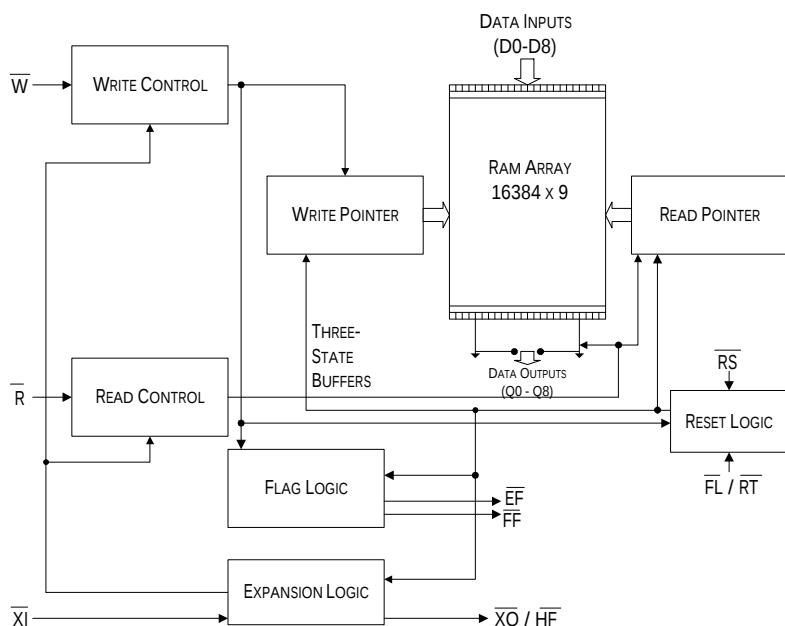
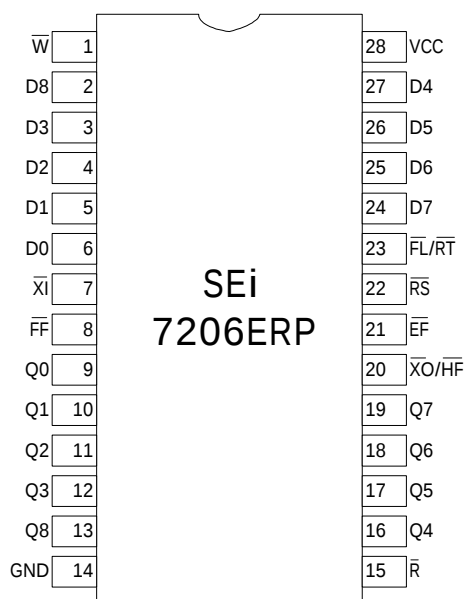




## FEATURES:

- 16384 x 9-bit organization
- RAD-PAK® radiation-hardened against natural space radiation
- Manufactured on an epitaxial substrate for improved SEL performance
  - SEL<sub>TH</sub>: no latchup > 100 MeV/mg/cm<sup>2</sup>
- A total dose hardness > 100 krad (Si); dependent upon orbit
- Asynchronous Read/Write operation
- A high speed CMOS epi technology
- Retransmit capability
- Propagation time (max access time):
  - 10 ns: 7206ERPx-10
  - 12 ns: 7206ERPx-12
  - 15 ns: 7206ERPx-15
  - 20 ns: 7206ERPx-20
  - 30 ns: 7206ERPx-30
  - 40 ns: 7206ERPx-40
  - 50 ns: 7206ERPx-50
- Status flag: empty, half-full, full fast
- Fully expandable in both word depth and width
- Bi-directional applications
- Low power
- Battery back-up operation
- TTL compatible

## DESCRIPTION:

Space Electronics' 7206ERP (RP for RAD-PAK®) high speed FIFO microcircuit features a minimum 100 kilorad (Si) total dose tolerance; dependent upon orbit. It is organized such that the data is read in the same sequential order that it was written. Full and Empty flags are provided to prevent overflow and underflow. The expansion logic allows unlimited expansion capability in work size and depth with no timing penalties. Twin address pointers automatically generate internal read and write addresses, and automatically increment with the write and read pin. The 7206ERP 9-bits wide data are used in data communications applications where a parity bit for error checking is necessary. The retransmit capability allows the read pointer to be reset to its initial position without affecting the write pointer. The RAD-PAK® technology incorporates radiation shielding in the microcircuit package. It eliminates box shielding while providing required lifetime performing in orbit. The 7206ERP features the same system performance and architecture as the commercial counterparts and is manufactured on an epitaxial substrate to enhance single event latchup performance. Capable of surviving in space environments, the 7206ERP is ideal for satellite, spacecraft, and space probe missions. This product is available with packaging and screening up to Class S.

TABLE 1. 7206ERP PINOUT DESCRIPTION

| NUMBER  | NAMES              | DESCRIPTION                  |
|---------|--------------------|------------------------------|
| 1       | $\overline{W}$     | Write Enable                 |
| 2 - 6   | D8, D3-D0          | Inputs                       |
| 7       | $\overline{XI}$    | Expansion In                 |
| 8       | $\overline{FF}$    | Full Flag                    |
| 9 - 13  | Q0 - Q3, Q8        | Outputs                      |
| 14      | GND                | Ground                       |
| 15      | $\overline{R}$     | Read Enable                  |
| 16 - 19 | Q4 - Q7            | Outputs                      |
| 20      | $\overline{XO/HF}$ | Expansion Out/Half Full Flag |
| 21      | $\overline{EF}$    | Empty Flag                   |
| 22      | $\overline{RS}$    | Reset                        |
| 23      | FL/RT              | First Load/Retransmit        |
| 24 - 27 | D7 - D4            | Inputs                       |
| 28      | $V_{CC}$           | Power Supply                 |

