

Figure 3. LH531024 Block Diagram

**PIN DESCRIPTION**

| SIGNAL                           | PIN NAME          |
|----------------------------------|-------------------|
| A <sub>0</sub> – A <sub>15</sub> | Address input     |
| D <sub>0</sub> – D <sub>15</sub> | Data output       |
| CE                               | Chip Enable input |

| SIGNAL          | PIN NAME            |
|-----------------|---------------------|
| OE              | Output enable input |
| V <sub>CC</sub> | Power supply (+5 V) |
| GND             | Ground              |

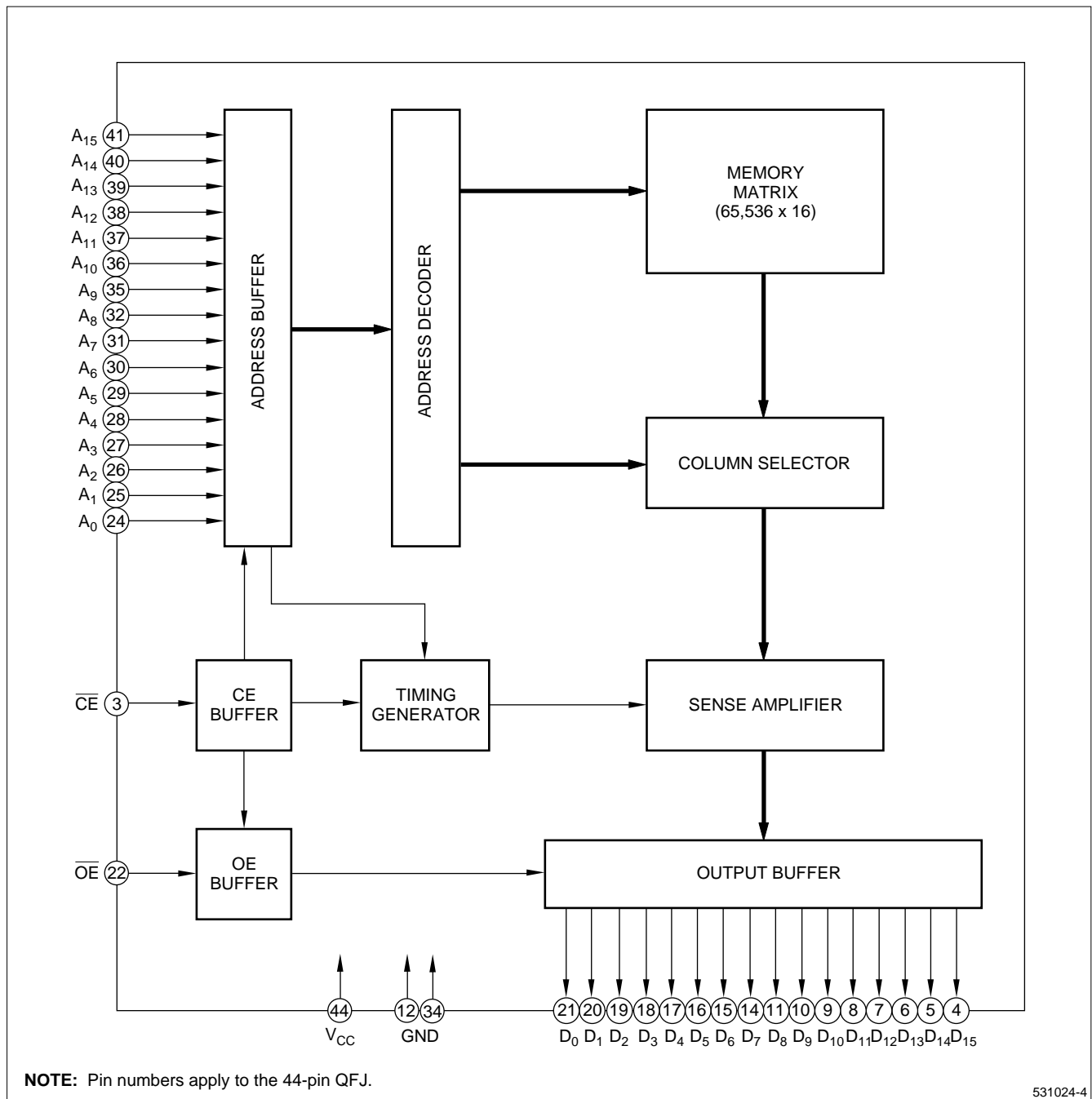


Figure 4. LH531024 Block Diagram

## TRUTH TABLE

| $\overline{CE}$ | $\overline{OE}$ | D <sub>0</sub> – D <sub>15</sub> | SUPPLY CURRENT               | NOTE |
|-----------------|-----------------|----------------------------------|------------------------------|------|
| H               | X               | High-Z                           | Standby (I <sub>SB</sub> )   | 1    |
| L               | H               |                                  | Operating (I <sub>CC</sub> ) |      |
| L               | L               | D <sub>0</sub> – D <sub>15</sub> |                              |      |

## NOTE:

- X = H or L.

## ABSOLUTE MAXIMUM RATINGS

| PARAMETER             | SYMBOL           | RATING                       | UNIT |
|-----------------------|------------------|------------------------------|------|
| Supply voltage        | V <sub>CC</sub>  | –0.3 to +7.0                 | V    |
| Input voltage         | V <sub>IN</sub>  | –0.3 to V <sub>CC</sub> +0.3 | V    |
| Output voltage        | V <sub>OUT</sub> | –0.3 to V <sub>CC</sub> +0.3 | V    |
| Operating temperature | T <sub>opr</sub> | 0 to +70                     | °C   |
| Storage temperature   | T <sub>stg</sub> | –65 to +150                  | °C   |

RECOMMENDED OPERATING CONDITIONS (T<sub>A</sub> = 0°C to +70°C)

| PARAMETER      | SYMBOL          | MIN. | TYP. | MAX. | UNIT |
|----------------|-----------------|------|------|------|------|
| Supply voltage | V <sub>CC</sub> | 4.5  | 5.0  | 5.5  | V    |

DC CHARACTERISTICS (V<sub>CC</sub> = 5 V ±10%, T<sub>A</sub> = 0°C to +70°C)

