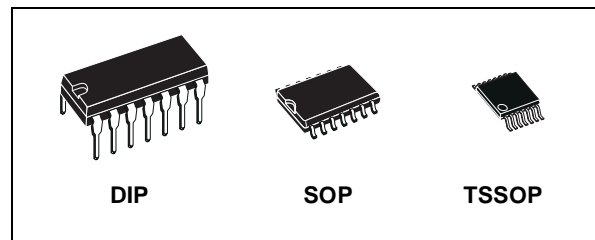


QUAD EXCLUSIVE NOR GATE

- HIGH SPEED:
 $t_{PD} = 9\text{ns}$ (TYP.) at $V_{CC} = 6\text{V}$
- LOW POWER DISSIPATION:
 $I_{CC} = 1\mu\text{A}$ (MAX.) at $T_A = 25^\circ\text{C}$
- HIGH NOISE IMMUNITY:
 $V_{NIH} = V_{NIL} = 28\% V_{CC}$ (MIN.)
- SYMMETRICAL OUTPUT IMPEDANCE:
 $|I_{OH}| = I_{OL} = 4\text{mA}$ (MIN)
- BALANCED PROPAGATION DELAYS:
 $t_{PLH} \approx t_{PHL}$
- WIDE OPERATING VOLTAGE RANGE:
 V_{CC} (OPR) = 2V to 6V
- PIN AND FUNCTION COMPATIBLE WITH
 74 SERIES 7266



ORDER CODES

| PACKAGE | TUBE | T & R |
|---------|--------------|-----------------|
| DIP | M74HC7266B1R | |
| SOP | M74HC7266M1R | M74HC7266RM13TR |
| TSSOP | | M74HC7266TTR |

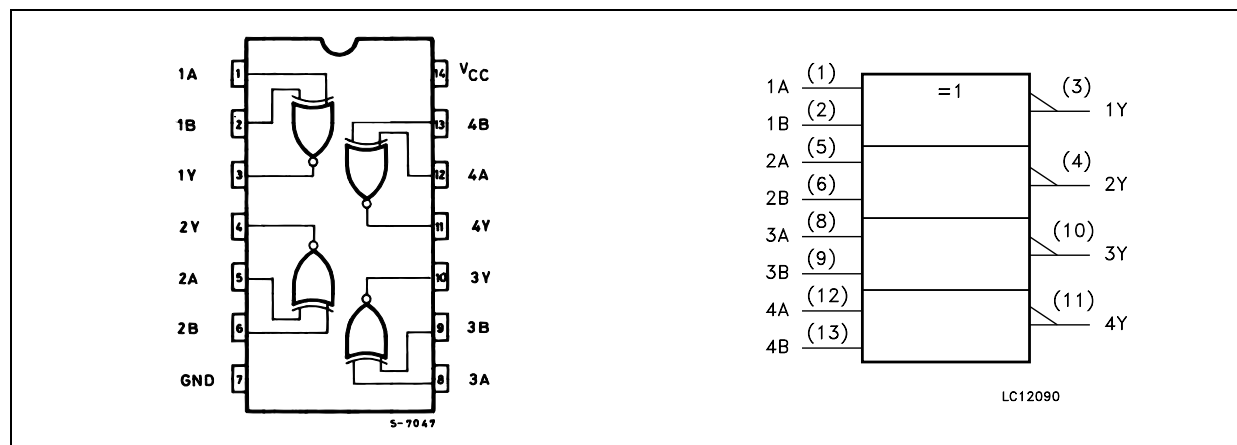
DESCRIPTION

The M74HC7266 is an high speed CMOS QUAD EXCLUSIVE OR GATE fabricated with silicon gate C²MOS technology
 The M74HC7266 has an output buffer which is CMOS structure.

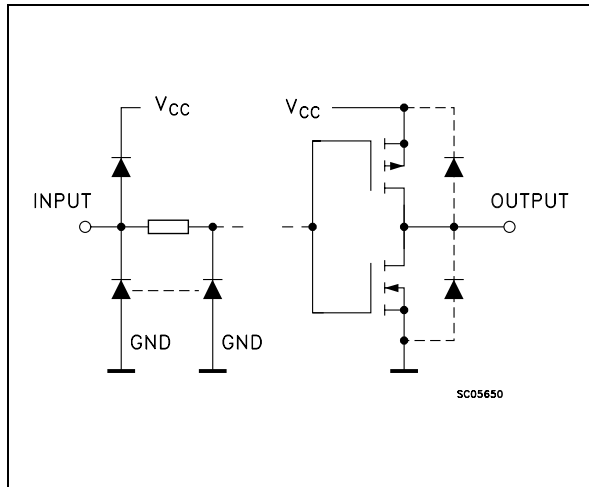
Input and Output ensure high noise immunity and stable outputs.