TABLE 2. 7206ERP ABSOLUTE MAXIMUM RATINGS

| PARAMETER                   | SYMBOL   | MIN       | MAX            | UNIT |
|-----------------------------|----------|-----------|----------------|------|
| Positive Supply Voltage     | $V_{CC}$ | -0.3      | 7.0            | V    |
| Input or Output Voltage     | $V_{IN}$ | GND - 0.3 | $V_{CC} + 0.3$ | V    |
| Storage Temperature Range   | $T_S$    | -65       | +150           | °C   |
| Operating Temperature Range | $T_A$    | -55       | +125           | °C   |

TABLE 3. 7206ERP RECOMMENDED OPERATING CONDITIONS

| PARAMETER                   | SYMBOL   | MIN | MAX  | UNIT |
|-----------------------------|----------|-----|------|------|
| Positive Supply Voltage     | $V_{CC}$ | 4.5 | 5.5  | V    |
| High Level Input Voltage    | $V_{IH}$ | 2.2 | --   | V    |
| Low Level Voltage           | $V_{IL}$ | --  | 0.8  | V    |
| Operating Temperature Range | $T_C$    | -55 | +125 | °C   |

TABLE 4. 7206ERP DC ELECTRICAL CHARACTERISTICS <sup>1</sup>

| PARAMETER                                                                 | SYMBOL     | MIN | MAX      | UNIT    |
|---------------------------------------------------------------------------|------------|-----|----------|---------|
| Operating Supply Current                                                  | $I_{CCOP}$ | --  | --       | mA      |
| 7206ERPx-10                                                               |            | --  | 170      |         |
| 7206ERPx-12                                                               |            | --  | 170      |         |
| 7206ERPx-15                                                               |            | --  | 165      |         |
| 7206ERPx-20                                                               |            | --  | 160      |         |
| 7206ERPx-30                                                               |            | --  | 150      |         |
| 7206ERPx-40                                                               |            | --  | 140      |         |
| 7206ERPx-50                                                               |            | --  | 130      |         |
| Standby Supply Current ( $R = W = FLVRT = V_{IH}$ )                       | $I_{CCSB}$ | --  | 1.5      | mA      |
| Power Down Current (All Input = $V_{CC}$ )                                | $I_{CCPD}$ | --  | 4        | mA      |
| Input Leakage Current ( $0.4V \leq V_{IN} \leq V_{CC}$ )                  | $I_{LI}$   | --  | $\pm 1$  | $\mu A$ |
| Output Leakage Current ( $R = V_{IH}$ , $0.4V \leq V_{OUT} \leq V_{CC}$ ) | $I_{LO}$   | --  | $\pm 10$ | $\mu A$ |
| Input Low Voltage <sup>2</sup>                                            | $V_{IL}$   | --  | 0.8      | V       |
| Input High Voltage <sup>2</sup>                                           | $V_{IH}$   | 2.2 | --       | V       |
| Output Low Voltage ( $V_{CC}$ min, $I_{OL} = 8mA$ )                       | $V_{OL}$   | --  | 0.4      | V       |
| Output High Voltage ( $V_{CC}$ min, $I_{OH} = -2mA$ )                     | $V_{OH}$   | 2.4 | --       | V       |
| Input Capacitance <sup>3</sup>                                            | $C_{IN}$   | --  | 8        | pF      |
| Output Capacitance <sup>3</sup>                                           | $C_{OUT}$  | --  | 8        | pF      |

1.  $V_{CC} = 5V \pm 5\%$ ,  $T_A = -55$  to  $+125$  °C.
2.  $V_{IH}$  max =  $V_{CC} + 0.3V$ .  $V_{IL}$  min =  $-0.3V$  or  $-1.0V$  pulse width 50ns.
3. This parameter is sampled and not 100% tested.  $T_A = 25^\circ C$ ;  $F = 1MHz$ .