| PARAMETER              | SYMBOL           | CONDITIONS                                | MIN. | TYP. | MAX.                  | UNIT | NOTE |
|------------------------|------------------|---|------|------|-----------------------|------|------|
| Input 'Low' voltage    | V <sub>IL</sub>  |   | –0.3 |      | 0.8                   | V    |      |
| Input 'High' voltage   | V <sub>IH</sub>  |   | 2.2  |      | V <sub>CC</sub> + 0.3 | V    |      |
| Output 'Low' voltage   | V <sub>OL</sub>  | I <sub>OL</sub> = 2.0 mA                  |      |      | 0.4                   | V    |      |
| Output 'High' voltage  | V <sub>OH</sub>  | I <sub>OH</sub> = –400 μA                 | 2.4  |      |                       | V    |      |
| Input leakage current  | I <sub>LI</sub>  | V <sub>IN</sub> = 0 V to V <sub>CC</sub>  |      |      | 10                    | μA   |      |
| Output leakage current | I <sub>LO</sub>  | V <sub>OUT</sub> = 0 V to V <sub>CC</sub> |      |      | 10                    | μA   | 1    |
| Operating current      | I <sub>CC1</sub> | t <sub>RC</sub> = 100 ns                  |      |      | 75                    | mA   | 2    |
|                        | I <sub>CC2</sub> | t <sub>RC</sub> = 1 μs                    |      |      | 65                    | mA   |      |
|                        | I <sub>CC3</sub> | t <sub>RC</sub> = 100 ns                  |      |      | 70                    | mA   | 3    |
|                        | I <sub>CC4</sub> | t <sub>RC</sub> = 1 μs                    |      |      | 60                    | mA   |      |
| Standby current        | I <sub>SB1</sub> | $\overline{CE} = V_{IH}$                  |      |      | 3                     | mA   |      |
|                        | I <sub>SB2</sub> | $\overline{CE} = V_{CC} - 0.2 V$          |      |      | 100                   | μA   |      |
| Input capacitance      | C <sub>IN</sub>  | f = 1 MHz                                 |      |      | 10                    | pF   |      |
| Output capacitance     | C <sub>OUT</sub> | T <sub>A</sub> = 25°C                     |      |      | 10                    | pF   |      |