All inputs are equipped with protection circuits against static discharge and transient excess voltage.

PIN CONNECTION AND IEC LOGIC SYMBOLS



INPUT AND OUTPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

| PIN No | SYMBOL | NAME AND FUNCTION |
|--------------|-----------------|-------------------------|
| 1, 5, 8, 12 | 1A to 4A | Data Inputs |
| 2, 6, 9, 13 | 1B to 4B | Data Inputs |
| 3, 4, 10, 11 | 1Y to 4Y | Data Outputs |
| 7 | GND | Ground (0V) |
| 14 | V _{CC} | Positive Supply Voltage |

TRUTH TABLE

| A | B | Y |
|---|---|---|
| L | L | H |
| L | H | L |
| H | L | L |
| H | H | H |

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-------------------------------------|--------------------------------------|-------------------------------|------|
| V _{CC} | Supply Voltage | -0.5 to +7 | V |
| V _I | DC Input Voltage | -0.5 to V _{CC} + 0.5 | V |
| V _O | DC Output Voltage | -0.5 to V _{CC} + 0.5 | V |
| I _{IK} | DC Input Diode Current | ± 20 | mA |
| I _{OK} | DC Output Diode Current | ± 20 | mA |
| I _O | DC Output Current | ± 25 | mA |
| I _{CC} or I _{GND} | DC V _{CC} or Ground Current | ± 50 | mA |
| P _D | Power Dissipation | 500(*) | mW |
| T _{stg} | Storage Temperature | -65 to +150 | °C |
| T _L | Lead Temperature (10 sec) | 300 | °C |

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied
 (*) 500mW at 65 °C; derate to 300mW by 10mW/°C from 65°C to 85°C

RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Value | Unit | |
|---------------------------------|--------------------------|------------------------|-----------|----|
| V _{CC} | Supply Voltage | 2 to 6 | V | |
| V _I | Input Voltage | 0 to V _{CC} | V | |
| V _O | Output Voltage | 0 to V _{CC} | V | |
| T _{op} | Operating Temperature | -55 to 125 | °C | |
| t _r , t _f | Input Rise and Fall Time | V _{CC} = 2.0V | 0 to 1000 | ns |
| | | V _{CC} = 4.5V | 0 to 500 | ns |
| | | V _{CC} = 6.0V | 0 to 400 | ns |

DC SPECIFICATIONS

| Symbol | Parameter | Test Condition | | Value | | | | | | Unit | |
|-----------------|---------------------------|------------------------|---|-----------------------|------|-------|-------------|------|--------------|------|------|
| | | V _{CC} (V) | | T _A = 25°C | | | -40 to 85°C | | -55 to 125°C | | |
| | | | | Min. | Typ. | Max. | Min. | Max. | Min. | | Max. |
| V _{IH} | High Level Input Voltage | 2.0 | | 1.5 | | | 1.5 | | 1.5 | | V |
| | | 4.5 | | 3.15 | | | 3.15 | | 3.15 | | |
| | | 6.0 | | 4.2 | | | 4.2 | | 4.2 | | |
| V _{IL} | Low Level Input Voltage | 2.0 | | | | 0.5 | | 0.5 | | 0.5 | V |
| | | 4.5 | | | | 1.35 | | 1.35 | | 1.35 | |
| | | 6.0 | | | | 1.8 | | 1.8 | | 1.8 | |
| V _{OH} | High Level Output Voltage | 2.0 | I _O =-20 μA | 1.9 | 2.0 | | 1.9 | | 1.9 | | V |
| | | 4.5 | I _O =-20 μA | 4.4 | 4.5 | | 4.4 | | 4.4 | | |
| | | 6.0 | I _O =-20 μA | 5.9 | 6.0 | | 5.9 | | 5.9 | | |
| | | 4.5 | I _O =-4.0 mA | 4.18 | 4.31 | | 4.13 | | 4.10 | | |
| | | 6.0 | I _O =-5.2 mA | 5.68 | 5.8 | | 5.63 | | 5.60 | | |
| V _{OL} | Low Level Output Voltage | 2.0 | I _O =20 μA | | 0.0 | 0.1 | | 0.1 | | 0.1 | V |
| | | 4.5 | I _O =20 μA | | 0.0 | 0.1 | | 0.1 | | 0.1 | |
| | | 6.0 | I _O =20 μA | | 0.0 | 0.1 | | 0.1 | | 0.1 | |
| | | 4.5 | I _O =4.0 mA | | 0.17 | 0.26 | | 0.33 | | 0.40 | |
| | | 6.0 | I _O =5.2 mA | | 0.18 | 0.26 | | 0.33 | | 0.40 | |
| I _I | Input Leakage Current | 6.0 | V _I = V _{CC} or GND | | | ± 0.1 | | ± 1 | | ± 1 | μA |
| I _{CC} | Quiescent Supply Current | 6.0 | V _I = V _{CC} or GND | | | 1 | | 10 | | 20 | μA |