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                           | SYMBOL    | MIN | MAX | UNITS |
|-------------------------------------|-----------|-----|-----|-------|
| Read Cycle                          |           |     |     |       |
| Read Cycle Time                     | $t_{RC}$  |     |     | ns    |
| 7206ERPx-10                         |           | 20  | --  |       |
| 7206ERPx-12                         |           | 20  | --  |       |
| 7206ERPx-15                         |           | 25  | --  |       |
| 7206ERPx-20                         |           | 30  | --  |       |
| 7206ERPx-30                         |           | 40  | --  |       |
| 7206ERPx-40                         |           | 50  | --  |       |
| 7206ERPx-50                         |           | 60  | --  |       |
| Access Time                         | $t_A$     |     |     | ns    |
| 7206ERPx-10                         |           | --  | 12  |       |
| 7206ERPx-12                         |           | --  | 12  |       |
| 7206ERPx-15                         |           | --  | 15  |       |
| 7206ERPx-20                         |           | --  | 20  |       |
| 7206ERPx-30                         |           | --  | 30  |       |
| 7206ERPx-40                         |           | --  | 40  |       |
| 7206ERPx-50                         |           | --  | 50  |       |
| Read Recovery Time                  | $t_{RR}$  |     |     | ns    |
| 7206ERPx-10                         |           | 8   | --  |       |
| 7206ERPx-12                         |           | 8   | --  |       |
| 7206ERPx-15                         |           | 10  | --  |       |
| 7206ERPx-20                         |           | 10  | --  |       |
| 7206ERPx-30                         |           | 10  | --  |       |
| 7206ERPx-40                         |           | 10  | --  |       |
| 7206ERPx-50                         |           | 10  | --  |       |
| Read Pulse Width <sup>2</sup>       | $t_{RPW}$ |     |     | ns    |
| 7206ERPx-10 <sup>5</sup>            |           | 10  | --  |       |
| 7206ERPx-12                         |           | 12  | --  |       |
| 7206ERPx-15                         |           | 15  | --  |       |
| 7206ERPx-20                         |           | 20  | --  |       |
| 7206ERPx-30                         |           | 30  | --  |       |
| 7206ERPx-40                         |           | 40  | --  |       |
| 7206ERPx-50                         |           | 50  | --  |       |
| Read Low to Data Low-Z <sup>3</sup> | $t_{RLZ}$ |     |     | ns    |
| 7206ERPx-10                         |           | 0   | --  |       |
| 7206ERPx-12                         |           | 0   | --  |       |
| 7206ERPx-15                         |           | 0   | --  |       |
| 7206ERPx-20                         |           | 0   | --  |       |
| 7206ERPx-30                         |           | 0   | --  |       |
| 7206ERPx-40                         |           | 0   | --  |       |
| 7206ERPx-50                         |           | 0   | --  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                                 | SYMBOL    | MIN | MAX | UNITS |
|-------------------------------------------|-----------|-----|-----|-------|
| Write HIGH to Data Low-Z <sup>3,4</sup>   | $t_{WLZ}$ |     |     | ns    |
| 7206ERPx-10                               |           | 3   | --  |       |
| 7206ERPx-12                               |           | 3   | --  |       |
| 7206ERPx-15                               |           | 3   | --  |       |
| 7206ERPx-20                               |           | 3   | --  |       |
| 7206ERPx-30                               |           | 3   | --  |       |
| 7206ERPx-40                               |           | 3   | --  |       |
| 7206ERPx-50                               |           | 3   | --  |       |
| Data Valid from Read High                 | $t_{DV}$  |     |     | ns    |
| 7206ERPx-10                               |           | 5   | --  |       |
| 7206ERPx-12                               |           | 5   | --  |       |
| 7206ERPx-15                               |           | 5   | --  |       |
| 7206ERPx-20                               |           | 5   | --  |       |
| 7206ERPx-30                               |           | 5   | --  |       |
| 7206ERPx-40                               |           | 5   | --  |       |
| 7206ERPx-50                               |           | 5   | --  |       |
| Read High to Data Bus High-Z <sup>3</sup> | $t_{RHZ}$ |     |     | ns    |
| 7206ERPx-10                               |           | --  | 15  |       |
| 7206ERPx-12                               |           | --  | 12  |       |
| 7206ERPx-15                               |           | --  | 15  |       |
| 7206ERPx-20                               |           | --  | 15  |       |
| 7206ERPx-30                               |           | --  | 15  |       |
| 7206ERPx-40                               |           | --  | 15  |       |
| 7206ERPx-50                               |           | --  | 15  |       |
| Write Cycle                               |           |     |     |       |
| Write Cycle Time                          | $t_{WC}$  |     |     | ns    |
| 7206ERPx-10                               |           | 17  | --  |       |
| 7206ERPx-12                               |           | 17  | --  |       |
| 7206ERPx-15                               |           | 25  | --  |       |
| 7206ERPx-20                               |           | 30  | --  |       |
| 7206ERPx-30                               |           | 40  | --  |       |
| 7206ERPx-40                               |           | 50  | --  |       |
| 7206ERPx-50                               |           | 60  | --  |       |
| Write Pulse Width <sup>2</sup>            | $t_{WPW}$ |     |     | ns    |
| 7206ERPx-10 <sup>5</sup>                  |           | 10  | --  |       |
| 7206ERPx-12                               |           | 12  | --  |       |
| 7206ERPx-15                               |           | 15  | --  |       |
| 7206ERPx-20                               |           | 20  | --  |       |
| 7206ERPx-30                               |           | 30  | --  |       |
| 7206ERPx-40                               |           | 40  | --  |       |
| 7206ERPx-50                               |           | 50  | --  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                      | SYMBOL    | MIN | MAX | UNITS |
|--------------------------------|-----------|-----|-----|-------|
| Write Recovery Time            | $t_{WR}$  |     |     | ns    |