## NOTES:

- CE/OE = V<sub>IH</sub>
- V<sub>IN</sub> = V<sub>IH</sub> or V<sub>IL</sub>,  $\overline{CE} = V_{IL}$ , outputs open
- V<sub>IN</sub> = (V<sub>CC</sub> – 0.2 V) or 0.2 V, CE = 0.2 V, outputs open

**AC CHARACTERISTICS ( $V_{CC} = 5\text{ V} \pm 10\%$ ,  $T_A = 0^\circ\text{C}$  to  $+70^\circ\text{C}$ )**

| PARAMETER                | SYMBOL    | MIN. | TYP. | MAX. | UNIT | NOTE |
|--------------------------|-----------|------|------|------|------|------|
| Read cycle time          | $t_{RC}$  | 100  |      |      | ns   |      |
| Address access time      | $t_{AA}$  |      |      | 100  | ns   |      |
| Chip enable access time  | $t_{ACE}$ |      |      | 100  | ns   |      |
| Output enable delay time | $t_{OE}$  |      |      | 50   | ns   |      |
| Output hold time         | $t_{OH}$  | 5    |      |      | ns   |      |
| CE to output in High-Z   | $t_{CHZ}$ |      |      | 50   | ns   | 1    |
| OE to output in High-Z   | $t_{OHZ}$ |      |      | 50   | ns   |      |

**NOTE:**

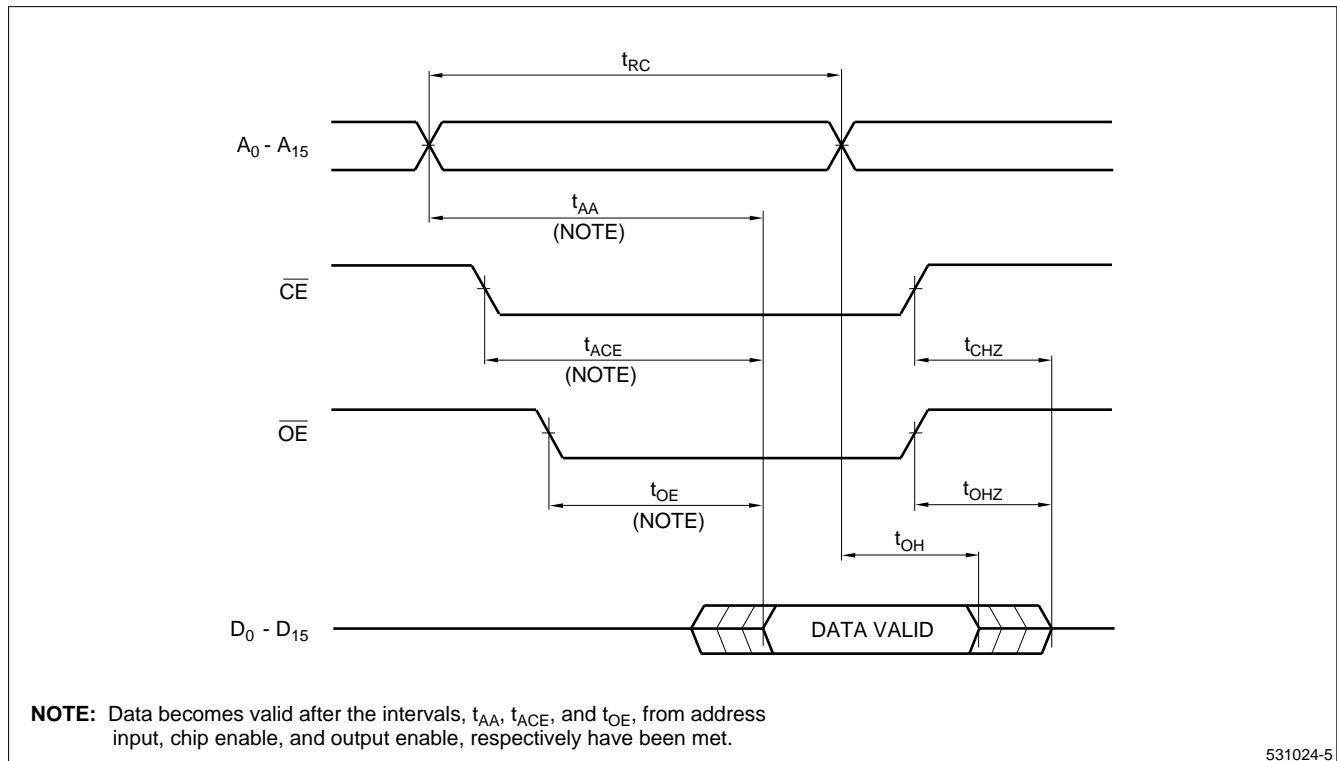
1. This is the time required for the output to become high-impedance.