AC ELECTRICAL CHARACTERISTICS (C_L = 50 pF, Input t_r = t_f = 6ns)

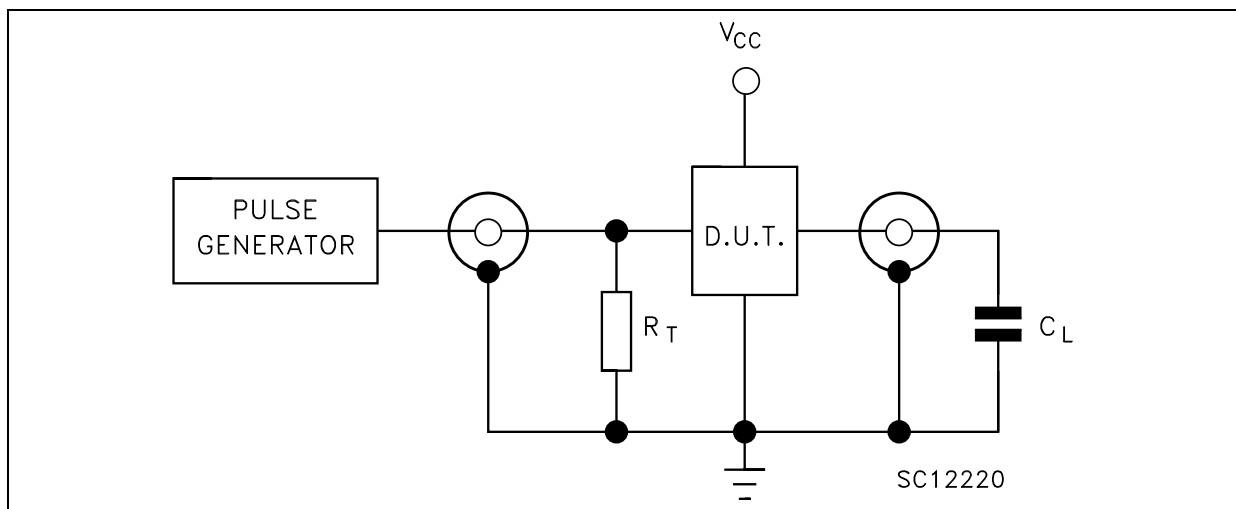
| Symbol | Parameter | Test Condition | | Value | | | | | | Unit | |
|-----------------------------------|------------------------|------------------------|--|-----------------------|------|------|-------------|------|--------------|------|------|
| | | V _{CC} (V) | | T _A = 25°C | | | -40 to 85°C | | -55 to 125°C | | |
| | | | | Min. | Typ. | Max. | Min. | Max. | Min. | | Max. |
| t _{TLH} t _{THL} | Output Transition Time | 2.0 | | | 30 | 75 | | 95 | | 110 | ns |
| | | 4.5 | | | 8 | 15 | | 19 | | 22 | |
| | | 6.0 | | | 7 | 13 | | 16 | | 19 | |
| t _{PLH} t _{PHL} | Propagation Delay Time | 2.0 | | | 36 | 90 | | 115 | | 135 | ns |
| | | 4.5 | | | 11 | 18 | | 23 | | 27 | |
| | | 6.0 | | | 9 | 15 | | 20 | | 23 | |