| 7206ERPx-10                    |           | 8   | --  |       |
| 7206ERPx-12                    |           | 8   | --  |       |
| 7206ERPx-15                    |           | 10  | --  |       |
| 7206ERPx-20                    |           | 10  | --  |       |
| 7206ERPx-30                    |           | 10  | --  |       |
| 7206ERPx-40                    |           | 10  | --  |       |
| 7206ERPx-50                    |           | 10  | --  |       |
| Data Set-up Time               | $t_{DS}$  |     |     | ns    |
| 7206ERPx-10                    |           | 7   | --  |       |
| 7206ERPx-12                    |           | 7   | --  |       |
| 7206ERPx-15                    |           | 9   | --  |       |
| 7206ERPx-20                    |           | 12  | --  |       |
| 7206ERPx-30                    |           | 18  | --  |       |
| 7206ERPx-40                    |           | 24  | --  |       |
| 7206ERPx-50                    |           | 27  | --  |       |
| Data Hold Time                 | $t_{DH}$  |     |     | ns    |
| 7206ERPx-10                    |           | 0   | --  |       |
| 7206ERPx-12                    |           | 0   | --  |       |
| 7206ERPx-15                    |           | 0   | --  |       |
| 7206ERPx-20                    |           | 0   | --  |       |
| 7206ERPx-30                    |           | 0   | --  |       |
| 7206ERPx-40                    |           | 0   | --  |       |
| 7206ERPx-50                    |           | 0   | --  |       |
| Reset Cycle                    |           |     |     |       |
| Reset Cycle Time               | $t_{RSC}$ |     |     | ns    |
| 7206ERPx-10                    |           | 20  | --  |       |
| 7206ERPx-12                    |           | 20  | --  |       |
| 7206ERPx-15                    |           | 25  | --  |       |
| 7206ERPx-20                    |           | 30  | --  |       |
| 7206ERPx-30                    |           | 40  | --  |       |
| 7206ERPx-40                    |           | 50  | --  |       |
| 7206ERPx-50                    |           | 60  | --  |       |
| Reset Pulse Width <sup>2</sup> | $t_{RS}$  |     |     | ns    |
| 7206ERPx-10                    |           | 12  | --  |       |
| 7206ERPx-12                    |           | 12  | --  |       |
| 7206ERPx-15                    |           | 15  | --  |       |
| 7206ERPx-20                    |           | 20  | --  |       |
| 7206ERPx-30                    |           | 30  | --  |       |
| 7206ERPx-40                    |           | 40  | --  |       |
| 7206ERPx-50                    |           | 50  | --  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                           | SYMBOL    | MIN | MAX | UNITS |
|-------------------------------------|-----------|-----|-----|-------|
| Reset Set-up Time                   | $t_{RSS}$ |     |     | ns    |
| 7206ERPx-10                         |           | 20  | --  |       |
| 7206ERPx-12                         |           | 20  | --  |       |
| 7206ERPx-15                         |           | 25  | --  |       |
| 7206ERPx-20                         |           | 30  | --  |       |
| 7206ERPx-30                         |           | 40  | --  |       |
| 7206ERPx-40                         |           | 50  | --  |       |
| 7206ERPx-50                         |           | 60  | --  |       |
| Reset Recovery Time                 | $t_{RSR}$ |     |     | ns    |
| 7206ERPx-10                         |           | 8   | --  |       |
| 7206ERPx-12                         |           | 8   | --  |       |
| 7206ERPx-15                         |           | 10  | --  |       |
| 7206ERPx-20                         |           | 10  | --  |       |
| 7206ERPx-30                         |           | 10  | --  |       |
| 7206ERPx-40                         |           | 10  | --  |       |
| 7206ERPx-50                         |           | 10  | --  |       |
| Retransmit Cycle                    |           |     |     |       |
| Retransmit Cycle Time               | $t_{RTC}$ |     |     | ns    |
| 7206ERPx-10                         |           | 22  | --  |       |
| 7206ERPx-12                         |           | 22  | --  |       |
| 7206ERPx-15                         |           | 25  | --  |       |
| 7206ERPx-20                         |           | 30  | --  |       |
| 7206ERPx-30                         |           | 40  | --  |       |
| 7206ERPx-40                         |           | 50  | --  |       |
| 7206ERPx-50                         |           | 60  | --  |       |
| Retransmit Pulse Width <sup>2</sup> | $t_{RT}$  |     |     | ns    |
| 7206ERPx-10                         |           | 12  | --  |       |
| 7206ERPx-12                         |           | 12  | --  |       |
| 7206ERPx-15                         |           | 15  | --  |       |
| 7206ERPx-20                         |           | 20  | --  |       |
| 7206ERPx-30                         |           | 30  | --  |       |
| 7206ERPx-40                         |           | 40  | --  |       |
| 7206ERPx-50                         |           | 50  | --  |       |
| Retransmit Set-up Time <sup>3</sup> | $t_{RTS}$ |     |     | ns    |
| 7206ERPx-10                         |           | 12  | --  |       |
| 7206ERPx-12                         |           | 12  | --  |       |
| 7206ERPx-15                         |           | 15  | --  |       |
| 7206ERPx-20                         |           | 20  | --  |       |
| 7206ERPx-30                         |           | 30  | --  |       |
| 7206ERPx-40                         |           | 40  | --  |       |
| 7206ERPx-50                         |           | 50  | --  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                | SYMBOL             | MIN | MAX | UNITS |
|--------------------------|--------------------|-----|-----|-------|
| Retransmit Recovery Time | $t_{RTR}$          |     |     | ns    |
| 7206ERPx-10              |                    | 10  | --  |       |
| 7206ERPx-12              |                    | 10  | --  |       |
| 7206ERPx-15              |                    | 10  | --  |       |
| 7206ERPx-20              |                    | 10  | --  |       |
| 7206ERPx-30              |                    | 10  | --  |       |
| 7206ERPx-40              |                    | 10  | --  |       |
| 7206ERPx-50              |                    | 10  | --  |       |
| Flags                    |                    |     |     |       |
| Reset to EF Low          | $t_{ERL}$          |     |     | ns    |
| 7206ERPx-10              |                    | --  | 20  |       |
| 7206ERPx-12              |                    | --  | 20  |       |