**AC TEST CONDITIONS**

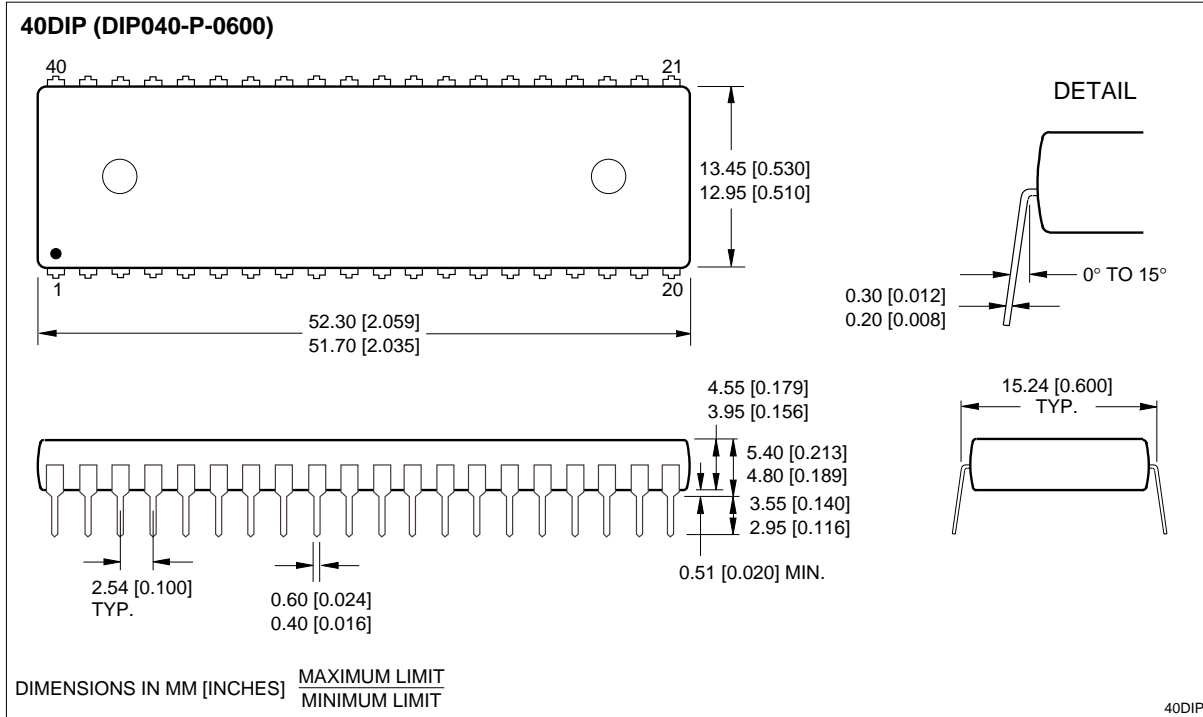
| PARAMETER                    | RATING         |
|------------------------------|----------------|
| Input voltage amplitude      | 0.4 V to 2.6 V |
| Input signal rise time       | 10 ns          |
| Input/output reference level | 1.5 V          |
| Output load condition        | 1TTL +100 pF   |