CAPACITIVE CHARACTERISTICS

| Symbol | Parameter | Test Condition | | Value | | | | | | Unit | |
|-----------------|--|------------------------|--|-----------------------|------|------|-------------|------|--------------|------|------|
| | | V _{CC} (V) | | T _A = 25°C | | | -40 to 85°C | | -55 to 125°C | | |
| | | | | Min. | Typ. | Max. | Min. | Max. | Min. | | Max. |
| C _{IN} | Input Capacitance | 5.0 | | | 5 | 10 | | 10 | | 10 | pF |
| C _{PD} | Power Dissipation Capacitance (note 1) | 5.0 | | | 20 | | | | | | pF |

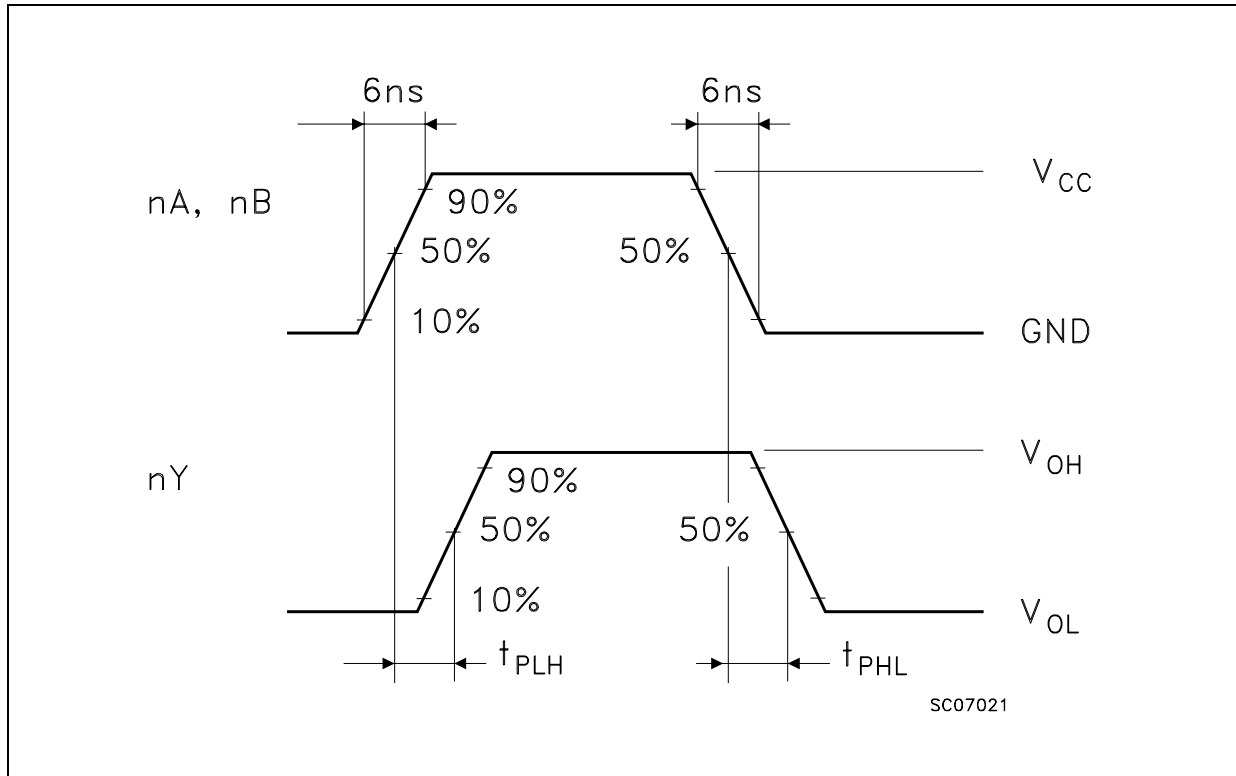
1) C_{PD} is defined as the value of the IC's internal equivalent capacitance which is calculated from the operating current consumption without load. (Refer to Test Circuit). Average operating current can be obtained by the following equation. I_{CC(oper)} = C_{PD} × V_{CC} × f_{IN} + I_{CC}/4 (per gate)