| 7206ERPx-15              |                    | --  | 25  |       |
| 7206ERPx-20              |                    | --  | 30  |       |
| 7206ERPx-30              |                    | --  | 30  |       |
| 7206ERPx-40              |                    | --  | 40  |       |
| 7206ERPx-50              |                    | --  | 50  |       |
| Reset to HF/FF High      | $t_{HFH}, t_{FFH}$ |     |     | ns    |
| 7206ERPx-10              |                    | --  | 20  |       |
| 7206ERPx-12              |                    | --  | 20  |       |
| 7206ERPx-15              |                    | --  | 25  |       |
| 7206ERPx-20              |                    | --  | 30  |       |
| 7206ERPx-30              |                    | --  | 30  |       |
| 7206ERPx-40              |                    | --  | 40  |       |
| 7206ERPx-50              |                    | --  | 50  |       |
| Read Low to EF Low       | $t_{REF}$          |     |     | ns    |
| 7206ERPx-10              |                    | --  | 13  |       |
| 7206ERPx-12              |                    | --  | 13  |       |
| 7206ERPx-15              |                    | --  | 15  |       |
| 7206ERPx-20              |                    | --  | 20  |       |
| 7206ERPx-30              |                    | --  | 30  |       |
| 7206ERPx-40              |                    | --  | 40  |       |
| 7206ERPx-50              |                    | --  | 50  |       |
| Read High to FF High     | $t_{RFF}$          |     |     | ns    |
| 7206ERPx-10              |                    | --  | 15  |       |
| 7206ERPx-12              |                    | --  | 15  |       |
| 7206ERPx-15              |                    | --  | 17  |       |
| 7206ERPx-20              |                    | --  | 20  |       |
| 7206ERPx-30              |                    | --  | 30  |       |
| 7206ERPx-40              |                    | --  | 40  |       |
| 7206ERPx-50              |                    | --  | 50  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                      | SYMBOL    | MIN | MAX | UNITS |
|--------------------------------|-----------|-----|-----|-------|
| Read Pulse Width after EF High | $t_{RPE}$ |     |     | ns    |
| 7206ERPx-10                    |           | 12  | --  |       |
| 7206ERPx-12                    |           | 12  | --  |       |
| 7206ERPx-15                    |           | 15  | --  |       |
| 7206ERPx-20                    |           | 20  | --  |       |
| 7206ERPx-30                    |           | 30  | --  |       |
| 7206ERPx-40                    |           | 40  | --  |       |
| 7206ERPx-50                    |           | 50  | --  |       |
| Write High to EF High          | $t_{WEF}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 13  |       |
| 7206ERPx-12                    |           | --  | 13  |       |
| 7206ERPx-15                    |           | --  | 15  |       |
| 7206ERPx-20                    |           | --  | 20  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |
| Write Low to FF Low            | $t_{WFF}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 15  |       |
| 7206ERPx-12                    |           | --  | 15  |       |
| 7206ERPx-15                    |           | --  | 17  |       |
| 7206ERPx-20                    |           | --  | 20  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |
| Write Low to HF Flag Low       | $t_{WHF}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 22  |       |
| 7206ERPx-12                    |           | --  | 22  |       |
| 7206ERPx-15                    |           | --  | 25  |       |
| 7206ERPx-20                    |           | --  | 30  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |
| Read High to HF Flag High      | $t_{RHF}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 22  |       |
| 7206ERPx-12                    |           | --  | 22  |       |
| 7206ERPx-15                    |           | --  | 25  |       |
| 7206ERPx-20                    |           | --  | 30  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER                      | SYMBOL    | MIN | MAX | UNITS |
|--------------------------------|-----------|-----|-----|-------|
| Read Pulse Width after FF High | $t_{WPF}$ |     |     | ns    |
| 7206ERPx-10                    |           | 12  | --  |       |
| 7206ERPx-12                    |           | 12  | --  |       |
| 7206ERPx-15                    |           | 15  | --  |       |
| 7206ERPx-20                    |           | 20  | --  |       |
| 7206ERPx-30                    |           | 30  | --  |       |
| 7206ERPx-40                    |           | 40  | --  |       |
| 7206ERPx-50                    |           | 50  | --  |       |
| Read/Write LOW to XO LOW       | $t_{XOL}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 12  |       |
| 7206ERPx-12                    |           | --  | 12  |       |
| 7206ERPx-15                    |           | --  | 15  |       |
| 7206ERPx-20                    |           | --  | 20  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |
| Read/Write LOW to XO HIGH      | $t_{XOH}$ |     |     | ns    |
| 7206ERPx-10                    |           | --  | 12  |       |
| 7206ERPx-12                    |           | --  | 12  |       |
| 7206ERPx-15                    |           | --  | 15  |       |
| 7206ERPx-20                    |           | --  | 20  |       |
| 7206ERPx-30                    |           | --  | 30  |       |
| 7206ERPx-40                    |           | --  | 40  |       |
| 7206ERPx-50                    |           | --  | 50  |       |
| XI Pulse Width                 | $t_{XI}$  |     |     | ns    |
| 7206ERPx-10                    |           | 12  | --  |       |
| 7206ERPx-12                    |           | 12  | --  |       |
| 7206ERPx-15                    |           | 15  | --  |       |
| 7206ERPx-20                    |           | 20  | --  |       |
| 7206ERPx-30                    |           | 30  | --  |       |
| 7206ERPx-40                    |           | 40  | --  |       |
| 7206ERPx-50                    |           | 50  | --  |       |
| XI Recovery Time               | $t_{XIR}$ |     |     | ns    |
| 7206ERPx-10                    |           | 8   | --  |       |
| 7206ERPx-12                    |           | 8   | --  |       |
| 7206ERPx-15                    |           | 10  | --  |       |
| 7206ERPx-20                    |           | 10  | --  |       |
| 7206ERPx-30                    |           | 10  | --  |       |
| 7206ERPx-40                    |           | 10  | --  |       |
| 7206ERPx-50                    |           | 10  | --  |       |

