# 74AHC08Q
# Quad 2-Input AND Gate

## GENERAL DESCRIPTION

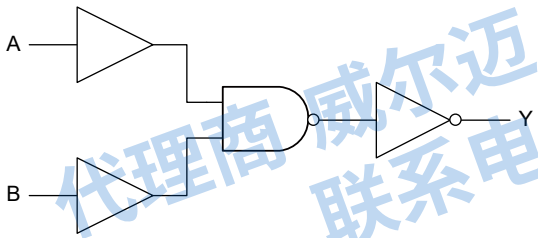
The 74AHC08Q is a quad 2-input AND gate with high-speed CMOS inputs. It has a wide supply voltage range from 2.0V to 5.5V. The over-voltage tolerant inputs are up to 5.5V. Due to this feature, the device can be used as a translator in mixed voltage environment.

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℃ to +125℃**
- **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℃ to +125℃ 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 |

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

H = High Voltage Level

L = Low Voltage Level

*X* = Don't Care

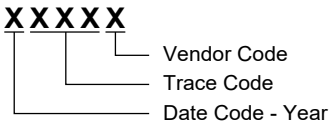
代理商 威尔迈 www.visvie.com
联系电话 138 2526 5270

# PACKAGE/ORDERING INFORMATION

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

## MARKING INFORMATION

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




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)
.....±20mA
Output Current, $I_O$ ($V_O$ = -0.5V to $V_{CC}$ + 0.5V) .....±25mA
Supply Current, $I_{CC}$ .....75mA
Ground Current, $I_{GND}$.....-75mA
Junction Temperature (3) .....+150℃
Storage Temperature Range .....-65℃ to +150℃
Lead Temperature (Soldering, 10s).....+260℃
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, Δt/ΔV
$V_{CC}$ = 3.3V ± 0.3V ..... 100ns/V (MAX)
$V_{CC}$ = 5.0V ± 0.5V .....20ns/V (MAX)
Operating Temperature Range .....-40℃ to +125℃