**CAUTION**

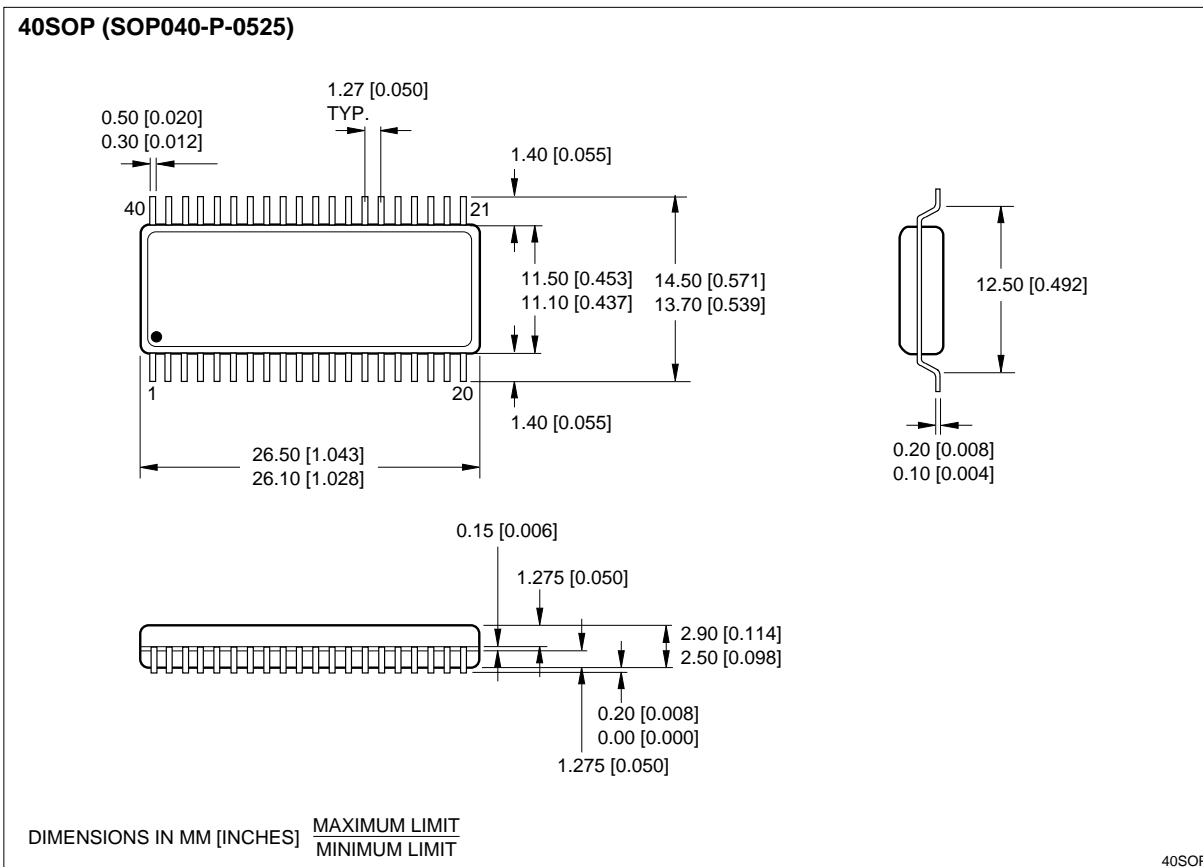
To stabilize the power supply, it is recommended that a high-frequency bypass capacitor be connected between the  $V_{CC}$  pin and the GND pin.