TABLE 5. 7206ERP TIMING CHARACTERISTICS <sup>1</sup>

| PARAMETER      | SYMBOL    | MIN | MAX | UNITS |
|----------------|-----------|-----|-----|-------|
| XI Set-up Time | $t_{XIS}$ |     |     | ns    |
| 7206ERPx-10    |           | 8   | --  |       |
| 7206ERPx-12    |           | 8   | --  |       |
| 7206ERPx-15    |           | 10  | --  |       |
| 7206ERPx-20    |           | 10  | --  |       |
| 7206ERPx-30    |           | 10  | --  |       |
| 7206ERPx-40    |           | 10  | --  |       |
| 7206ERPx-50    |           | 10  | --  |       |

1.  $V_{CC} = +5V$ ,  $T_A = +25^\circ C$ ; use switching test circuit. AC tests are performed with input rise and fall times of 5 ns or less, timing reference levels of 1.5 V, input pulse levels of 0 to 3.0V and the output load circuit, unless otherwise specified.
2. Pulse widths less than minimum value are not allowed.
3. Values guaranteed by design, not currently tested.
4. Only applies to read data flow-through mode.
5. For  $t_{RPW}$  (Pulse Read Width) and  $t_{WPW}$  (Write Pulse Width) 10 ns applies over temperature range  $-20^\circ C$  to  $+85^\circ C$ .