## 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.

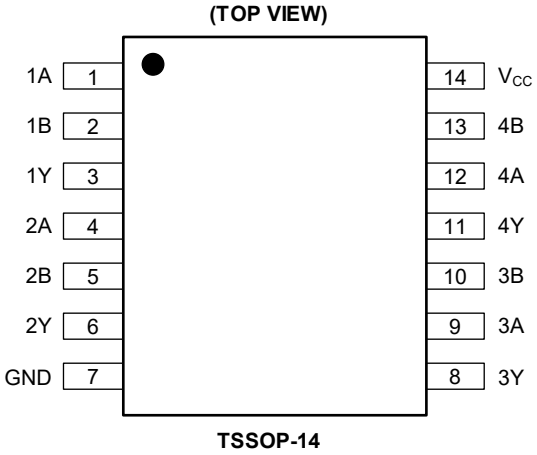
## ESD SENSITIVITY CAUTION

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

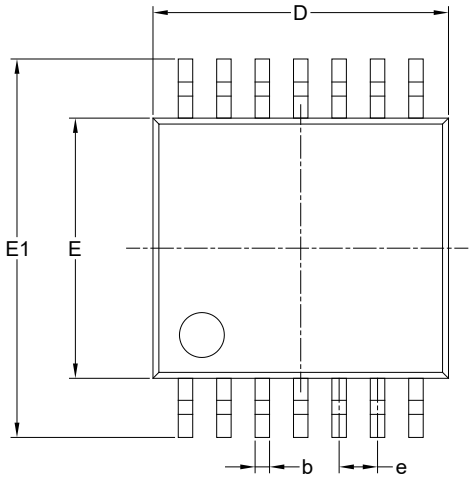


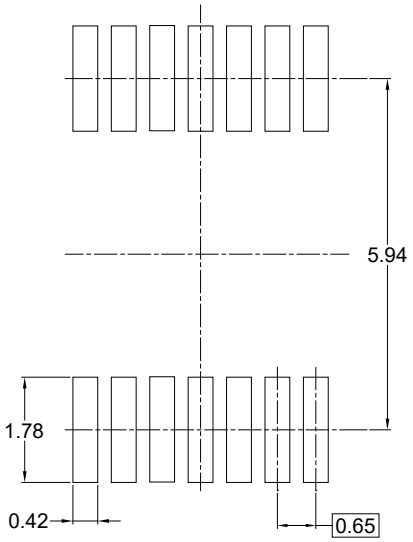

## PIN DESCRIPTION

| 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. |

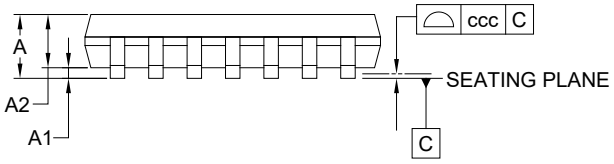
# PACKAGE OUTLINE DIMENSIONS

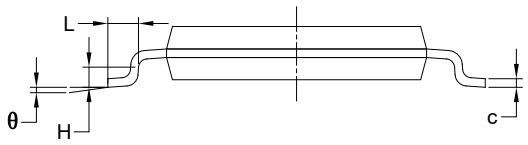
## TSSOP-14




**RECOMMENDED LAND PATTERN** (Unit: mm)



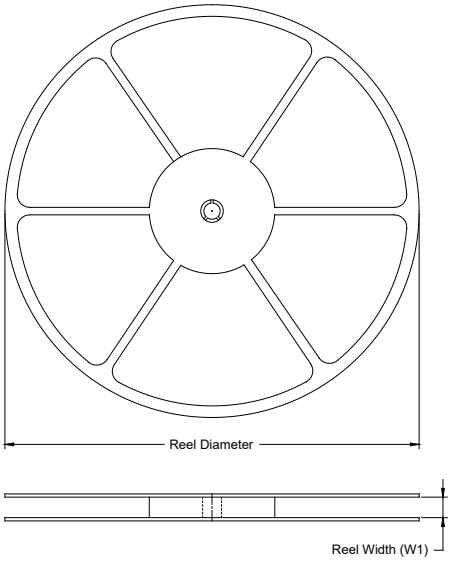




| Symbol | Dimensions In Millimeters | | |
|---|---|---|---|
| | MIN | MOD | MAX |
| A | - | - | 1.200 |
| A1 | 0.050 | - | 0.150 |
| A2 | 0.800 | - | 1.050 |
| b | 0.190 | - | 0.300 |
| c | 0.090 | - | 0.200 |
| D | 4.860 | - | 5.100 |
| E | 4.300 | - | 4.500 |
| E1 | 6.200 | - | 6.600 |
| e | 0.650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

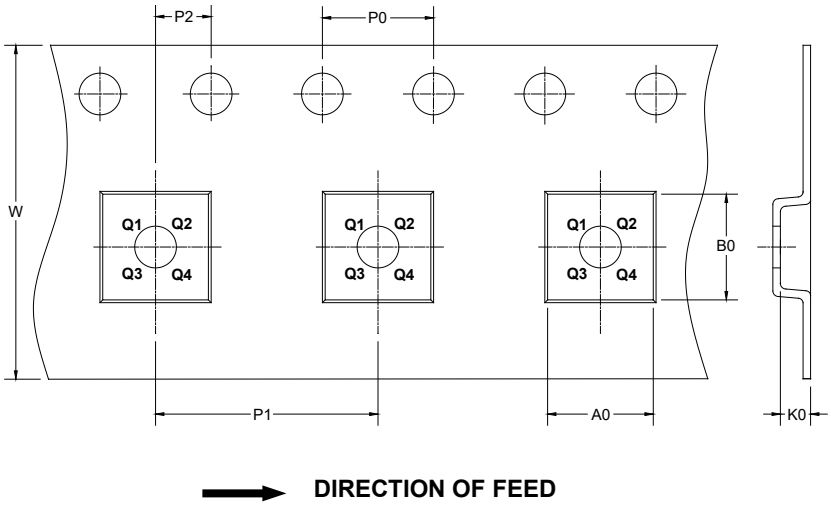
NOTES:
1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MO-153.

# TAPE AND REEL INFORMATION

### REEL DIMENSIONS




### TAPE DIMENSIONS




DIRECTION OF FEED

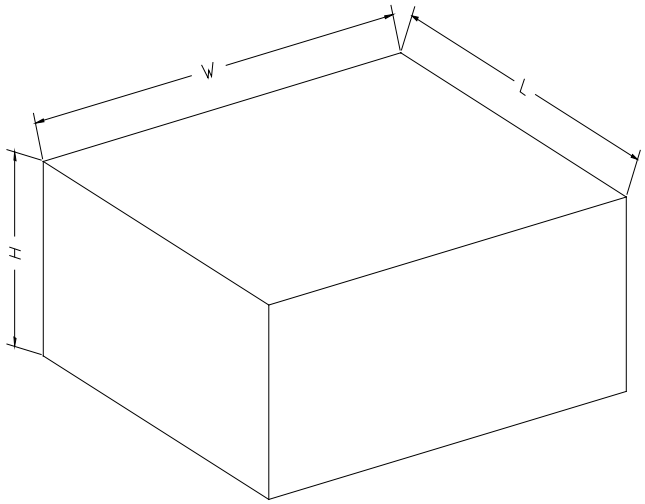
NOTE: The picture is only for reference. Please make the object as the standard.

## 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 |

DD0001

## 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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