TEST CIRCUIT



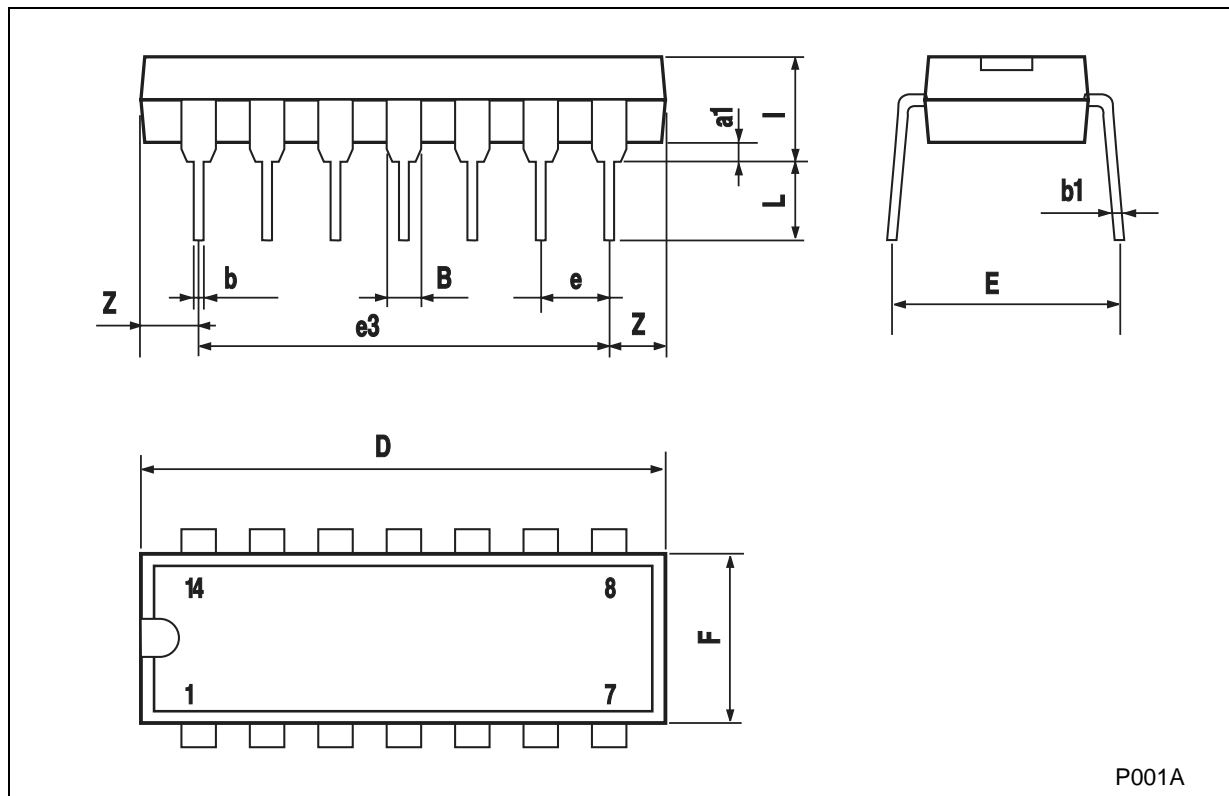
C_L = 50pF or equivalent (includes jig and probe capacitance)
 R_T = Z_{OUT} of pulse generator (typically 50Ω)

WAVEFORM 1: PROPAGATION DELAY TIME (f=1MHz; 50% duty cycle)