FIGURE 1. RESET

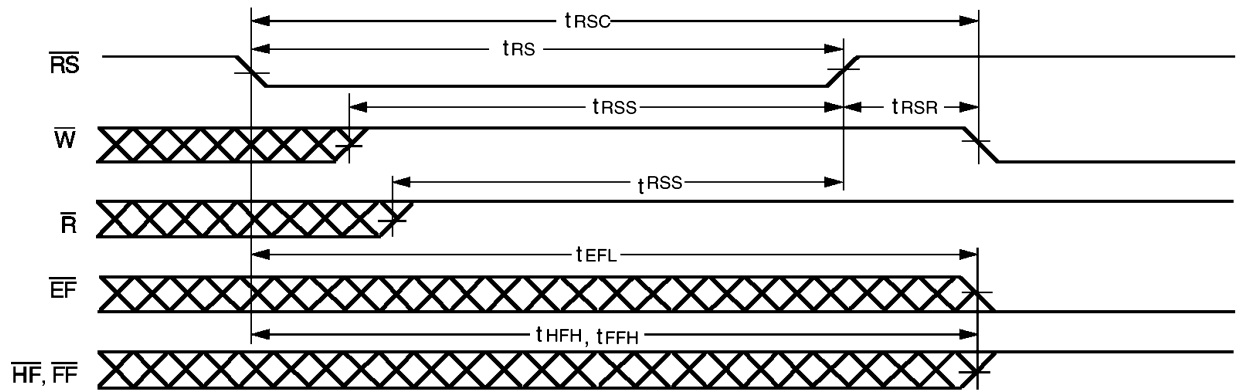


FIGURE 2. ASYNCHRONOUS WRITE AND READ OPERATION

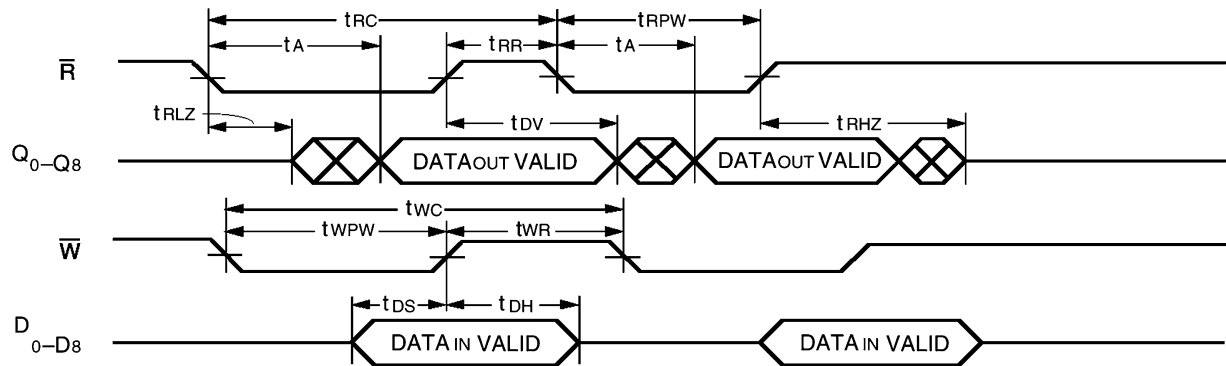


FIGURE 3. FULL FLAG TIMING FROM LAST WRITE TO FIRST READ

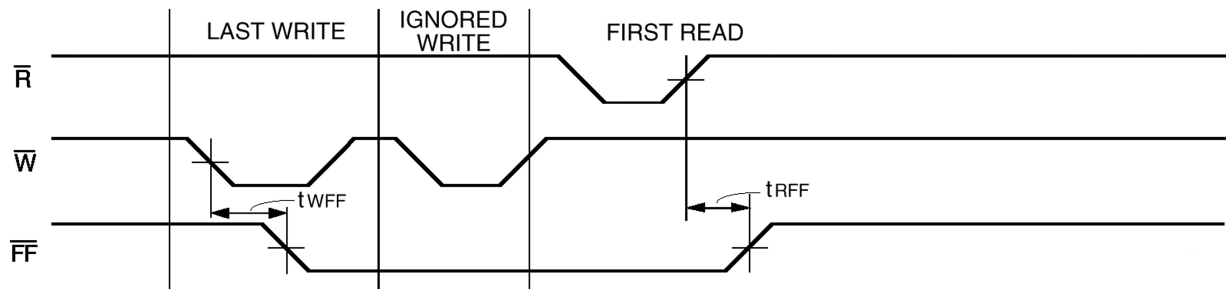


FIGURE 4. EMPTY FLAG TIMING FROM LAST READ TO FIRST WRITE

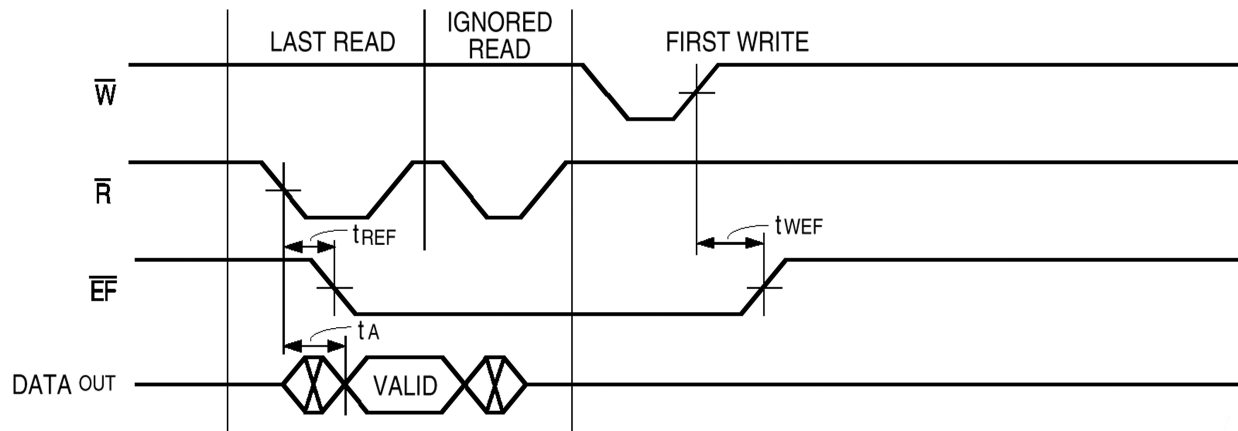
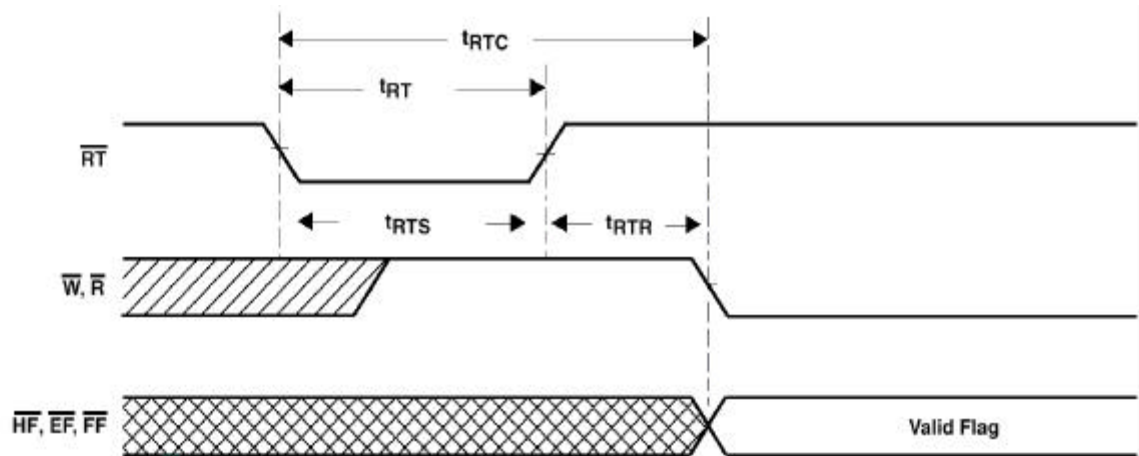


FIGURE 5. RETRANSMIT



NOTE A: The  $\overline{EF}$ ,  $\overline{FF}$ , and  $\overline{XO}/\overline{HF}$  status flags are valid after completion of the retransmit cycle.