**Figure 5. Timing Diagram**

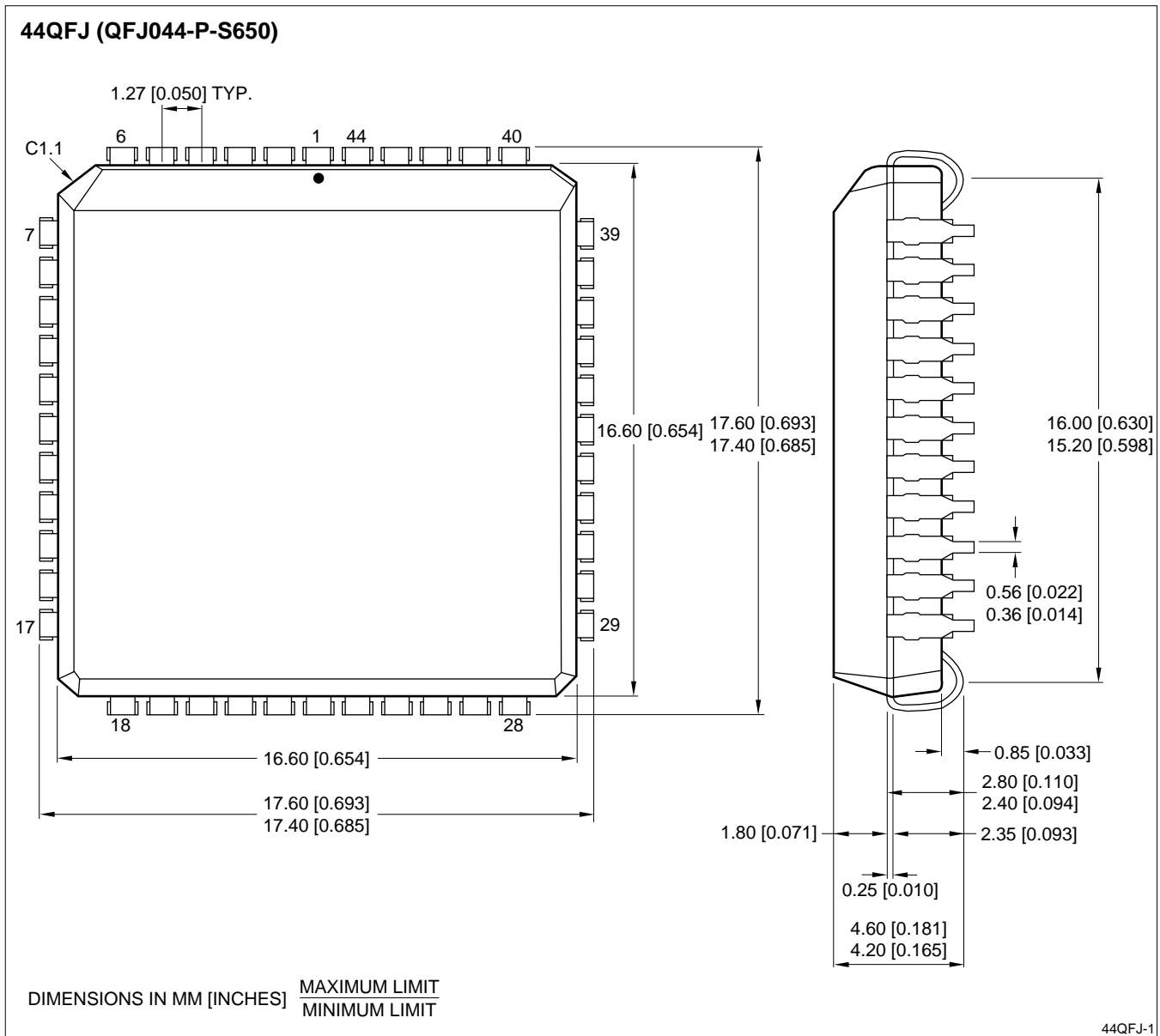
PACKAGE DIAGRAMS



40-pin, 600-mil DIP



40-pin, 525-mil SOP



**44-pin, 650-mil QFJ (PLCC)**

**ORDERING INFORMATION**