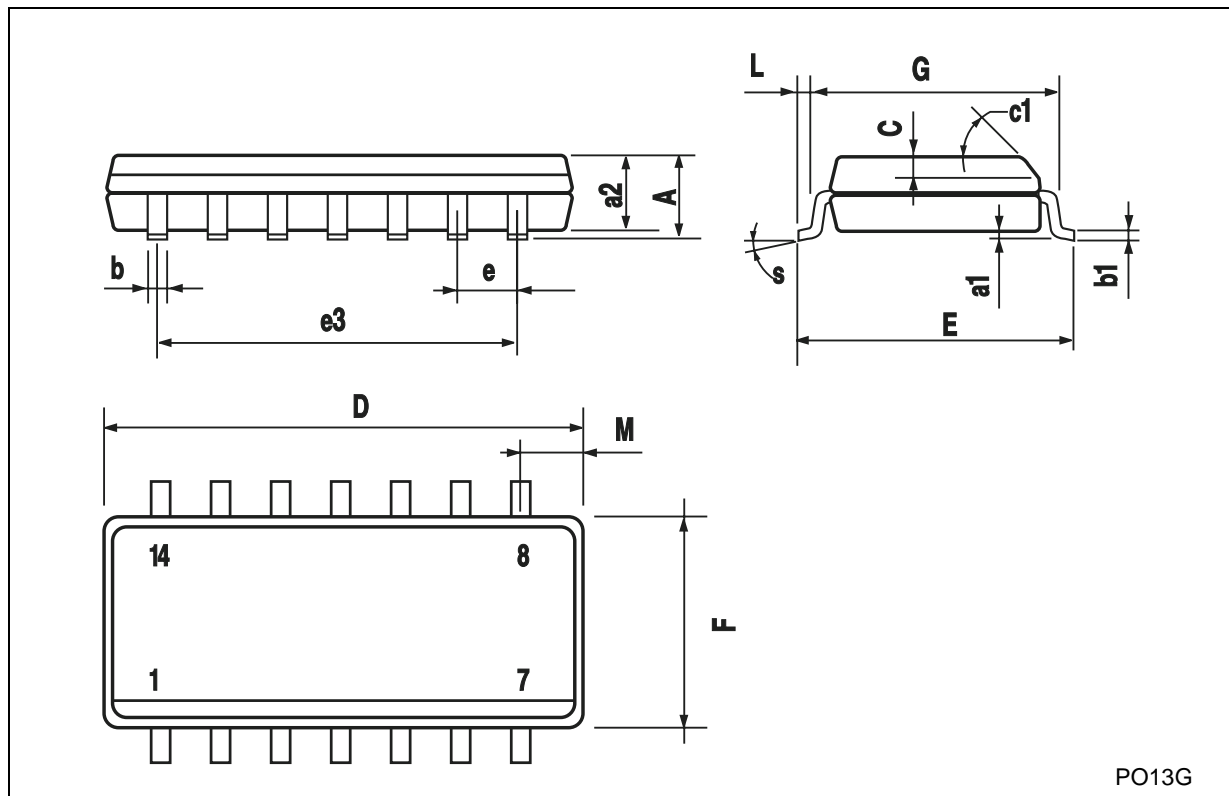
| | | | | | | |
|---------------------------------------|--|--|--|--|--|--|
| Plastic DIP-14 MECHANICAL DATA | | | | | | |
|---------------------------------------|--|--|--|--|--|--|

| DIM. | mm. | | | inch | | |
|------|------|-------|------|-------|-------|-------|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| a1 | 0.51 | | | 0.020 | | |
| B | 1.39 | | 1.65 | 0.055 | | 0.065 |
| b | | 0.5 | | | 0.020 | |
| b1 | | 0.25 | | | 0.010 | |
| D | | | 20 | | | 0.787 |
| E | | 8.5 | | | 0.335 | |
| e | | 2.54 | | | 0.100 | |
| e3 | | 15.24 | | | 0.600 | |
| F | | | 7.1 | | | 0.280 |
| I | | | 5.1 | | | 0.201 |
| L | | 3.3 | | | 0.130 | |
| Z | 1.27 | | 2.54 | 0.050 | | 0.100 |