FIGURE 6. EMPTY FLAG TIMING

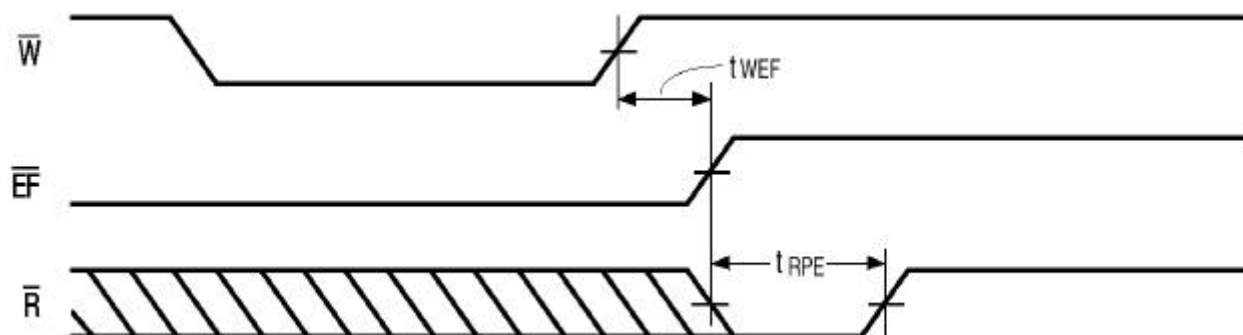


FIGURE 7. FULL FLAG TIMING

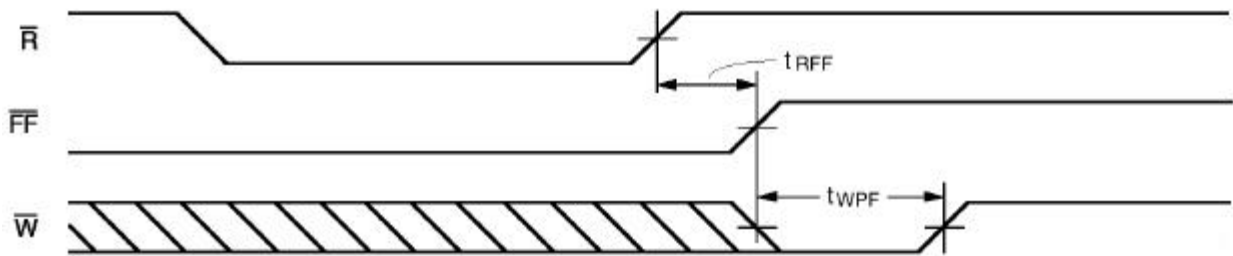


FIGURE 8. HALF-FULL FLAG TIMING



FIGURE 9. EXPANSION OUT

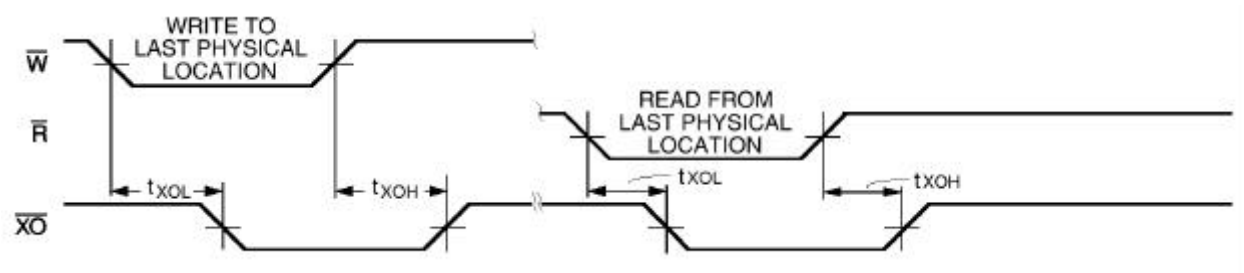


FIGURE 10. EXPANSION IN

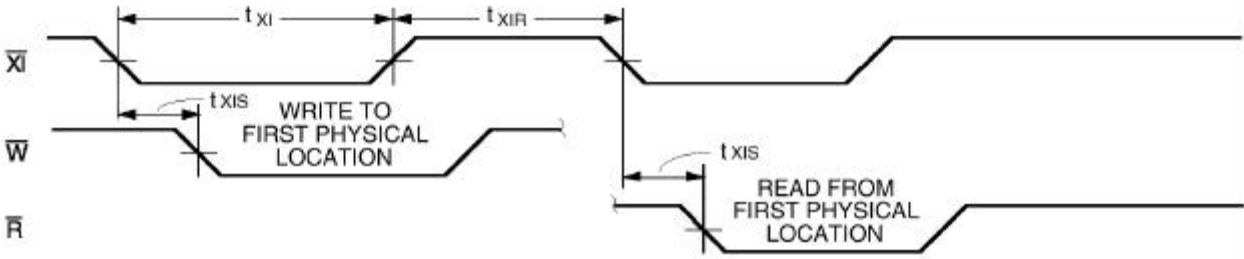


FIGURE 11. READ DATA FLOW FOR THROUGH MODE

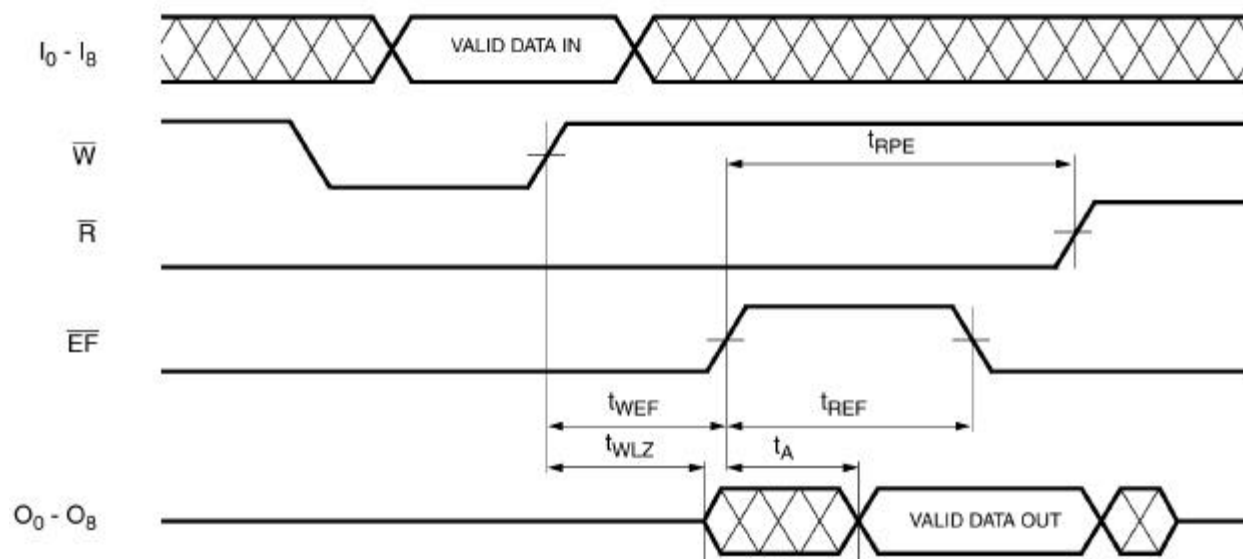


FIGURE 12. WRITE DATA FLOW FOR THROUGH MODE

