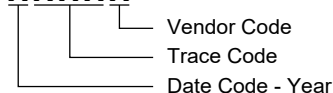
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE TOP MARKING	PACKING OPTION
74AHC08Q	TSSOP-14	-40°C to +125°C	74AHC08QTS14G/TR	04C TS14 XXXXX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

XXXXX



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS ⁽¹⁾

Supply Voltage, V_{CC}	-0.5V to 7.0V
Input Voltage, V_I ⁽²⁾	-0.5V to 7.0V
Output Voltage, V_O ⁽²⁾	-0.5V to MIN (7.0V, $V_{CC} + 0.5V$)
Input Clamp Current, I_{IK} ($V_I < -0.5V$).....	-20mA
Output Clamp Current, I_{OK} ($V_O < -0.5V$ or $V_O > V_{CC} + 0.5V$).....	$\pm 20mA$
Output Current, I_O ($V_O = -0.5V$ to $V_{CC} + 0.5V$).....	$\pm 25mA$
Supply Current, I_{CC}	75mA
Ground Current, I_{GND}	-75mA
Junction Temperature ⁽³⁾	+150°C
Storage Temperature Range.....	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	4000V
CDM.....	1000V

RECOMMENDED OPERATING CONDITIONS

Supply Voltage Range, V_{CC}	2.0V to 5.5V
Input Voltage Range, V_I	0V to 5.5V
Output Voltage Range, V_O	0V to V_{CC}
Input Transition Rise and Fall Rate, $\Delta t/\Delta V$	
$V_{CC} = 3.3V \pm 0.3V$	100ns/V (MAX)
$V_{CC} = 5.0V \pm 0.5V$	20ns/V (MAX)
Operating Temperature Range.....	-40°C to +125°C

OVERSTRESS CAUTION

1. Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.
2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
3. The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

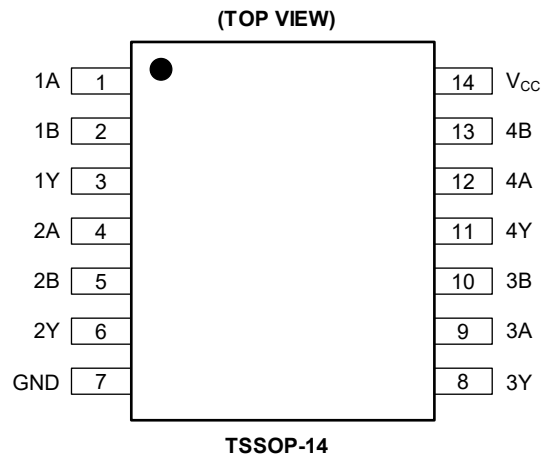
ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

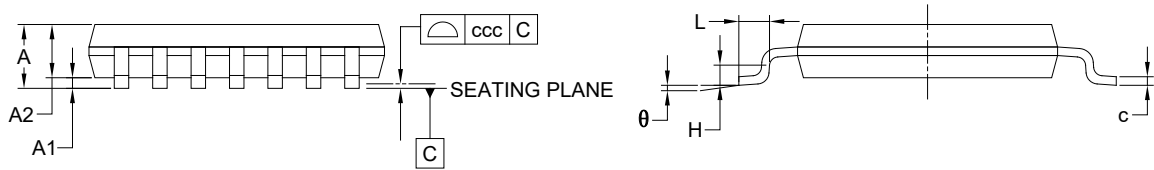
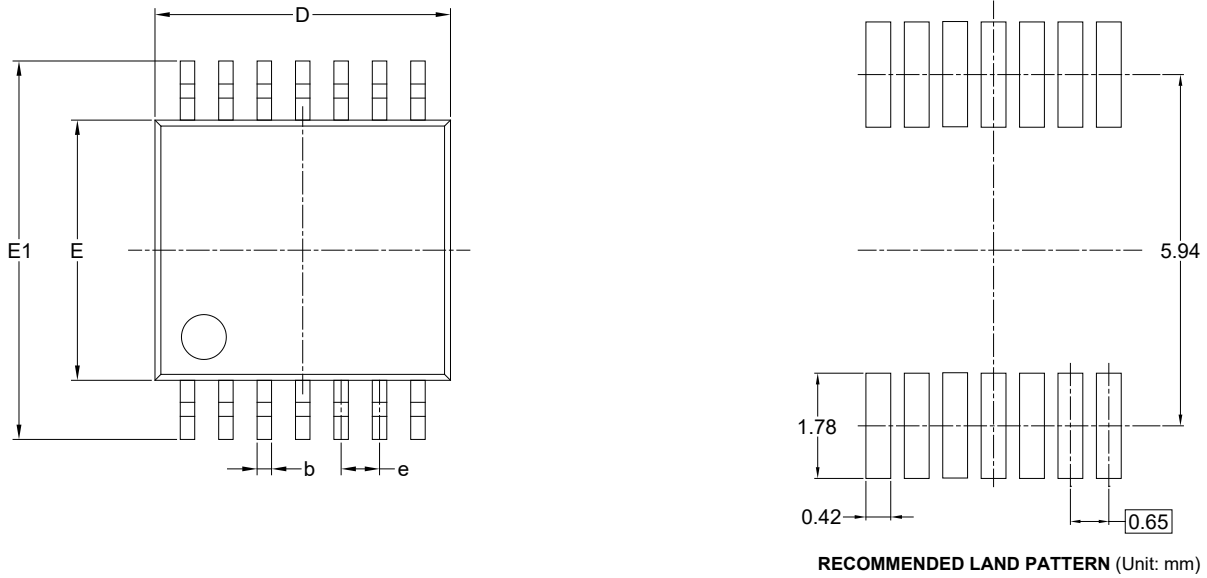


PIN DESCRIPTION

PIN	NAME	FUNCTION
1, 4, 9, 12	1A, 2A, 3A, 4A	Data Inputs.
2, 5, 10, 13	1B, 2B, 3B, 4B	Data Inputs.
3, 6, 8, 11	1Y, 2Y, 3Y, 4Y	Data Outputs.
7	GND	Ground.
14	V _{CC}	Supply Voltage.

PACKAGE OUTLINE DIMENSIONS

TSSOP-14



Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	4.860	-	5.100
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MO-153.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
TSSOP-14	13"	12.4	6.80	5.40	1.50	4.0	8.0	2.0	12.0	Q1

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PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

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