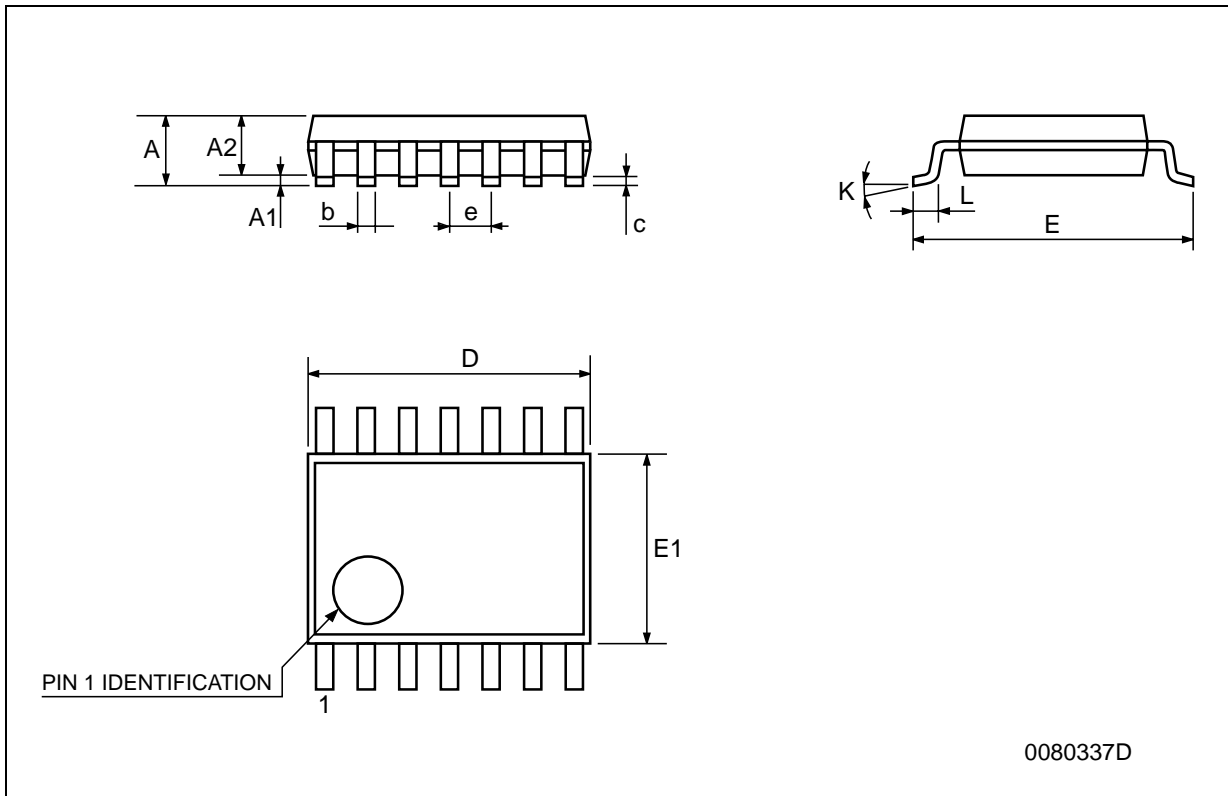
SO-14 MECHANICAL DATA

| DIM. | mm. | | | inch | | |
|------|------------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | | 1.75 | | | 0.068 |
| a1 | 0.1 | | 0.2 | 0.003 | | 0.007 |
| a2 | | | 1.65 | | | 0.064 |
| b | 0.35 | | 0.46 | 0.013 | | 0.018 |
| b1 | 0.19 | | 0.25 | 0.007 | | 0.010 |
| C | | 0.5 | | | 0.019 | |
| c1 | 45° (typ.) | | | | | |
| D | 8.55 | | 8.75 | 0.336 | | 0.344 |
| E | 5.8 | | 6.2 | 0.228 | | 0.244 |
| e | | 1.27 | | | 0.050 | |
| e3 | | 7.62 | | | 0.300 | |
| F | 3.8 | | 4.0 | 0.149 | | 0.157 |
| G | 4.6 | | 5.3 | 0.181 | | 0.208 |
| L | 0.5 | | 1.27 | 0.019 | | 0.050 |
| M | | | 0.68 | | | 0.026 |
| S | 8° (max.) | | | | | |



TSSOP14 MECHANICAL DATA

| DIM. | mm. | | | inch | | |
|------|------|----------|------|-------|------------|--------|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | | | 1.2 | | | 0.047 |
| A1 | 0.05 | | 0.15 | 0.002 | 0.004 | 0.006 |
| A2 | 0.8 | 1 | 1.05 | 0.031 | 0.039 | 0.041 |
| b | 0.19 | | 0.30 | 0.007 | | 0.012 |
| c | 0.09 | | 0.20 | 0.004 | | 0.0089 |
| D | 4.9 | 5 | 5.1 | 0.193 | 0.197 | 0.201 |
| E | 6.2 | 6.4 | 6.6 | 0.244 | 0.252 | 0.260 |
| E1 | 4.3 | 4.4 | 4.48 | 0.169 | 0.173 | 0.176 |
| e | | 0.65 BSC | | | 0.0256 BSC | |
| K | 0° | | 8° | 0° | | 8° |
| L | 0.45 | 0.60 | 0.75 | 0.018 | 0.024 | 0.030 |



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